FINAL SUBMITTAL

VOLUME IV, APPENDIX I

ENERGY ENGINEERING ANALYSIS PROGRAM STUDY FORT LEONARD WOOD, MISSOURI

Prepared for

KANSAS CITY DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

DTIC QUALITY INSPECTED 2

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LIST OF ABBREVIATIONS

AC	-	air conditioning
ACC	-	anticipated contract cost
ACCU	-	air cooled condensing unit
ACM	-	asbestos containing material
ACU(s)	-	auxiliary control unit(s)
AHU	-	air handling unit
AI	-	analog input
AO	-	analog output
ASCII	-	American Standard Code for Information Interchange
ASHRAE	-	American Society of Heating, Refrigeration, and Air conditioning Engineers
B/C	-	benefit-to-cost ratio
BCD	-	binary coded decimal
BLDG	-	building
BEACON	-	Building Energy Simulation Program
Btu	-	British thermal units
Btuh	-	British thermal units per hour
B/W	-	black and white
C	-	Celsius
CCC	-	central communications controller
ccf	-	one hundred (100) cubic feet
CCU	-	central control unit
cf	-	cubic foot, cubic feet

cfm	-	cubic feet per minute
CLM	-	command line mnemonic
CLMI	-	command line mnemonic interpreter
COE	-	Corps of Engineers
COS	-	central operator station
CPU	-	central processing unit
CRT	-	cathode ray tube
CU(s)	-	control unit(s)
CWE	-	current working estimate
d	-	day(s)
DCP	-	duty cycle program
DEH	-	Directorate of Engineering and Housing
DHW	-	direct memory access
DI	-	digital input
DO	-	digital output
DOD	-	Department of Defense
DPW	-	Department of Public Works
DTM	-	data transmission media
DX	-	direct expansion
E/C	-	energy-to-cost ratio
ECIP	-	Energy Conservation Investment Program
ECO	-	energy conservation opportunity
EEAP	-	energy engineering analysis program
eff	-	efficiency

elec.	-	electricity
EMC	-	EMC Engineers, Inc.
EMCS	-	energy monitoring and control system
EMI	-	electromagnetic interference
ESCO	-	energy service company
F	-	Fahrenheit
FO	-	fiber optic(s)
ft	-	foot, feet
ft^2	-	square feet
FY	-	fiscal year
gal	-	gallon(s)
hp	-	horsepower
hr	-	hours(s)
H & V	-	heating and ventilating
HVAC	-	heating, ventilation, and air conditioning
in.	-	inch(es)
I/O	-	input/output
kBtu	-	one thousand British thermal units
kcf	-	one thousand cubic feet
klb	-	one thousand pounds
kva	-	kilovolt - ampere
kW	-	kilowatt, one thousand watts
kWh	-	kilowatt-hour, one thousand watt-hours
1b	-	pound(s)

LCCA	-	life cycle cost analysis
LED	-	light emitting diode
LPG	-	liquified petroleum gas
MAU	-	make-up air unit
MBtu	-	one million Btu
MCR	-	master control room
MHz	-	megahertz
Mh	-	man-hours(s)
mo	-	months(s)
MW	-	megawatt, one million watts
MWh	-	megawatt-hour, one million watt-hours
MZAHU	-	Multizone air handling unit
NA	-	Not active or Not applicable
NG	-	natural gas
NOAA	-	National Oceanic and Atmospheric Administration
no.	-	number
OA	-	outside air
O&M	-	operation and maintenance
PM	-	preventative maintenance
PROM	-	programmable read-only memory
psi(a)(g)	-	pounds per square inch (absolute) (gage)
RAM	-	random access memory
RCU(s)	-	remote control unit(s)
RTC	-	real-time clock

RTDOS/E	-	real-time disk operating system /executive
S&A	-	Supervision and Administration
scfm	-	sea-level cubic feet per minute
SES	-	shared energy savings
SIOH	-	supervision, inspection, and overhead
SIR	-	savings-to-investment ratio
SPW	-	single present worth
sq.ft.	-	square feet
st/sp	-	start/stop
stm	-	steam
SZAHU	-	single zone air handling unit
t	-	ton
temp	-	temperature
TRY	-	test reference year
UA	-	overall heat transfer coefficient (Btu/hr/ft^2/°F)
UCU(s)	-	unitary control unit(s)
UH	-	unit heater
UPW	-	uniform present worth
VAV	-	variable air volume
wk	-	week(s)
yr	-	year(s)

APPENDIX I

COMPUTER SIMULATIONS

INTRODUCTION

Appendix I contains Computer Energy Simulation Data for fifteen representative buildings at Ft. Leonard Wood. Each representative building contains the following data:

- Energy Constant Calculation sheets
- Building Heating Load Calculation sheet
- Building Internal Load Calculation sheets (People, Lights, and Equipment)
- Computer Energy Simulations from BEACON and TRACE energy computer programs

Sample computer simulation sheets on the following pages show how building energy use is extracted from the output reports of BEACON and TRACE.

SAMPLE BEACON COMPUTER SIMULATION

BEACON Energy Analysis By Energy Systems Engineers, Inc. 625.I

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	118.32	.00	3.32	8.23	1.24	22.94	12.6
FEB	93.14	.00	2.95	7.32	1.12	20.46	12.6
MAR	75.69	.07	3.26	8.08	1.24	22.60	20.5
APR	31.91	.78	3.14	7.77	1.20	21.77	23.5
MAY	4.71	1.85	3.32	8.23	1.24	22.94	26.4
JUN	.00	4.38	3.14	7.77	1.20	21.77	31.1
JUL	.00	6.22	3.26	8.08	1.24	22.60	33.0
AUG	.00	5.79	3.32	8.23	1.24	22.94	31.2
SEP	7.24	3.17	3.08	7.62	1.20	21.42	29.9
OCT	29.24	.63	3.32	8.23	1.24	22.94	25.6
NOV	62.66	.10	3.20	7.93	1.20	22.11	21.9
DEC	117.71	.00	3.20	7.93	1.24	22.25	12.6
YEAR	540.62	22.97	38.54	95.41	14.55	266.75	33.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 154544. BTU/(SQFT-YEAR)

Total Heating energy use for Oct. through April is 528.7 MBTUs. 528.7 MBTUs is entered into the Energy Constant Calculation Sheet under Heating (MBTU) - BASERUN.

Total Cooling energy use for May through September is 21,410 KWH. 21,410 KWH is entered into the Energy Constant Calculation Sheet under Cooling (KWH) - BASERUN.

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SAMPLE FROM TRACE COMPUTER SIMULATION

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,896	68	1,360	3
Feb	24,306	68	1,254	3
March	27,659	68	967	3
April	25,190	68	257	1
May	25,059	69	0	0
June	26,135	73	0	0
July	27,253	75	0	0
Aug	27,290	73	0	0
Sept	24,024	70	0	0
Oct	26,703	68	378	1
Nov	25,906	68	613	2
Dec	26,515	68	1,280	3
Total	312,936	75	6,109	3

Building Energy Consumption = 94,977 (Btu/Sq Ft/Year)
Source Energy Consumption = 217,655 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

Total gas use for Oct. through April

$6109 \text{ THERMS} \times \frac{100{,}000 \text{ BTUs}}{\text{THERM}} \times \frac{1 \text{ MBTU}}{1{,}000{,}000} = 610.9 \text{ MBTUs}$

610.9 MBTUs is entered into the Energy Constant Calculation sheet under Heating (MBtu) - BASERUN.

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

SAMPLE FROM TRACE COMPUTER SIMULATION

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	712	1253	1866	1384	805	0	0	0	6,019
	PK	0.0	0.0	0.0	0.0	5.3	6.9	8.1	6.9	5.6	0.0	0.0	0.0	8.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	96	172	252	188	108	0	0	0	816
	PK	0.0	0.0	0.0	0.0	0.8	1.0	1.1	0.9	0.8	0.0	0.0	0.0	1.1
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	114	125	195	158	99	0	0	0	691
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1783	2537	3091	2652	1854	0	0	0	11,917
	PK	0.0	0.0	0.0	0.0	8.9	10.8	12.0	10.8	9.3	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	228	341	413	355	239	0	0	0	1,576

Total energy use for chillers in this building is inside the marked box. Total KWh = 21,900
21,900 KWh is entered into the Energy Constant Calculation Sheet under Cooling (KWh).

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

SAMPLE FROM TRACE COMPUTER SIMULATION

	PK	0.0	0.0	0.0	0.0	1.3	1.5	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	150	169	223	195	144	0	0	0	881
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1360	1254	967	257	0	0	0	0	0	378	613	1280	6,109
	PK	3.4	3.2	2.6	0.9	0.0	0.0	0.0	0.0	0.0	1.2	1.7	2.8	3.4
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	1110	1003	1110	671	0	0	0	0	0	786	1074	1110	6,865
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

COMPUTER SIMULATIONS

BUILDING 625

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 625
BLDG. TYPE: BATTALION HQ

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	528.7	347.3	323.7	323.7	487.0	510.3
COOLING (kWH)	21410	15280	13780	13620	21110	20540

SUPPLY AIR FAN	9430 CFM
FLOOR AREA	5795 FT²
CFMI	435 CFM
UA	2216 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	700	1800	55 HR
SAT.	800	1600	8 HR
SUN.	800	1600	8 HR
	TOTAL OCCUPY HR.		71 HR/WK
	TOTAL UNOCC. HR.		97 HR/WK
	ANNUAL OCCUPY HR.		3702 HR/YR
	ANNUAL UNOCC. HR.		5058 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1846 HR/YR
HR. ON COOLING	1237 HR/YR
HR. OFF HEATING	2522 HR/YR
HR. OFF COOLING	1691 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 1846 = 2522 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 1237 = 1691 HR/YR

HOAUHC	528.7 MBtu –	487 MBtu	=	1.90E+01 Btu/CFM-HR
	435 CFM *	5058 HR/YR		
HOAUH	528.7 MBtu –	487 MBtu	=	3.80E+01 Btu/CFM-HR
	435 CFM *	2522 HR/YR		
COAUHC	21410 kWH –	21110 kWH	=	1.36E-04 kWH/CFM-HR
	435 CFM *	5058 HR/YR		
COAUC	21410 kWH –	21110 kWH	=	4.08E-04 kWH/CFM-HR
	435 CFM *	1691 HR/YR		
HOAOHC	528.7 MBtu –	510.3 MBtu	=	1.14E+01 Btu/CFM-HR
	435 CFM *	3702 HR/YR		
HOAOH	528.7 MBtu –	510.3 MBtu	=	2.29E+01 Btu/CFM-HR
	435 CFM *	1846 HR/YR		
COAOHC	21410 kWH	20540 kWH	=	5.40E-04 kWH/CFM-HR
	435 CFM *	3702 HR/YR		
COAOC	21410 kWH	20540 kWH	=	1.62E-03 kWH/CFM-HR
	435 CFM *	1237 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 625
BLDG. TYPE: BATTALION HQ

ENERGY CONSTANT CALCULATIONS

ECC	13780 kWH	– 13620 kWH	=	1.37E-05 kWH/CFM-HR
	9430 CFM	* 1237 HR/YR		
ECHC	13780 kWH	– 13620 kWH	=	4.58E-06 kWH/CFM-HR
	9430 CFM	* 3702 HR/YR		
NSUCHC	21410 kWH	– 15280 kWH	=	1.29E-04 kWH/CFM-HR
	9430 CFM	* 5058 HR/YR		
NSUCC	21410 kWH	– 15280 kWH	=	3.85E-04 kWH/CFM-HR
	9430 CFM	* 1691 HR/YR		
DDCCHC	15280 kWH	– 13780 kWH	=	4.30E-05 kWH/CFM-HR
	9430 CFM	* 3702 HR/YR		
DDCCC	15280 kWH	– 13780 kWH	=	1.29E-04 kWH/CFM-HR
	9430 CFM	* 1237 HR/YR		
NSC	528.7 MBtu	– 347.31 MBtu	=	8.19E+04 Btu/UA
	2216 UA			
DSC	347.31 MBtu	– 323.66 MBtu	=	1.07E+04 Btu/UA
	2216 UA			
OPT	(2 HR/DAY X 272 DAY/YR) – 294 HR/YR		=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR * 0.01		=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	01-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	625BHL

BUILDING HEATING LOAD CALCULATION SHEET

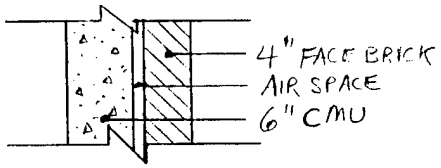
BLDG NO: 625 BLDG NAME: BATTALION HQ
BLDG FUNCTION: ADMINISTRATION AND CLASSROOMS
FLOOR AREA: (SQ. FT) 5,795 # FLOORS 1
SLAB PERIMETER: (FT) 312

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,303	1,135	587	981	4,006
GLASS	(SQ. FT)	180	135	105	90	510
PERSONNEL DOOR	(SQ. FT)	84	0	0	42	126
INSULATED PANEL	(SQ. FT)	117	68	58	234	477
WALLS, NET	(SQ. FT)	922	932	424	615	2,893
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	5,795
INSULATED PANEL	(SQ. FT)	477	PERSONNEL DOOR		(SQ. FT)	126
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

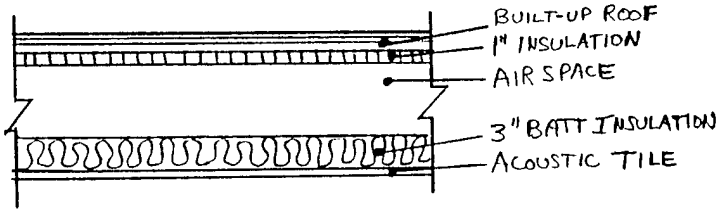
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	1" INSULATION	3.32
4.	AIR SPACE	0.91
5.	3" BATT INSULATION	11.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	18.20
	U=1/R	0.055

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.042	=	0
AVG. WALL H/M/L (SQ.FT.)	L 4006	X CFM / SQ.FT.	0.092	=	369
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR	20	X CFM /OPENING /HR	1.600	=	32
DOOR OPENINGS / HR - DOUBLE DOORS	25	X CFM /OPENING /HR	1.385	=	35
		TOTAL INFILTRATION (CFM)		=	435

UA PANEL	= PANEL AREA	477	X PANEL "U"	0.238	=	114
UA PDOOR	= PDOOR AREA	126	X DOOR "U"	0.391	=	49
UA WALL	= WALL AREA	2,893	X WALL "U"	0.245	=	709
UA ROOF	= ROOF AREA	5,795	X ROOF "U"	0.055	=	318
UA GLASS	= GLASS AREA	510	X GLASS "U"	0.621	=	317
UA SLAB	= SLAB PERIM.	312	X SLF	0.830	=	259
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	435	X A. T. F.	1.035	=	450
			TOTAL UA (BTU/HR°F)			2,216

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Feb-93
PREPARED BY: AJN
CHECKED BY: CEL
FILE: 625Z1
BLDG: 625 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	70	2	Seated very light work (writing)	Offices, hotels, apts	245	155	17,150	10,850
TOTAL	70					TOTAL	17,150	10,850

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	42	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	7,056
	35	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	2,940
	15	18	Incandescent – 60w	60	900
TOTAL	92			TOTAL	10,896

Peak Value for Internal Gains

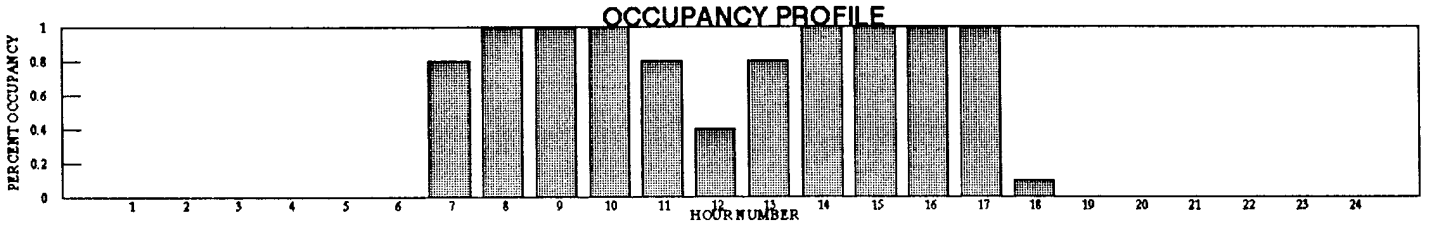
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	6	62	Television (Color, tube)	300	15%	1,800	6,143
	1	48	Paper Shredder	1,625	20%	1,625	5,546
	4	3	Microcomputer	350	91%	1,400	4,778
	2	12	Typewriter	100	10%	200	683
	2	24	Coffee Maker	1,500	30%	3,000	10,239
	1	10	Copiers (Large)	1,570	20%	1,570	5,358
	2		Overhead Projector	220	80%	440	1,502
			TOTAL		34%	10,035	34,249

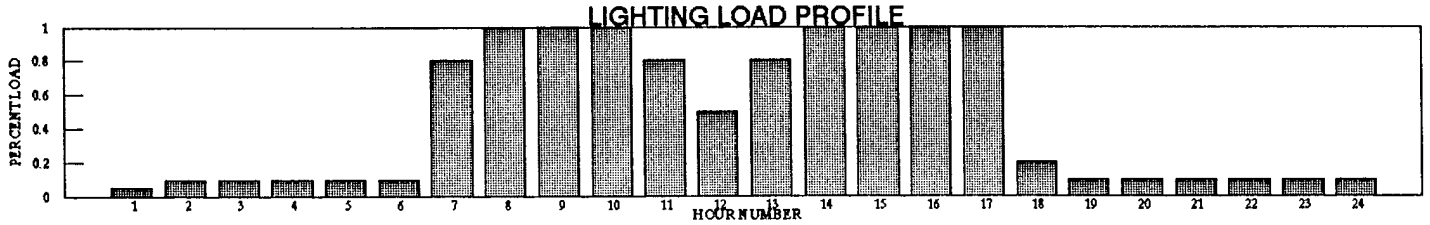
E M C Engineers, Inc.

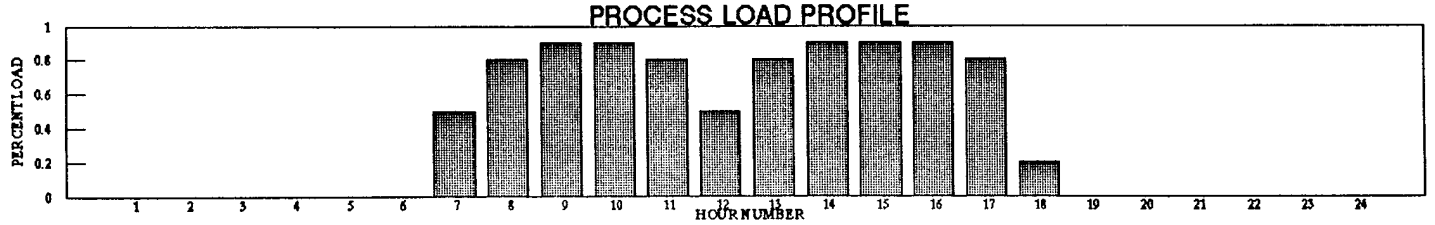
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Feb-93
PREPARED BY: AJN
CHECKED BY: CEL
FILE: 625Z1
BLDG: 625
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							0.8	1	1	1	0.8	0.4	0.8	1	1	1	1	0.1						
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.8	1	1	1	0.8	0.5	0.8	1	1	1	1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							0.5	0.8	0.9	0.9	0.8	0.5	0.8	0.9	0.9	0.9	0.8	0.2						







BLDG 625 - BATTALION HQ BASERUN

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 5.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 66521.000000
FLOOR AREA (SQFT) 5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 435.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.850	.850	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 288.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.200000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	70.0	76.0
2	.100	.000	.000	.000	70.0	76.0
3	.100	.000	.000	.000	70.0	76.0
4	.100	.000	.000	.000	70.0	76.0
5	.100	.000	.000	.000	70.0	76.0
6	.100	.000	.000	.000	70.0	76.0
7	.800	.500	.800	.800	70.0	76.0
8	1.000	.800	1.000	1.000	70.0	76.0
9	1.000	.900	1.000	1.000	70.0	76.0
10	1.000	.900	1.000	1.000	70.0	76.0
11	.800	.800	.800	.800	70.0	76.0
12	.500	.500	.400	.400	70.0	76.0

13	.800	.800	.800	.800	70.0	76.0
14	1.000	.900	1.000	1.000	70.0	76.0
15	1.000	.900	1.000	1.000	70.0	76.0
16	1.000	.900	1.000	1.000	70.0	76.0
17	1.000	.800	1.000	1.000	70.0	76.0
18	.200	.200	.100	.100	70.0	76.0
19	.100	.000	.000	.000	70.0	76.0
20	.100	.000	.000	.000	70.0	76.0
21	.100	.000	.000	.000	70.0	76.0
22	.100	.000	.000	.000	70.0	76.0
23	.100	.000	.000	.000	70.0	76.0
24	.100	.000	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 9430.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 625 - BATTALION HQ BASERUN

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.00	.00	.00	.00
	-85.77	LOSS		-9.28	-8.88	.00	-17.29	-7.06	-73.39	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.05	.00	.00	.00
	-66.66	LOSS		-7.65	-7.51	.00	-12.97	-6.00	-62.06	.00
MAR	.76	GAIN	11.47	.04	.00	.00	.75	.00	.00	.00
	-51.92	LOSS		-6.88	-6.97	.00	-10.42	-5.56	-56.21	.00
APR	9.41	GAIN	11.75	.31	.04	.00	2.35	.03	.28	1.72
	-19.95	LOSS		-4.11	-4.14	.00	-5.11	-3.30	-31.68	.00
MAY	23.74	GAIN	12.85	.75	.14	.00	4.40	.11	.88	6.49
	-2.55	LOSS		-2.58	-2.47	.00	-2.13	-1.90	-18.27	.00
JUN	58.86	GAIN	13.02	1.28	.40	.00	6.72	.32	2.63	25.37
	.00	LOSS		-1.46	-1.17	.00	-.61	-.90	-8.51	.00
JUL	83.40	GAIN	13.16	1.93	1.02	.00	9.03	.82	6.91	35.83
	.00	LOSS		-1.05	-.72	.00	-.29	-.56	-5.27	.00
AUG	77.61	GAIN	11.68	1.54	.77	.00	7.57	.60	4.99	35.59
	.00	LOSS		-1.15	-.79	.00	-.35	-.61	-5.17	.00
SEP	42.01	GAIN	9.84	.72	.39	.00	4.39	.32	2.76	19.62
	-3.86	LOSS		-2.27	-1.93	.00	-1.92	-1.52	-14.11	.00
OCT	7.77	GAIN	8.45	.13	.06	.00	1.31	.05	.40	2.52
	-17.33	LOSS		-4.38	-3.94	.00	-5.58	-3.06	-28.47	.00
NOV	1.16	GAIN	6.72	.00	.00	.00	.30	.00	.00	.36
	-41.24	LOSS		-6.18	-5.71	.00	-9.97	-4.45	-43.30	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.01	.00	.00	.00
	-83.93	LOSS		-9.21	-8.69	.00	-17.35	-6.84	-70.36	.00
TOT	305.	GAIN	121.	7.	3.	0.	37.	2.	19.	127.
	-373.	LOSS		-56.	-53.	0.	-84.	-42.	-417.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 18 HOUR 10 AMBIENT TEMP 6.
MAX COOLING LOAD= 283258. BTUH ON JUL 26 HOUR 17 AMBIENT TEMP 93.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ BASERUN

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	678	0	10	0	-.2720E+06	.0000
FEB	559	0	0	0	-.2488E+06	.0000
MAR	516	23	0	0	-.2503E+06	.9976E+05
APR	268	136	0	0	-.1588E+06	.1514E+06
MAY	48	301	0	0	-.1091E+06	.1944E+06
JUN	0	465	0	0	.0000	.2574E+06
JUL	0	587	0	0	.0000	.2833E+06
AUG	0	565	0	0	.0000	.2584E+06
SEP	77	344	0	0	-.1055E+06	.2445E+06
OCT	270	109	0	0	-.1482E+06	.1828E+06
NOV	475	27	0	0	-.2136E+06	.1250E+06
DEC	709	0	14	0	-.2720E+06	.0000
YEAR	3600	2557	24	0	-.2720E+06	.2833E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	118.32	.00	3.32	8.23	1.24	22.94	12.6
FEB	93.14	.00	2.95	7.32	1.12	20.46	12.6
MAR	75.69	.07	3.26	8.08	1.24	22.60	20.5
APR	31.91	.78	3.14	7.77	1.20	21.77	23.5
MAY	4.71	1.85	3.32	8.23	1.24	22.94	26.4
JUN	.00	4.38	3.14	7.77	1.20	21.77	31.1
JUL	.00	6.22	3.26	8.08	1.24	22.60	33.0
AUG	.00	5.79	3.32	8.23	1.24	22.94	31.2
SEP	7.24	3.17	3.08	7.62	1.20	21.42	29.9
OCT	29.24	.63	3.32	8.23	1.24	22.94	25.6
NOV	62.66	.10	3.20	7.93	1.20	22.11	21.9
DEC	117.71	.00	3.20	7.93	1.24	22.25	12.6
YEAR	540.62	22.97	38.54	95.41	14.55	266.75	33.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 154544. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ BASERUN

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2488E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.9976E+05	-.2503E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1514E+06	-.1588E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1944E+06	-.1091E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2574E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2833E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2584E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2445E+06	-.1055E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1828E+06	-.1482E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1250E+06	-.2136E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

BLDG 625 - BATTALION HQ BASERUN

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	76.		4	17	62.	3.32	8.23	4.22	22.94
			68.	27	6	4.				
FEB	70.	75.		13	17	64.	2.95	7.32	3.81	20.46
			69.	2	6	14.				
MAR	71.	77.		12	16	69.	3.26	8.08	4.22	22.60
			69.	4	6	15.				
APR	73.	78.		30	16	84.	3.14	7.77	4.08	21.77
			69.	9	6	30.				
MAY	75.	78.		15	15	80.	3.32	8.23	4.22	22.94
			69.	11	6	39.				
JUN	76.	78.		27	15	89.	3.14	7.77	4.08	21.77
			71.	17	6	57.				
JUL	77.	78.		3	15	90.	3.26	8.08	4.22	22.60
			72.	10	6	60.				
AUG	76.	78.		30	14	87.	3.32	8.23	4.22	22.94
			70.	25	7	55.				
SEP	75.	78.		11	15	86.	3.08	7.62	4.08	21.42
			69.	15	6	39.				
OCT	73.	78.		5	15	73.	3.32	8.23	4.22	22.94
			69.	28	6	33.				
NOV	71.	77.		8	16	75.	3.20	7.93	4.08	22.11
			69.	3	6	18.				
DEC	70.	73.		12	16	59.	3.20	7.93	4.22	22.25
			65.	18	6	0.				
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 5.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 66521.000000
FLOOR AREA (SQFT) 5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 435.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.850	.850	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 288.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.200000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
		PEOPLE	PEOPLE		
LIGHTS	PROCESS	SENSIBLE	LATENT	HEATING	COOLING

PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	55.0	90.0
2	.100	.000	.000	.000	55.0	90.0
3	.100	.000	.000	.000	55.0	90.0
4	.100	.000	.000	.000	55.0	90.0
5	.100	.000	.000	.000	55.0	90.0
6	.100	.000	.000	.000	55.0	90.0
7	.800	.500	.800	.800	55.0	90.0
8	1.000	.800	1.000	1.000	70.0	76.0
9	1.000	.900	1.000	1.000	70.0	76.0
10	1.000	.900	1.000	1.000	70.0	76.0
11	.800	.800	.800	.800	70.0	76.0
12	.500	.500	.400	.400	70.0	76.0
13	.800	.800	.800	.800	70.0	76.0
14	1.000	.900	1.000	1.000	70.0	76.0
15	1.000	.900	1.000	1.000	70.0	76.0
16	1.000	.900	1.000	1.000	70.0	76.0
17	1.000	.800	1.000	1.000	70.0	76.0
18	.200	.200	.100	.100	55.0	90.0
19	.100	.000	.000	.000	55.0	90.0
20	.100	.000	.000	.000	55.0	90.0
21	.100	.000	.000	.000	55.0	90.0
22	.100	.000	.000	.000	55.0	90.0
23	.100	.000	.000	.000	55.0	90.0
24	.100	.000	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 9430.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 625 - BATTALION HQ NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.00	.00	.00	.00
	-60.42	LOSS		-7.65	-7.14	.00	-13.07	-5.68	-57.41	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.12	.00	.00	.00
	-46.47	LOSS		-6.33	-6.10	.00	-9.61	-4.88	-49.14	.00
MAR	.57	GAIN	11.47	.05	.00	.00	.92	.00	.01	.00
	-34.86	LOSS		-5.79	-5.81	.00	-7.77	-4.64	-45.67	.00
APR	7.32	GAIN	11.75	.32	.05	.00	2.43	.04	.33	1.38
	-12.30	LOSS		-3.65	-3.66	.00	-3.98	-2.93	-27.48	.00
MAY	20.10	GAIN	12.85	.72	.13	.00	4.19	.10	.83	5.23
	-1.09	LOSS		-2.68	-2.60	.00	-2.26	-2.00	-18.39	.00
JUN	46.56	GAIN	13.02	1.20	.38	.00	6.11	.30	2.47	17.17
	.00	LOSS		-1.74	-1.53	.00	-.93	-1.17	-10.34	.00
JUL	58.04	GAIN	13.16	1.75	.88	.00	7.79	.70	5.99	17.92
	.00	LOSS		-1.47	-1.21	.00	-.59	-.94	-8.53	.00
AUG	54.70	GAIN	11.68	1.42	.71	.00	6.62	.55	4.60	18.42
	.00	LOSS		-1.53	-1.26	.00	-.69	-.97	-8.03	.00
SEP	31.14	GAIN	9.84	.68	.37	.00	4.06	.30	2.58	11.94
	-1.70	LOSS		-2.37	-2.05	.00	-1.95	-1.61	-14.54	.00
OCT	6.24	GAIN	8.45	.14	.07	.00	1.40	.06	.47	1.90
	-10.50	LOSS		-3.99	-3.51	.00	-4.63	-2.73	-24.97	.00
NOV	.95	GAIN	6.72	.00	.00	.00	.35	.00	.00	.28
	-27.26	LOSS		-5.26	-4.73	.00	-7.65	-3.69	-34.97	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.03	.00	.00	.00
	-59.50	LOSS		-7.57	-6.95	.00	-13.13	-5.47	-54.74	.00
TOT	226.	GAIN	121.	6.	3.	0.	34.	2.	17.	74.
	-254.	LOSS		-50.	-47.	0.	-66.	-37.	-354.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 31 HOUR 9 AMBIENT TEMP 38.
MAX COOLING LOAD= 334850. BTUH ON JUL 16 HOUR 8 AMBIENT TEMP 82.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	63.	75.		4	17	62.	3.32	8.23	4.22	22.94
			54.	29	6	13.				
FEB	64.	74.		13	17	64.	2.95	7.32	3.81	20.46
			54.	2	6	14.				
MAR	66.	78.		28	19	68.	3.26	8.08	4.22	22.60
			54.	4	6	15.				
APR	71.	80.		30	21	71.	3.14	7.77	4.08	21.77
			55.	9	6	30.				
MAY	75.	80.		29	22	68.	3.32	8.23	4.22	22.94
			61.	11	6	39.				
JUN	78.	82.		30	24	75.	3.14	7.77	4.08	21.77
			72.	17	6	57.				
JUL	79.	85.		16	3	80.	3.26	8.08	4.22	22.60
			73.	24	6	66.				
AUG	79.	82.		1	7	76.	3.32	8.23	4.22	22.94
			71.	25	7	55.				
SEP	76.	82.		2	24	76.	3.08	7.62	4.08	21.42
			62.	15	7	44.				
OCT	71.	79.		4	21	69.	3.32	8.23	4.22	22.94
			55.	28	8	38.				
NOV	67.	77.		8	16	75.	3.20	7.93	4.08	22.11
			54.	3	6	18.				
DEC	63.	72.		12	17	52.	3.20	7.93	4.22	22.25
			54.	18	6	0.				
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	425	0	93	0	-.2720E+06	.0000
FEB	328	0	72	0	-.2720E+06	.0000
MAR	266	11	49	0	-.2720E+06	.9391E+05
APR	108	81	22	0	-.2720E+06	.1518E+06
MAY	12	192	0	0	-.2424E+06	.1947E+06
JUN	0	269	0	0	.0000	.2869E+06
JUL	0	288	0	2	.0000	.3349E+06
AUG	0	283	0	0	.0000	.3240E+06
SEP	20	188	0	0	-.2265E+06	.3230E+06
OCT	96	66	13	0	-.2720E+06	.1829E+06
NOV	231	17	41	0	-.2720E+06	.1254E+06
DEC	426	0	93	0	-.2720E+06	.0000
YEAR	1912	1395	383	2	-.2720E+06	.3349E+06

SYSTEM TOTALS

	ENERGY CONSUMPTION					TOTAL INTERNAL	MAXIMUM
MONTH	HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	HEAT GAIN MILLION BTU	ELECTRIC DEMAND KW
JAN	82.23	.00	3.32	8.23	1.24	22.94	12.6
FEB	63.47	.00	2.95	7.32	1.12	20.46	12.6
MAR	48.38	.05	3.26	8.08	1.24	22.60	20.1
APR	17.73	.58	3.14	7.77	1.20	21.77	23.6
MAY	1.66	1.52	3.32	8.23	1.24	22.94	26.4
JUN	.00	3.37	3.14	7.77	1.20	21.77	33.3
JUL	.00	4.19	3.26	8.08	1.24	22.60	36.0
AUG	.00	3.94	3.32	8.23	1.24	22.94	35.5
SEP	2.63	2.26	3.08	7.62	1.20	21.42	35.5
OCT	15.30	.48	3.32	8.23	1.24	22.94	25.6
NOV	38.84	.08	3.20	7.93	1.20	22.11	21.9
DEC	81.36	.00	3.20	7.93	1.24	22.25	12.6
YEAR	351.60	16.47	38.54	95.41	14.55	266.75	36.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 118102. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2720E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.9391E+05	-.2720E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1518E+06	-.2720E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1947E+06	-.2424E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2869E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.3349E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.3240E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.3230E+06	-.2265E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1829E+06	-.2720E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1254E+06	-.2720E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

BLDG 625 - BATTALION HQ DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 5.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 66521.000000
FLOOR AREA (SQFT) 5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 435.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.850	.850	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 288.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.200000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	55.0	90.0
2	.100	.000	.000	.000	55.0	90.0
3	.100	.000	.000	.000	55.0	90.0
4	.100	.000	.000	.000	55.0	90.0
5	.100	.000	.000	.000	55.0	90.0
6	.100	.000	.000	.000	55.0	90.0
7	.800	.500	.800	.800	55.0	90.0
8	1.000	.800	1.000	1.000	68.0	78.0
9	1.000	.900	1.000	1.000	68.0	78.0
10	1.000	.900	1.000	1.000	68.0	78.0
11	.800	.800	.800	.800	68.0	78.0
12	.500	.500	.400	.400	68.0	78.0
13	.800	.800	.800	.800	68.0	78.0
14	1.000	.900	1.000	1.000	68.0	78.0
15	1.000	.900	1.000	1.000	68.0	78.0
16	1.000	.900	1.000	1.000	68.0	78.0
17	1.000	.800	1.000	1.000	68.0	78.0
18	.200	.200	.100	.100	55.0	90.0
19	.100	.000	.000	.000	55.0	90.0
20	.100	.000	.000	.000	55.0	90.0
21	.100	.000	.000	.000	55.0	90.0
22	.100	.000	.000	.000	55.0	90.0
23	.100	.000	.000	.000	55.0	90.0
24	.100	.000	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 9430.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 625 - BATTALION HQ DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.01	.00	.00	.00
	-57.15	LOSS		-7.43	-6.91	.00	-12.52	-5.50	-55.40	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.17	.00	.00	.00
	-43.37	LOSS		-6.11	-5.88	.00	-9.11	-4.70	-47.21	.00
MAR	.23	GAIN	11.47	.06	.00	.00	1.02	.00	.03	.00
	-31.42	LOSS		-5.59	-5.59	.00	-7.33	-4.46	-43.76	.00
APR	5.20	GAIN	11.75	.31	.03	.00	2.37	.03	.25	1.19
	-10.27	LOSS		-3.63	-3.64	.00	-3.88	-2.92	-27.19	.00
MAY	16.66	GAIN	12.85	.63	.07	.00	3.83	.06	.45	4.74
	-.59	LOSS		-2.82	-2.79	.00	-2.50	-2.15	-19.18	.00
JUN	42.09	GAIN	13.02	1.04	.25	.00	5.50	.20	1.61	16.74
	.00	LOSS		-1.92	-1.75	.00	-1.19	-1.35	-11.66	.00
JUL	53.12	GAIN	13.16	1.56	.70	.00	7.09	.56	4.73	17.34
	.00	LOSS		-1.64	-1.40	.00	-.80	-1.09	-9.65	.00
AUG	50.07	GAIN	11.68	1.25	.53	.00	5.93	.41	3.42	18.14
	.00	LOSS		-1.71	-1.45	.00	-.92	-1.12	-9.28	.00
SEP	27.39	GAIN	9.84	.60	.28	.00	3.71	.23	1.99	11.42
	-.88	LOSS		-2.50	-2.19	.00	-2.14	-1.72	-15.28	.00
OCT	4.49	GAIN	8.45	.13	.06	.00	1.40	.05	.39	1.39
	-8.04	LOSS		-3.91	-3.43	.00	-4.45	-2.67	-24.11	.00
NOV	.55	GAIN	6.72	.00	.00	.00	.39	.00	.01	.19
	-24.19	LOSS		-5.08	-4.53	.00	-7.21	-3.54	-33.24	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.05	.00	.01	.00
	-56.08	LOSS		-7.33	-6.70	.00	-12.54	-5.27	-52.63	.00
TOT	200.	GAIN	121.	6.	2.	0.	31.	2.	13.	71.
	-232.	LOSS		-50.	-46.	0.	-65.	-36.	-349.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 31 HOUR 9 AMBIENT TEMP 38.
MAX COOLING LOAD= 334850. BTUH ON JUL 16 HOUR 8 AMBIENT TEMP 82.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	62.	74.		4	17	62.	3.32	8.23	4.22	22.94
			54.	29	6	13.				
FEB	63.	73.		13	17	64.	2.95	7.32	3.81	20.46
			54.	2	6	14.				
MAR	65.	79.		12	17	64.	3.26	8.08	4.22	22.60
			54.	4	6	15.				
APR	71.	81.		30	21	71.	3.14	7.77	4.08	21.77
			55.	9	6	30.				
MAY	76.	82.		29	21	70.	3.32	8.23	4.22	22.94
			61.	11	6	39.				
JUN	79.	83.		30	23	75.	3.14	7.77	4.08	21.77
			73.	17	6	57.				
JUL	81.	86.		16	2	82.	3.26	8.08	4.22	22.60
			74.	24	6	66.				
AUG	80.	83.		12	23	76.	3.32	8.23	4.22	22.94
			72.	25	7	55.				
SEP	76.	83.		2	23	78.	3.08	7.62	4.08	21.42
			62.	15	7	44.				
OCT	71.	80.		4	20	72.	3.32	8.23	4.22	22.94
			55.	28	7	34.				
NOV	66.	79.		8	16	75.	3.20	7.93	4.08	22.11
			54.	3	6	18.				
DEC	62.	71.		12	17	52.	3.20	7.93	4.22	22.25
			54.	18	6	0.				
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	438	0	72	0	-.2720E+06	.0000
FEB	326	0	57	0	-.2720E+06	.0000
MAR	255	6	38	0	-.2720E+06	.6870E+05
APR	103	56	12	0	-.2720E+06	.1426E+06
MAY	9	163	0	0	-.1881E+06	.1864E+06
JUN	0	261	0	0	.0000	.2499E+06
JUL	0	280	0	1	.0000	.3349E+06
AUG	0	277	0	0	.0000	.2872E+06
SEP	13	168	0	0	-.1764E+06	.2833E+06
OCT	85	45	7	0	-.2720E+06	.1743E+06
NOV	224	6	31	0	-.2720E+06	.1127E+06
DEC	435	0	74	0	-.2720E+06	.0000
YEAR	1888	1262	291	1	-.2720E+06	.3349E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	79.07	.00	3.32	8.23	1.24	22.94	12.6
FEB	59.74	.00	2.95	7.32	1.12	20.46	12.6
MAR	44.08	.02	3.26	8.08	1.24	22.60	18.7
APR	15.37	.42	3.14	7.77	1.20	21.77	23.0
MAY	1.06	1.28	3.32	8.23	1.24	22.94	25.8
JUN	.00	3.06	3.14	7.77	1.20	21.77	30.5
JUL	.00	3.84	3.26	8.08	1.24	22.60	36.0
AUG	.00	3.61	3.32	8.23	1.24	22.94	33.3
SEP	1.49	1.99	3.08	7.62	1.20	21.42	33.0
OCT	12.24	.35	3.32	8.23	1.24	22.94	25.0
NOV	35.25	.04	3.20	7.93	1.20	22.11	21.2
DEC	77.93	.00	3.20	7.93	1.24	22.25	12.6
YEAR	326.21	14.62	38.54	95.41	14.55	266.75	36.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 112629. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2720E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.6870E+05	-.2720E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1426E+06	-.2720E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1864E+06	-.1881E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2499E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.3349E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2872E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2833E+06	-.1764E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1743E+06	-.2720E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1127E+06	-.2720E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

BLDG 625 - BATTALION HQ ECONOMIZER (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 5.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 66521.000000
FLOOR AREA (SQFT) 5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 435.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.850	.850	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 288.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.200000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	55.0	90.0
2	.100	.000	.000	.000	55.0	90.0
3	.100	.000	.000	.000	55.0	90.0
4	.100	.000	.000	.000	55.0	90.0
5	.100	.000	.000	.000	55.0	90.0
6	.100	.000	.000	.000	55.0	90.0
7	.800	.500	.800	.800	55.0	90.0
8	1.000	.800	1.000	1.000	68.0	78.0
9	1.000	.900	1.000	1.000	68.0	78.0
10	1.000	.900	1.000	1.000	68.0	78.0
11	.800	.800	.800	.800	68.0	78.0
12	.500	.500	.400	.400	68.0	78.0
13	.800	.800	.800	.800	68.0	78.0
14	1.000	.900	1.000	1.000	68.0	78.0
15	1.000	.900	1.000	1.000	68.0	78.0
16	1.000	.900	1.000	1.000	68.0	78.0
17	1.000	.800	1.000	1.000	68.0	78.0
18	.200	.200	.100	.100	55.0	90.0
19	.100	.000	.000	.000	55.0	90.0
20	.100	.000	.000	.000	55.0	90.0
21	.100	.000	.000	.000	55.0	90.0
22	.100	.000	.000	.000	55.0	90.0
23	.100	.000	.000	.000	55.0	90.0
24	.100	.000	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 9430.000000
ECONOMIZER HIGH TEMP LIMIT F 72.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 625 - BATTALION HQ ECONOMIZER (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.01	.00	.00	.00
	-57.15	LOSS		-7.43	-6.91	.00	-12.52	-5.50	-55.40	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.17	.00	.00	.00
	-43.37	LOSS		-6.11	-5.88	.00	-9.11	-4.70	-47.21	.00
MAR	.13	GAIN	11.47	.06	.00	.00	1.02	.00	.03	.00
	-31.42	LOSS		-5.59	-5.59	.00	-7.33	-4.46	-43.86	.00
APR	4.67	GAIN	11.75	.31	.03	.00	2.37	.03	.25	1.05
	-10.27	LOSS		-3.63	-3.64	.00	-3.88	-2.92	-27.59	.00
MAY	16.03	GAIN	12.85	.63	.07	.00	3.83	.06	.45	4.71
	-.59	LOSS		-2.82	-2.79	.00	-2.50	-2.15	-19.78	.00
JUN	42.14	GAIN	13.02	1.04	.25	.00	5.50	.20	1.61	17.61
	.00	LOSS		-1.92	-1.75	.00	-1.19	-1.35	-12.49	.00
JUL	52.98	GAIN	13.16	1.56	.70	.00	7.09	.56	4.73	17.57
	.00	LOSS		-1.64	-1.40	.00	-.80	-1.09	-10.03	.00
AUG	49.79	GAIN	11.68	1.25	.53	.00	5.93	.41	3.42	18.20
	.00	LOSS		-1.71	-1.45	.00	-.92	-1.12	-9.62	.00
SEP	26.52	GAIN	9.84	.60	.28	.00	3.71	.23	1.99	11.24
	-.88	LOSS		-2.50	-2.19	.00	-2.14	-1.72	-15.98	.00
OCT	4.62	GAIN	8.45	.13	.06	.00	1.40	.05	.39	1.67
	-8.04	LOSS		-3.91	-3.43	.00	-4.45	-2.67	-24.26	.00
NOV	.54	GAIN	6.72	.00	.00	.00	.39	.00	.01	.23
	-24.19	LOSS		-5.08	-4.53	.00	-7.21	-3.54	-33.29	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.05	.00	.01	.00
	-56.08	LOSS		-7.33	-6.70	.00	-12.54	-5.27	-52.63	.00
TOT	197.	GAIN	121.	6.	2.	0.	31.	2.	13.	72.
	-232.	LOSS		-50.	-46.	0.	-65.	-36.	-352.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 31 HOUR 9 AMBIENT TEMP 38.
MAX COOLING LOAD= 334850. BTUH ON SEP 12 HOUR 8 AMBIENT TEMP 72.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	62.	74.		4	17	62.	3.32	8.23	4.22	22.94
			54.	29	6	13.				
FEB	63.	73.		13	17	64.	2.95	7.32	3.81	20.46
			54.	2	6	14.				
MAR	65.	79.		12	17	64.	3.26	8.08	4.22	22.60
			54.	4	6	15.				
APR	71.	81.		30	21	71.	3.14	7.77	4.08	21.77
			55.	9	6	30.				
MAY	76.	82.		29	21	70.	3.32	8.23	4.22	22.94
			61.	11	6	39.				
JUN	79.	83.		30	23	75.	3.14	7.77	4.08	21.77
			73.	17	6	57.				
JUL	81.	86.		16	2	82.	3.26	8.08	4.22	22.60
			74.	24	6	66.				
AUG	80.	83.		12	23	76.	3.32	8.23	4.22	22.94
			72.	25	7	55.				
SEP	76.	83.		2	23	78.	3.08	7.62	4.08	21.42
			62.	15	7	44.				
OCT	71.	80.		4	20	72.	3.32	8.23	4.22	22.94
			55.	28	7	34.				
NOV	66.	79.		8	16	75.	3.20	7.93	4.08	22.11
			54.	3	6	18.				
DEC	62.	71.		12	17	52.	3.20	7.93	4.22	22.25
			54.	18	6	0.				
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	438	0	72	0	-.2720E+06	.0000
FEB	326	0	57	0	-.2720E+06	.0000
MAR	255	6	38	0	-.2720E+06	.6870E+05
APR	103	56	12	0	-.2720E+06	.1531E+06
MAY	9	163	0	0	-.1881E+06	.2531E+06
JUN	0	261	0	0	.0000	.3251E+06
JUL	0	280	0	2	.0000	.3349E+06
AUG	0	277	0	1	.0000	.3349E+06
SEP	13	168	0	1	-.1764E+06	.3349E+06
OCT	85	45	7	0	-.2720E+06	.2928E+06
NOV	224	6	31	0	-.2720E+06	.1127E+06
DEC	435	0	74	0	-.2720E+06	.0000
YEAR	1888	1262	291	4	-.2720E+06	.3349E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	79.07	.00	3.32	8.23	1.24	22.94	12.6
FEB	59.74	.00	2.95	7.32	1.12	20.46	12.6
MAR	44.08	.01	3.26	8.08	1.24	22.60	18.7
APR	15.37	.37	3.14	7.77	1.20	21.77	23.0
MAY	1.06	1.23	3.32	8.23	1.24	22.94	30.8
JUN	.00	3.05	3.14	7.77	1.20	21.77	34.4
JUL	.00	3.83	3.26	8.08	1.24	22.60	36.0
AUG	.00	3.59	3.32	8.23	1.24	22.94	36.0
SEP	1.49	1.92	3.08	7.62	1.20	21.42	36.0
OCT	12.24	.35	3.32	8.23	1.24	22.94	33.7
NOV	35.25	.04	3.20	7.93	1.20	22.11	21.2
DEC	77.93	.00	3.20	7.93	1.24	22.25	12.6
YEAR	326.21	14.40	38.54	95.41	14.55	266.75	36.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 112498. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ ECONOMIZER (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2720E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.6870E+05	-.2720E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1531E+06	-.2720E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.2531E+06	-.1881E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.3251E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.3349E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.3349E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.3349E+06	-.1764E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.2928E+06	-.2720E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1127E+06	-.2720E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

BLDG 625 - BATTALION HQ OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 5.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 66521.000000
FLOOR AREA (SQFT) 5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 435.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 288.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.200000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

	1	2	3	4
WALL NUMBER				
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	70.0	76.0
2	.100	.000	.000	.000	70.0	76.0
3	.100	.000	.000	.000	70.0	76.0
4	.100	.000	.000	.000	70.0	76.0
5	.100	.000	.000	.000	70.0	76.0
6	.100	.000	.000	.000	70.0	76.0
7	.800	.500	.800	.800	70.0	76.0
8	1.000	.800	1.000	1.000	70.0	76.0
9	1.000	.900	1.000	1.000	70.0	76.0
10	1.000	.900	1.000	1.000	70.0	76.0
11	.800	.800	.800	.800	70.0	76.0
12	.500	.500	.400	.400	70.0	76.0

13	.800	.800	.800	.800	70.0	76.0
14	1.000	.900	1.000	1.000	70.0	76.0
15	1.000	.900	1.000	1.000	70.0	76.0
16	1.000	.900	1.000	1.000	70.0	76.0
17	1.000	.800	1.000	1.000	70.0	76.0
18	.200	.200	.100	.100	70.0	76.0
19	.100	.000	.000	.000	70.0	76.0
20	.100	.000	.000	.000	70.0	76.0
21	.100	.000	.000	.000	70.0	76.0
22	.100	.000	.000	.000	70.0	76.0
23	.100	.000	.000	.000	70.0	76.0
24	.100	.000	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 9430.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 625 - BATTALION HQ OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.00	.00	.00	.00
	-78.60	LOSS		-9.29	-8.89	.00	-17.31	-7.07	-66.17	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.05	.00	.00	.00
	-60.65	LOSS		-7.66	-7.52	.00	-12.99	-6.00	-56.00	.00
MAR	.77	GAIN	11.47	.04	.00	.00	.74	.00	.00	.00
	-46.40	LOSS		-6.90	-6.99	.00	-10.45	-5.57	-50.59	.00
APR	9.64	GAIN	11.75	.31	.04	.00	2.32	.03	.27	1.68
	-17.15	LOSS		-4.14	-4.17	.00	-5.17	-3.33	-28.42	.00
MAY	24.35	GAIN	12.85	.75	.14	.00	4.36	.11	.83	6.43
	-1.85	LOSS		-2.62	-2.52	.00	-2.22	-1.94	-16.58	.00
JUN	58.23	GAIN	13.02	1.28	.40	.00	6.69	.32	2.53	24.10
	.00	LOSS		-1.48	-1.19	.00	-.64	-.91	-7.64	.00
JUL	80.66	GAIN	13.16	1.93	1.02	.00	9.02	.82	6.54	32.93
	.00	LOSS		-1.06	-.73	.00	-.31	-.57	-4.67	.00
AUG	75.26	GAIN	11.68	1.54	.77	.00	7.55	.60	4.72	32.87
	.00	LOSS		-1.17	-.81	.00	-.37	-.62	-4.47	.00
SEP	41.21	GAIN	9.84	.71	.39	.00	4.38	.32	2.66	18.51
	-2.83	LOSS		-2.29	-1.96	.00	-1.98	-1.54	-12.52	.00
OCT	8.06	GAIN	8.45	.13	.06	.00	1.29	.05	.40	2.58
	-14.58	LOSS		-4.42	-3.97	.00	-5.65	-3.09	-25.31	.00
NOV	1.21	GAIN	6.72	.00	.00	.00	.30	.00	.00	.38
	-36.71	LOSS		-6.20	-5.73	.00	-10.01	-4.47	-38.64	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.01	.00	.00	.00
	-76.91	LOSS		-9.22	-8.70	.00	-17.38	-6.85	-63.28	.00
TOT	299.	GAIN	121.	7.	3.	0.	37.	2.	18.	119.
	-336.	LOSS		-56.	-53.	0.	-84.	-42.	-374.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 280783. BTUH ON JUL 27 HOUR 15 AMBIENT TEMP 92.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	76.	69.	4 27	17 6	62. 4.	3.32	8.23	4.22	22.94
FEB	70.	75.	69.	13 2	17 6	64. 14.	2.95	7.32	3.81	20.46
MAR	71.	77.	69.	12 4	15 6	72. 15.	3.26	8.08	4.22	22.60
APR	73.	78.	69.	30 9	16 6	84. 30.	3.14	7.77	4.08	21.77
MAY	75.	78.	69.	15 11	15 6	80. 39.	3.32	8.23	4.22	22.94
JUN	76.	78.	72.	27 17	15 6	89. 57.	3.14	7.77	4.08	21.77
JUL	77.	78.	73.	3 10	15 6	90. 60.	3.26	8.08	4.22	22.60
AUG	77.	78.	71.	30 25	14 7	87. 55.	3.32	8.23	4.22	22.94
SEP	75.	78.	69.	11 15	15 6	86. 39.	3.08	7.62	4.08	21.42
OCT	73.	78.	69.	5 28	15 6	73. 33.	3.32	8.23	4.22	22.94
NOV	71.	77.	69.	8 3	16 6	75. 18.	3.20	7.93	4.08	22.11
DEC	70.	73.	68.	12 18	17 6	52. 0.	3.20	7.93	4.22	22.25
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	674	0	1	0	-.2720E+06	.0000
FEB	554	0	0	0	-.2257E+06	.0000
MAR	501	24	0	0	-.2277E+06	.9980E+05
APR	252	146	0	0	-.1425E+06	.1516E+06
MAY	38	321	0	0	-.9629E+05	.1945E+06
JUN	0	484	0	0	.0000	.2574E+06
JUL	0	601	0	0	.0000	.2808E+06
AUG	0	583	0	0	.0000	.2584E+06
SEP	66	353	0	0	-.9263E+05	.2445E+06
OCT	255	118	0	0	-.1323E+06	.1829E+06
NOV	461	31	0	0	-.1918E+06	.1254E+06
DEC	705	0	8	0	-.2720E+06	.0000
YEAR	3506	2661	9	0	-.2720E+06	.2808E+06

SYSTEM TOTALS

	ENERGY CONSUMPTION					TOTAL INTERNAL	MAXIMUM
MONTH	HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	HEAT GAIN MILLION BTU	ELECTRIC DEMAND KW
JAN	110.27	.00	3.32	8.23	1.24	22.94	12.6
FEB	86.34	.00	2.95	7.32	1.12	20.46	12.6
MAR	69.15	.07	3.26	8.08	1.24	22.60	20.5
APR	28.30	.80	3.14	7.77	1.20	21.77	23.5
MAY	3.55	1.90	3.32	8.23	1.24	22.94	26.4
JUN	.00	4.35	3.14	7.77	1.20	21.77	31.1
JUL	.00	6.06	3.26	8.08	1.24	22.60	32.8
AUG	.00	5.67	3.32	8.23	1.24	22.94	31.2
SEP	5.75	3.13	3.08	7.62	1.20	21.42	29.9
OCT	25.77	.65	3.32	8.23	1.24	22.94	25.6
NOV	57.32	.10	3.20	7.93	1.20	22.11	21.9
DEC	109.81	.00	3.20	7.93	1.24	22.25	12.6
YEAR	496.27	22.74	38.54	95.41	14.55	266.75	32.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 146758. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM NOT COOL	LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2257E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.9980E+05	-.2277E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1516E+06	-.1425E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1945E+06	-.9629E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2574E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2808E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2584E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2445E+06	-.9263E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1829E+06	-.1323E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1254E+06	-.1918E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

BLDG 625 - BATTALION HQ OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

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---------- PROGRAM CONTROL OPTIONS -----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)            1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)            0
WEEKEND INTERNAL GAINS FACTOR (WKEND)     5.000000E-01
LAST CASE FLAG (1=YES, 0=NO)  (LSTCS)             1
SKY CLEARNESS FACTOR (CLN)     9.700000E-01
NUMBER OF ZONES (NZ)            1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)            0
--------- SITE AND BUILDING DATA --------------
******REAL WEATHER FROM DISK*******
 FILE NAME MO
STATION 13995   YEAR 1955
SITE LATITUDE DEG (AL1)         37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)      1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)        56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)        20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)     6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)     3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)     2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)        70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)        70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)     9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)     0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)     66521.000000
FLOOR AREA (SQFT)      5795.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)    272020.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)   -334850.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)     57950.000000
CONSTANT INFILTRATION RATE CFM (CFMI)       435.000000
INFILTRATION PROFILE
 1.00       1.00       1.00       1.00       1.00       1.00       1.00       .000

 .000       .000       .000       .000       .000       .000       .000       .000

 1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00

A FACTOR IN INFILTRATION EQUATION (CINA)     3.920000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)     2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)     8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)     69132.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)     0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)       288.000000
PARTITION UA BTU/HR-F (GUA)     0.000000E+00
DOOR UA BTU/HR-F (DUA)        49.200000
WINDOW GLASS NUMBER (NG)            30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)     6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)     6.930472E-01
WINDOW SHADING FACTOR (SHD)     6.200000E-01
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	WALL DATA			
WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1000.0	849.0	1039.0	482.0
WINDOW AREA SQFT (AWND)	135.0	90.0	180.0	105.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	13.5	9.0	18.0	10.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.244	.244
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01829	.01829
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00281	.00281
N=3	.01017	.01008	.01012	.01012
N=4	.00498	.00494	.00496	.00496
N=5	.00037	.00036	.00036	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 5795.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.500000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.047014E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.106E-04 .156E-02 .582E-02 .287E-02 .212E-03 .106E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 3.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	11.	11645.	17150.	10850.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.000	.000	.000	70.0	76.0
2	.100	.000	.000	.000	70.0	76.0
3	.100	.000	.000	.000	70.0	76.0
4	.100	.000	.000	.000	70.0	76.0
5	.100	.000	.000	.000	70.0	76.0
6	.100	.000	.000	.000	70.0	76.0
7	.800	.500	.800	.800	70.0	76.0
8	1.000	.800	1.000	1.000	70.0	76.0
9	1.000	.900	1.000	1.000	70.0	76.0
10	1.000	.900	1.000	1.000	70.0	76.0
11	.800	.800	.800	.800	70.0	76.0
12	.500	.500	.400	.400	70.0	76.0

```
 13          .800       .800       .800       .800          70.0          76.0
 14         1.000       .900      1.000      1.000          70.0          76.0
 15         1.000       .900      1.000      1.000          70.0          76.0
 16         1.000       .900      1.000      1.000          70.0          76.0
 17         1.000       .800      1.000      1.000          70.0          76.0
 18          .200       .200       .100       .100          70.0          76.0
 19          .100       .000       .000       .000          70.0          76.0
 20          .100       .000       .000       .000          70.0          76.0
 21          .100       .000       .000       .000          70.0          76.0
 22          .100       .000       .000       .000          70.0          76.0
 23          .100       .000       .000       .000          70.0          76.0
 24          .100       .000       .000       .000          70.0          76.0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)       65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)       65.000000
SYSTEM TYPE, (IECN)            2
SUPPLY AIR CFM (SACFM)     9430.000000
ECONOMIZER HIGH TEMP LIMIT F        68.000000
SYSTEM SUPPLY AIR START TIME HR     0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR        24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)       55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)     1.000000E-01
FAN EFFICIENCY (EFAN)     5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)     8.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT)  274000.000000
HEATING PLANT RATED INPUT BTU (HFLIN)   342500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100       .191       .200       .286       .300       .369       .400       .451

 .500       .537       .600       .625       .700       .718       .800       .812

 .900       .906       1.00       1.00
CHILLER TYPE (ITYPCH)             4
COOLING PLANT RATED OUTPUT BTU (CFLOT)   360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN)    82936.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000
```

BLDG 625 - BATTALION HQ OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	7.16	.00	.00	.00	.00	.00	.00	.00
	-82.60	LOSS		-9.29	-8.89	.00	-17.31	-7.07	-70.18	.00
FEB	.00	GAIN	9.01	.00	.00	.00	.05	.00	.00	.00
	-64.09	LOSS		-7.67	-7.53	.00	-13.00	-6.01	-59.40	.00
MAR	.79	GAIN	11.47	.04	.00	.00	.74	.00	.00	.00
	-49.87	LOSS		-6.89	-6.99	.00	-10.45	-5.57	-54.05	.00
APR	9.43	GAIN	11.75	.31	.04	.00	2.33	.03	.24	1.58
	-19.34	LOSS		-4.12	-4.15	.00	-5.13	-3.31	-30.81	.00
MAY	22.93	GAIN	12.85	.75	.14	.00	4.40	.11	.74	5.78
	-2.60	LOSS		-2.58	-2.47	.00	-2.13	-1.90	-18.28	.00
JUN	55.84	GAIN	13.02	1.28	.40	.00	6.73	.32	2.22	22.80
	.00	LOSS		-1.46	-1.16	.00	-.60	-.89	-8.58	.00
JUL	80.36	GAIN	13.16	1.93	1.02	.00	9.03	.82	5.99	33.74
	.00	LOSS		-1.05	-.72	.00	-.29	-.56	-5.31	.00
AUG	74.31	GAIN	11.68	1.54	.77	.00	7.57	.60	4.28	33.03
	-.01	LOSS		-1.15	-.79	.00	-.35	-.61	-5.23	.00
SEP	39.80	GAIN	9.84	.71	.39	.00	4.39	.32	2.35	17.78
	-3.91	LOSS		-2.27	-1.94	.00	-1.93	-1.52	-14.11	.00
OCT	7.57	GAIN	8.45	.13	.06	.00	1.30	.05	.33	2.31
	-16.86	LOSS		-4.40	-3.96	.00	-5.61	-3.08	-27.82	.00
NOV	1.20	GAIN	6.72	.00	.00	.00	.30	.00	.00	.35
	-39.78	LOSS		-6.20	-5.72	.00	-9.99	-4.46	-41.72	.00
DEC	.00	GAIN	6.26	.00	.00	.00	.01	.00	.00	.00
	-80.85	LOSS		-9.21	-8.69	.00	-17.35	-6.84	-67.27	.00
TOT	292.	GAIN	121.	7.	3.	0.	37.	2.	16.	117.
	-360.	LOSS		-56.	-53.	0.	-84.	-42.	-403.	0.

MAX HEATING LOAD= -272020. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 282976. BTUH ON JUL 26 HOUR 17 AMBIENT TEMP 93.

ZONE UA BTU/HR-F 1506.6

BLDG 625 - BATTALION HQ OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	76.	67.	4 27	17 6	62. 4.	3.32	8.23	4.22	22.94
FEB	70.	75.	69.	13 2	17 6	64. 14.	2.95	7.32	3.81	20.46
MAR	71.	77.	69.	12 4	16 6	69. 15.	3.26	8.08	4.22	22.60
APR	73.	78.	69.	30 9	16 6	84. 30.	3.14	7.77	4.08	21.77
MAY	75.	78.	69.	15 11	15 6	80. 39.	3.32	8.23	4.22	22.94
JUN	76.	78.	71.	27 17	15 6	89. 57.	3.14	7.77	4.08	21.77
JUL	77.	78.	72.	3 10	15 6	90. 60.	3.26	8.08	4.22	22.60
AUG	76.	78.	70.	30 25	14 7	87. 55.	3.32	8.23	4.22	22.94
SEP	75.	78.	69.	11 15	15 6	86. 39.	3.08	7.62	4.08	21.42
OCT	73.	78.	69.	5 28	15 6	73. 33.	3.32	8.23	4.22	22.94
NOV	71.	77.	69.	8 3	16 6	75. 18.	3.20	7.93	4.08	22.11
DEC	70.	73.	65.	12 18	16 6	59. 0.	3.20	7.93	4.22	22.25
YEAR							38.54	95.41	49.64	266.75

BLDG 625 - BATTALION HQ OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
MONTH	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	668	1	10	0	-.2720E+06	.0000
FEB	547	0	0	0	-.2529E+06	.0000
MAR	492	23	0	0	-.2543E+06	.1004E+06
APR	253	140	0	0	-.1617E+06	.1465E+06
MAY	48	297	0	0	-.1113E+06	.1888E+06
JUN	0	463	0	0	.0000	.2462E+06
JUL	0	585	0	0	.0000	.2830E+06
AUG	1	564	0	0	-9340.	.2476E+06
SEP	75	345	0	0	-.1077E+06	.2385E+06
OCT	256	114	0	0	-.1510E+06	.1715E+06
NOV	457	32	0	0	-.2174E+06	.1210E+06
DEC	691	0	13	0	-.2720E+06	.0000
YEAR	3488	2564	23	0	-.2720E+06	.2830E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	114.68	.00	3.32	8.23	1.24	22.94	12.6
FEB	89.98	.00	2.95	7.32	1.12	20.46	12.6
MAR	72.59	.07	3.26	8.08	1.24	22.60	20.5
APR	30.64	.78	3.14	7.77	1.20	21.77	23.2
MAY	4.77	1.80	3.32	8.23	1.24	22.94	26.0
JUN	.00	4.17	3.14	7.77	1.20	21.77	30.3
JUL	.00	6.00	3.26	8.08	1.24	22.60	33.0
AUG	.07	5.56	3.32	8.23	1.24	22.94	30.4
SEP	7.21	3.01	3.08	7.62	1.20	21.42	29.7
OCT	28.21	.62	3.32	8.23	1.24	22.94	24.8
NOV	60.42	.10	3.20	7.93	1.20	22.11	21.7
DEC	113.74	.00	3.20	7.93	1.24	22.25	12.6
YEAR	522.31	22.12	38.54	95.41	14.55	266.75	33.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 150884. BTU/(SQFT-YEAR)

BLDG 625 - BATTALION HQ OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.2529E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1004E+06	-.2543E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1465E+06	-.1617E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1888E+06	-.1113E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2462E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2830E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2476E+06	-9340.
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2385E+06	-.1077E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1715E+06	-.1510E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1210E+06	-.2174E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2720E+06

COMPUTER SIMULATIONS

BUILDING 630

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 630Z1
BLDG. TYPE: MESS HALL (KITCHEN)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	1782.3	1654.1	1548.9		1743.9	1760.4
COOLING (kWH)						

SUPPLY AIR FAN	16500 CFM
FLOOR AREA	3801 FT²
CFMI	357 CFM
UA	1480 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	300	2000	85 HR
SAT.	300	2000	17 HR
SUN.	300	2000	17 HR
	TOTAL OCCUPY HR.		119 HR/WK
	TOTAL UNOCC. HR.		49 HR/WK
	ANNUAL OCCUPY HR.		6205 HR/YR
	ANNUAL UNOCC. HR.		2555 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	3094 HR/YR
HR. ON COOLING	2074 HR/YR
HR. OFF HEATING	1274 HR/YR
HR. OFF COOLING	854 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 3094 = 1274 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 2074 = 854 HR/YR

HOAUHC	1782.3 MBtu –	1743.9 MBtu	=	4.21E+01 Btu/CFM-HR
	357 CFM *	2555 HR/YR		
HOAUH	1782.3 MBtu –	1743.9 MBtu	=	8.44E+01 Btu/CFM-HR
	357 CFM *	1274 HR/YR		
COAUHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	357 CFM *	2555 HR/YR		
COAUC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	357 CFM *	854 HR/YR		
HOAOHC	1782.3 MBtu –	1760.4 MBtu	=	9.89E+00 Btu/CFM-HR
	357 CFM *	6205 HR/YR		
HOAOH	1782.3 MBtu –	1760.4 MBtu	=	1.98E+01 Btu/CFM-HR
	357 CFM *	3094 HR/YR		
COAOHC	0 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	357 CFM *	6205 HR/YR		
COAOC	0 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	357 CFM *	2074 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER ● ATLANTA ● GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 630Z1
BLDG. TYPE: MESS HALL (KITCHEN)

ENERGY CONSTANT CALCULATIONS

ECC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	2074 HR/YR	
ECHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	6205 HR/YR	
NSUCHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	2555 HR/YR	
NSUCC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	854 HR/YR	
DDCCHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	6205 HR/YR	
DDCCC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	16500 CFM	*	2074 HR/YR	
NSC	1782.3 MBtu	–	1654.1 MBtu	= 8.66E+04 Btu/UA
	1480 UA			
DSC	1654.1 MBtu	–	1548.9 MBtu	= 7.11E+04 Btu/UA
	1480 UA			
OPT	(2 HR/DAY X 272 DAY/YR)	–	294 HR/YR	= 250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			= 13.9 kWH/TON
OAR	506 HR/YR	*	0.01	= 5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE: 02-Feb-93
BY: BHS
JOB: 3204.000
CHK:
FILE: 630Z1BHL

BUILDING HEATING LOAD CALCULATION SHEET

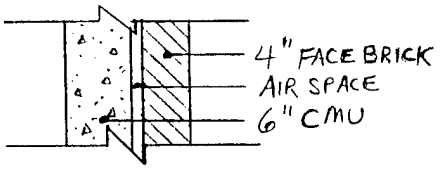
BLDG NO: 630 BLDG NAME: MESS HALL - ZONE 1
BLDG FUNCTION: KITCHEN AREA
FLOOR AREA: (SQ. FT) 3,801 # FLOORS 1
SLAB PERIMETER: (FT) 159

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	1,530	666	666	2,862
GLASS	(SQ. FT)	0	127	35	28	190
PERSONNEL DOOR	(SQ. FT)	0	42	21	42	105
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	1,361	610	596	2,567
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	3,801
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	105
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

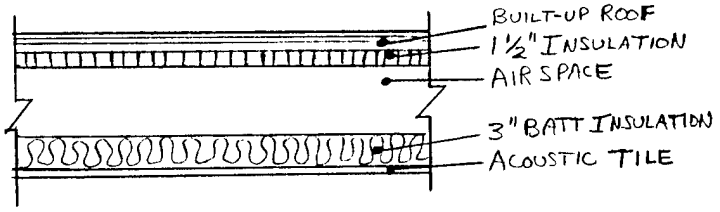
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	1.5" INSULATION	4.98
4.	CEILING AIR SPACE	1.00
5.	3" INSULATION	11.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	19.95
	U=1/R	0.050

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	2862	X CFM / SQ.FT.	0.115	=	329
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM / OPENING / HF	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		20	X CFM / OPENING / HF	1.385	=	28
			TOTAL INFILTRATION (CFM)		=	357

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	105	X DOOR "U"	0.391	=	41
UA WALL	= WALL AREA	2,567	X WALL "U"	0.245	=	629
UA ROOF	= ROOF AREA	3,801	X ROOF "U"	0.050	=	191
UA GLASS	= GLASS AREA	190	X GLASS "U"	0.621	=	118
UA SLAB	= SLAB PERIM.	159	X SLF	0.830	=	132
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	357	X A. T. F.	1.035	=	369
			TOTAL UA (BTU/HR°F)			1,480

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 630Z1
BLDG: 630 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	20	5	Standing, light work, or walking slowly	Retail store, bank	270	220	5,400	4,400
TOTAL	20					TOTAL	5,400	4,400

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	23	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	3,864
	16	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,344
TOTAL	39			TOTAL	5,208

Peak Value for Internal Gains

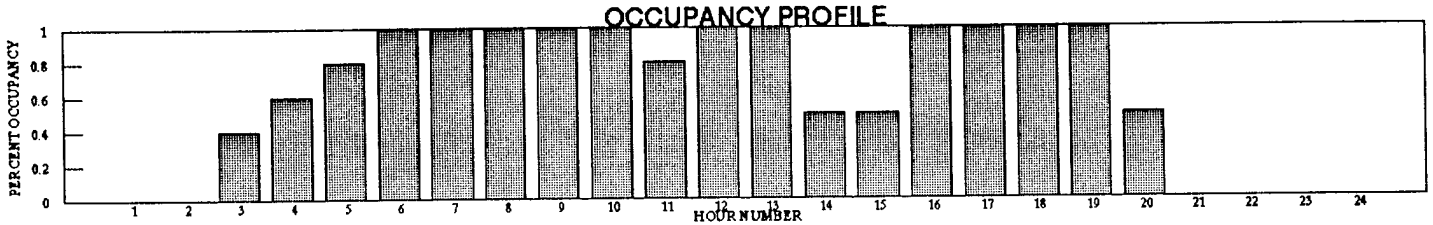
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	3	89	Refrigerator (large), per 100 cu.ft. of space	220	40%	660	2,253
	6	99	Range (burners), per 2 burner section	2,101		12,606	43,024
	4	95	Fryer (deep fat), per lb. of fat capacity	372		1,488	5,079
	2	83	Freezer (large)	1,340	40%	2,680	9,147
	1	115	Steam Kettle, per quart capacity	146	13%	146	498
	5	88	Mixer (large), per quart of capacity	28	100%	140	478
	2	97	Oven (large convection), per cu.ft. of oven space	1,304		2,608	8,901
	1	73	Blender,per quart of capacity	454	98%	454	1,550
	2	114	Dishwasher (conveyor water sanitizing), per 100 dish/hr.	346	44%	692	2,362
	2	87	Microwave oven (Heavy duty commercial)	2,628	100%	5,256	17,939
				TOTAL	28%	26,730	91,229

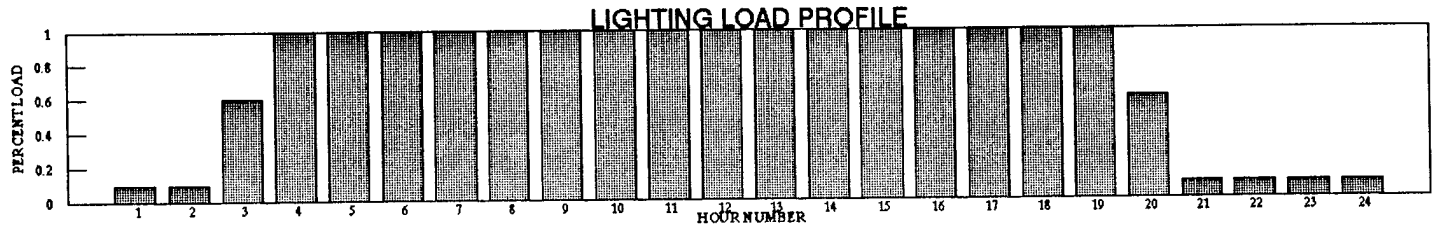
E M C Engineers, Inc.

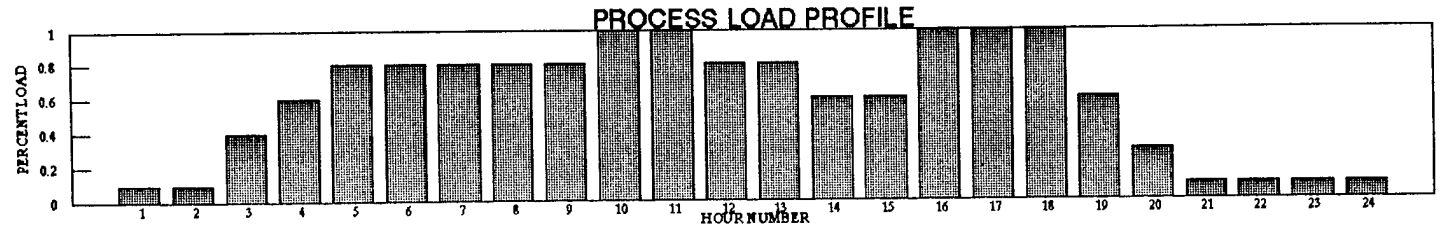
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 630Z1
BLDG: 630
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Mess Hall	OCCUPANCY			0.4	0.6	0.8	1	1	1	1	1	0.8	1	1	0.5	0.5	1	1	1	1	0.5				
		LIGHTING	0.1	0.1	0.6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.6	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.4	0.6	0.8	0.8	0.8	0.8	0.8	1	1	0.8	0.8	0.6	0.6	1	1	1	0.6	0.3	0.1	0.1	0.1	0.1







BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 40515.000000
FLOOR AREA (SQFT) 3801.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1128650.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 76020.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 357.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 5.290000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 24800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 159.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 41.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1361.0	596.0	.0	610.0
WINDOW AREA SQFT (AWND)	127.0	28.0	.0	35.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	12.7	2.8	.0	3.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3801.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 2.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	5.	25544.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	60.0	.0
2	.100	.100	.000	.000	60.0	.0
3	.600	.400	.400	.400	60.0	.0
4	1.000	.600	.600	.600	60.0	.0
5	1.000	.800	.800	.800	60.0	.0
6	1.000	.800	1.000	1.000	60.0	.0
7	1.000	.800	1.000	1.000	60.0	.0
8	1.000	.800	1.000	1.000	60.0	.0
9	1.000	.800	1.000	1.000	60.0	.0
10	1.000	1.000	1.000	1.000	60.0	.0
11	1.000	1.000	.800	.800	60.0	.0
12	1.000	.800	1.000	1.000	60.0	.0

13	1.000	.800	1.000	1.000	60.0	.0
14	1.000	.600	.500	.500	60.0	.0
15	1.000	.600	.500	.500	60.0	.0
16	1.000	1.000	1.000	1.000	60.0	.0
17	1.000	1.000	1.000	1.000	60.0	.0
18	1.000	1.000	1.000	1.000	60.0	.0
19	1.000	.600	1.000	1.000	60.0	.0
20	.600	.300	.500	.500	60.0	.0
21	.100	.100	.000	.000	60.0	.0
22	.100	.100	.000	.000	60.0	.0
23	.100	.100	.000	.000	60.0	.0
24	.100	.100	.000	.000	60.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 16500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 1.000000
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1128650.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1410813.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-244.	LOSS		-4.	-4.	0.	-8.	-2.	-262.	0.
FEB	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-201.	LOSS		-3.	-3.	0.	-6.	-2.	-219.	0.
MAR	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-177.	LOSS		-3.	-3.	0.	-5.	-2.	-202.	0.
APR	.00	GAIN	4.34	.27	.01	.00	2.67	.01	.88	.00
	-60.00	LOSS		-1.85	-1.73	.00	-2.20	-.87	-90.68	.00
MAY	.00	GAIN	4.70	.40	.02	.00	3.69	.01	1.27	.00
	-14.80	LOSS		-1.25	-1.14	.00	-.98	-.55	-51.07	.00
JUN	.00	GAIN	4.70	.45	.01	.00	3.83	.01	.99	.00
	-.11	LOSS		-1.12	-1.06	.00	-.85	-.52	-34.84	.00
JUL	.00	GAIN	4.77	.50	.01	.00	3.86	.01	1.21	.00
	-.01	LOSS		-1.19	-1.11	.00	-1.03	-.55	-37.00	.00
AUG	.00	GAIN	4.34	.43	.01	.00	3.66	.01	.97	.00
	.00	LOSS		-1.13	-.99	.00	-.79	-.48	-36.54	.00
SEP	.00	GAIN	3.90	.24	.02	.00	2.87	.01	1.50	.00
	-12.52	LOSS		-1.45	-1.22	.00	-1.24	-.60	-45.20	.00
OCT	.00	GAIN	3.60	.11	.01	.00	1.94	.00	.73	.00
	-55.30	LOSS		-1.93	-1.54	.00	-2.22	-.75	-86.00	.00
NOV	0.	GAIN	3.	0.	0.	0.	1.	0.	0.	0.
	-126.	LOSS		-3.	-2.	0.	-4.	-1.	-150.	0.
DEC	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-273.	LOSS		-4.	-4.	0.	-9.	-2.	-287.	0.
TOT	0.	GAIN	48.	3.	0.	0.	26.	0.	8.	0.
	-1164.	LOSS		-28.	-25.	0.	-41.	-12.	-1501.	0.

MAX HEATING LOAD= -1128650. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 977.8

BEACON Energy Analysis By Energy Systems Engineers, Inc. 630A.I

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	68.		4	13	64.	2.87	40.44	8.39	32.05
			59.	29	2	9.				
FEB	61.	75.		17	18	44.	2.60	36.53	6.98	28.35
			59.	2	2	15.				
MAR	63.	85.		11	18	63.	2.87	40.44	7.14	30.80
			59.	14	2	21.				
APR	68.	93.		7	19	65.	2.78	39.14	6.38	29.28
			60.	9	2	33.				
MAY	73.	102.		27	19	76.	2.87	40.44	6.67	30.33
			60.	11	2	39.				
JUN	80.	104.		30	19	82.	2.78	39.14	6.06	28.95
			60.	19	2	57.				
JUL	85.	114.		15	19	87.	2.87	40.44	6.35	30.01
			60.	10	5	57.				
AUG	83.	109.		12	19	84.	2.87	40.44	6.63	30.29
			62.	24	24	59.				
SEP	77.	110.		2	19	83.	2.78	39.14	5.83	28.73
			60.	26	2	45.				
OCT	67.	92.		14	19	71.	2.87	40.44	6.81	30.47
			60.	11	1	36.				
NOV	64.	83.		17	19	59.	2.78	39.14	6.90	29.80
			59.	2	24	20.				
DEC	61.	78.		23	19	54.	2.87	40.44	6.90	30.56
			53.	18	7	-1.				
YEAR							33.84	476.17	81.04	359.62

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	659	0	0	0	-.1077E+07	.0000
FEB	549	0	0	0	-.9416E+06	.0000
MAR	533	0	0	0	-.8468E+06	.0000
APR	276	0	0	0	-.5748E+06	.0000
MAY	119	0	0	0	-.4008E+06	.0000
JUN	6	0	0	0	-.4727E+05	.0000
JUL	1	0	0	0	-9145.	.0000
AUG	0	0	0	0	.0000	.0000
SEP	110	0	0	0	-.2719E+06	.0000
OCT	323	0	0	0	-.4969E+06	.0000
NOV	425	0	0	0	-.8096E+06	.0000
DEC	570	0	12	0	-.1129E+07	.0000
YEAR	3571	0	12	0	-.1129E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	376.26	.00	2.87	40.44	2.46	32.05	8.7
FEB	307.47	.00	2.60	36.53	2.05	28.35	8.7
MAR	278.64	.00	2.87	40.44	2.09	30.80	8.7
APR	110.41	.00	2.78	39.14	1.87	29.28	8.7
MAY	38.36	.00	2.87	40.44	1.95	30.33	8.7
JUN	1.61	.00	2.78	39.14	1.77	28.95	8.7
JUL	.27	.00	2.87	40.44	1.86	30.01	8.7
AUG	.00	.00	2.87	40.44	1.94	30.29	8.7
SEP	32.80	.00	2.78	39.14	1.71	28.73	8.7
OCT	116.05	.00	2.87	40.44	2.00	30.47	8.7
NOV	207.40	.00	2.78	39.14	2.02	29.80	8.7
DEC	386.02	.00	2.87	40.44	2.02	30.56	8.7
YEAR	1855.29	.00	33.84	476.17	23.75	359.62	8.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 665084. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1077E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.9416E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.8468E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5748E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.4008E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.4727E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-9145.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2719E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4969E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.8096E+06
DEC	856.	586.	1.000	35.	0.	0.	0	12	.0000	-.1129E+07

BLDG 630 - MESS HALL KITCHEN ZONE 1 NIGHT SETBACK (FT LEONARD WOOD)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 2
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 40515.000000
FLOOR AREA (SQFT) 3801.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1128650.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 76020.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 357.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 5.290000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 24800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 159.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 41.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1361.0	596.0	.0	610.0
WINDOW AREA SQFT (AWND)	127.0	28.0	.0	35.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	12.7	2.8	.0	3.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3801.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)

.136E-02	.140E-01	.848E-02	.380E-03	543.	543.

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-.600	.822E-01	-.300E-03	999.	999.

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 2.800000E-01
WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	60.0	60.0	60.0	60.0	60.0
60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
60.0	60.0	60.0	60.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	5.	25544.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	.0
2	.100	.100	.000	.000	55.0	.0
3	.600	.400	.400	.400	55.0	.0
4	1.000	.600	.600	.600	60.0	.0
5	1.000	.800	.800	.800	60.0	.0

6	1.000	.800	1.000	1.000	60.0	.0
7	1.000	.800	1.000	1.000	60.0	.0
8	1.000	.800	1.000	1.000	60.0	.0
9	1.000	.800	1.000	1.000	60.0	.0
10	1.000	1.000	1.000	1.000	60.0	.0
11	1.000	1.000	.800	.800	60.0	.0
12	1.000	.800	1.000	1.000	60.0	.0
13	1.000	.800	1.000	1.000	60.0	.0
14	1.000	.600	.500	.500	60.0	.0
15	1.000	.600	.500	.500	60.0	.0
16	1.000	1.000	1.000	1.000	60.0	.0
17	1.000	1.000	1.000	1.000	60.0	.0
18	1.000	1.000	1.000	1.000	60.0	.0
19	1.000	.600	1.000	1.000	60.0	.0
20	.600	.300	.500	.500	60.0	.0
21	.100	.100	.000	.000	55.0	.0
22	.100	.100	.000	.000	55.0	.0
23	.100	.100	.000	.000	55.0	.0
24	.100	.100	.000	.000	55.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 16500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 1.000000
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1128650.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1410813.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 630 - MESS HALL KITCHEN ZONE 1 NIGHT SETBACK (FT LEONARD WOOD)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-228.	LOSS		-4.	-4.	0.	-8.	-2.	-247.	0.
FEB	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-187.	LOSS		-3.	-3.	0.	-6.	-2.	-206.	0.
MAR	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-162.	LOSS		-3.	-3.	0.	-4.	-1.	-188.	0.
APR	.00	GAIN	4.34	.27	.01	.00	2.74	.01	.91	.00
	-52.77	LOSS		-1.76	-1.64	.00	-1.99	-.82	-83.87	.00
MAY	.00	GAIN	4.70	.40	.02	.00	3.74	.01	1.27	.00
	-10.79	LOSS		-1.20	-1.10	.00	-.90	-.53	-47.31	.00
JUN	.00	GAIN	4.70	.45	.01	.00	3.83	.01	.99	.00
	.00	LOSS		-1.12	-1.06	.00	-.85	-.51	-34.74	.00
JUL	.00	GAIN	4.77	.50	.01	.00	3.86	.01	1.21	.00
	-.01	LOSS		-1.19	-1.11	.00	-1.03	-.55	-37.00	.00
AUG	.00	GAIN	4.34	.43	.01	.00	3.66	.01	.97	.00
	.00	LOSS		-1.13	-.99	.00	-.79	-.48	-36.54	.00
SEP	.00	GAIN	3.90	.24	.02	.00	2.95	.01	1.49	.00
	-7.95	LOSS		-1.40	-1.16	.00	-1.14	-.58	-40.94	.00
OCT	.00	GAIN	3.60	.11	.01	.00	2.01	.00	.77	.00
	-45.36	LOSS		-1.82	-1.43	.00	-1.96	-.69	-76.83	.00
NOV	0.	GAIN	3.	0.	0.	0.	1.	0.	0.	0.
	-114.	LOSS		-3.	-2.	0.	-4.	-1.	-139.	0.
DEC	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-258.	LOSS		-4.	-4.	0.	-8.	-2.	-273.	0.
TOT	0.	GAIN	48.	3.	0.	0.	26.	0.	8.	0.
	-1066.	LOSS		-27.	-24.	0.	-38.	-12.	-1409.	0.

MAX HEATING LOAD= -1128650. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 977.8

BLDG 630 - MESS HALL KITCHEN ZONE 1 NIGHT SETBACK (FT LEONARD WOOD)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	59.	68.		4	13	64.	2.87	40.44	8.21	31.87
			54.	29	2	9.				
FEB	60.	75.		17	18	44.	2.60	36.53	6.86	28.23
			54.	2	2	15.				
MAR	62.	85.		11	18	63.	2.87	40.44	7.13	30.79
			54.	14	2	21.				
APR	67.	93.		7	19	65.	2.78	39.14	6.33	29.23
			55.	11	2	33.				
MAY	73.	102.		27	19	76.	2.87	40.44	6.68	30.34
			55.	11	2	39.				
JUN	80.	104.		30	19	82.	2.78	39.14	6.06	28.95
			59.	19	2	57.				
JUL	85.	114.		15	19	87.	2.87	40.44	6.35	30.01
			60.	10	5	57.				
AUG	83.	109.		12	19	84.	2.87	40.44	6.63	30.29
			62.	24	24	59.				
SEP	76.	110.		2	19	83.	2.78	39.14	5.83	28.73
			55.	26	2	45.				
OCT	67.	92.		14	19	71.	2.87	40.44	6.81	30.47
			55.	11	1	36.				
NOV	63.	83.		17	19	59.	2.78	39.14	6.77	29.66
			55.	2	24	20.				
DEC	60.	78.		23	19	54.	2.87	40.44	6.79	30.45
			53.	18	7	-1.				
YEAR							33.84	476.17	80.45	359.03

BLDG 630 - MESS HALL KITCHEN ZONE 1 NIGHT SETBACK (FT LEONARD WOOD)

	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
MONTH	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	631	0	0	0	-.1002E+07	.0000
FEB	535	0	0	0	-.9449E+06	.0000
MAR	523	0	0	0	-.8501E+06	.0000
APR	244	0	0	0	-.5946E+06	.0000
MAY	98	0	0	0	-.3835E+06	.0000
JUN	1	0	0	0	-120.6	.0000
JUL	1	0	0	0	-9145.	.0000
AUG	0	0	0	0	.0000	.0000
SEP	91	0	0	0	-.2810E+06	.0000
OCT	296	0	0	0	-.4872E+06	.0000
NOV	388	0	0	0	-.7357E+06	.0000
DEC	560	0	6	0	-.1129E+07	.0000
YEAR	3368	0	6	0	-.1129E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	351.68	.00	2.87	40.44	2.41	31.87	8.7
FEB	289.80	.00	2.60	36.53	2.01	28.23	8.7
MAR	259.78	.00	2.87	40.44	2.09	30.79	8.7
APR	97.68	.00	2.78	39.14	1.86	29.23	8.7
MAY	29.71	.00	2.87	40.44	1.96	30.34	8.7
JUN	.27	.00	2.78	39.14	1.77	28.95	8.7
JUL	.27	.00	2.87	40.44	1.86	30.01	8.7
AUG	.00	.00	2.87	40.44	1.94	30.29	8.7
SEP	26.35	.00	2.78	39.14	1.71	28.73	8.7
OCT	100.74	.00	2.87	40.44	2.00	30.47	8.7
NOV	187.14	.00	2.78	39.14	1.98	29.66	8.7
DEC	367.33	.00	2.87	40.44	1.99	30.45	8.7
YEAR	1710.74	.00	33.84	476.17	23.57	359.03	8.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 626901. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL KITCHEN ZONE 1 NIGHT SETBACK (FT LEONARD WOOD)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1002E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.9449E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.8501E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5946E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.3835E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-120.6
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-9145.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2810E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4872E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.7357E+06
DEC	856.	586.	1.000	35.	0.	0.	0	6	.0000	-.1129E+07

BLDG 630 - MESS HALL KITCHEN ZONE 1 DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	2
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	40515.000000
FLOOR AREA (SQFT)	3801.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	1128650.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	76020.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	357.000000

INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA)	5.290000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	24800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	159.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	41.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1361.0	596.0	.0	610.0
WINDOW AREA SQFT (AWND)	127.0	28.0	.0	35.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	12.7	2.8	.0	3.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3801.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 2.800000E-01
WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	58.0	58.0	58.0	58.0	58.0
58.0	58.0	58.0	58.0	58.0	58.0	58.0	58.0
58.0	58.0	58.0	58.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	5.	25544.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	.0
2	.100	.100	.000	.000	55.0	.0
3	.600	.400	.400	.400	55.0	.0
4	1.000	.600	.600	.600	58.0	.0
5	1.000	.800	.800	.800	58.0	.0

6	1.000	.800	1.000	1.000	58.0	.0
7	1.000	.800	1.000	1.000	58.0	.0
8	1.000	.800	1.000	1.000	58.0	.0
9	1.000	.800	1.000	1.000	58.0	.0
10	1.000	1.000	1.000	1.000	58.0	.0
11	1.000	1.000	.800	.800	58.0	.0
12	1.000	.800	1.000	1.000	58.0	.0
13	1.000	.800	1.000	1.000	58.0	.0
14	1.000	.600	.500	.500	58.0	.0
15	1.000	.600	.500	.500	58.0	.0
16	1.000	1.000	1.000	1.000	58.0	.0
17	1.000	1.000	1.000	1.000	58.0	.0
18	1.000	1.000	1.000	1.000	58.0	.0
19	1.000	.600	1.000	1.000	58.0	.0
20	.600	.300	.500	.500	58.0	.0
21	.100	.100	.000	.000	55.0	.0
22	.100	.100	.000	.000	55.0	.0
23	.100	.100	.000	.000	55.0	.0
24	.100	.100	.000	.000	55.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 16500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 1.000000
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1128650.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1410813.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 630 - MESS HALL KITCHEN ZONE 1 DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-213.	LOSS		-4.	-3.	0.	-7.	-2.	-233.	0.
FEB	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-174.	LOSS		-3.	-3.	0.	-5.	-1.	-194.	0.
MAR	0.	GAIN	4.	0.	0.	0.	2.	0.	0.	0.
	-149.	LOSS		-3.	-3.	0.	-4.	-1.	-175.	0.
APR	.00	GAIN	4.34	.28	.01	.00	2.86	.01	1.02	.00
	-46.38	LOSS		-1.69	-1.56	.00	-1.85	-.78	-77.97	.00
MAY	.00	GAIN	4.70	.40	.02	.00	3.80	.01	1.39	.00
	-8.57	LOSS		-1.18	-1.07	.00	-.87	-.52	-45.36	.00
JUN	.00	GAIN	4.70	.45	.01	.00	3.83	.01	.99	.00
	.00	LOSS		-1.12	-1.06	.00	-.85	-.51	-34.74	.00
JUL	.00	GAIN	4.77	.50	.01	.00	3.86	.01	1.21	.00
	.00	LOSS		-1.19	-1.11	.00	-1.03	-.55	-36.99	.00
AUG	.00	GAIN	4.34	.43	.01	.00	3.66	.01	.97	.00
	.00	LOSS		-1.13	-.99	.00	-.79	-.48	-36.54	.00
SEP	.00	GAIN	3.90	.25	.02	.00	2.99	.01	1.69	.00
	-6.00	LOSS		-1.38	-1.14	.00	-1.10	-.57	-39.33	.00
OCT	.00	GAIN	3.60	.12	.01	.00	2.11	.00	.84	.00
	-38.31	LOSS		-1.75	-1.35	.00	-1.80	-.65	-70.28	.00
NOV	0.	GAIN	3.	0.	0.	0.	1.	0.	0.	0.
	-104.	LOSS		-2.	-2.	0.	-4.	-1.	-129.	0.
DEC	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-243.	LOSS		-4.	-4.	0.	-8.	-2.	-260.	0.
TOT	0.	GAIN	48.	3.	0.	0.	27.	0.	9.	0.
	-983.	LOSS		-26.	-23.	0.	-36.	-11.	-1332.	0.

MAX HEATING LOAD= -1128650. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 977.8

BEACON Energy Analysis By Energy Systems Engineers, Inc. 630A-1.I

BLDG 630 - MESS HALL KITCHEN ZONE 1 DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	68.		4	13	64.	2.87	40.44	8.20	31.86
			54.	29	2	9.				
FEB	59.	75.		17	18	44.	2.60	36.53	6.69	28.06
			54.	2	2	15.				
MAR	61.	85.		11	18	63.	2.87	40.44	7.06	30.72
			54.	14	2	21.				
APR	66.	93.		7	19	65.	2.78	39.14	6.31	29.21
			55.	11	2	33.				
MAY	73.	102.		27	19	76.	2.87	40.44	6.67	30.33
			55.	11	2	39.				
JUN	80.	104.		30	19	82.	2.78	39.14	6.06	28.95
			59.	19	2	57.				
JUL	85.	114.		15	19	87.	2.87	40.44	6.35	30.01
			60.	10	4	57.				
AUG	83.	109.		12	19	84.	2.87	40.44	6.63	30.29
			62.	24	24	59.				
SEP	76.	110.		2	19	83.	2.78	39.14	5.83	28.73
			55.	26	2	45.				
OCT	66.	92.		14	19	71.	2.87	40.44	6.78	30.44
			55.	11	1	36.				
NOV	62.	83.		17	19	59.	2.78	39.14	6.77	29.66
			55.	2	24	20.				
DEC	59.	78.		23	19	54.	2.87	40.44	6.73	30.39
			53.	18	7	-1.				
YEAR							33.84	476.17	80.07	358.65

BLDG 630 - MESS HALL KITCHEN ZONE 1 DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	620	0	0	0	-.9680E+06	.0000
FEB	513	0	0	0	-.8981E+06	.0000
MAR	507	0	0	0	-.8060E+06	.0000
APR	228	0	0	0	-.5452E+06	.0000
MAY	81	0	0	0	-.3448E+06	.0000
JUN	0	0	0	0	.0000	.0000
JUL	0	0	0	0	.0000	.0000
AUG	0	0	0	0	.0000	.0000
SEP	81	0	0	0	-.2332E+06	.0000
OCT	256	0	0	0	-.4464E+06	.0000
NOV	377	0	0	0	-.7044E+06	.0000
DEC	554	0	6	0	-.1129E+07	.0000
YEAR	3217	0	6	0	-.1129E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	333.82	.00	2.87	40.44	2.40	31.86	8.7
FEB	273.32	.00	2.60	36.53	1.96	28.06	8.7
MAR	243.31	.00	2.87	40.44	2.07	30.72	8.7
APR	87.63	.00	2.78	39.14	1.85	29.21	8.7
MAY	24.57	.00	2.87	40.44	1.95	30.33	8.7
JUN	.00	.00	2.78	39.14	1.77	28.95	8.7
JUL	.00	.00	2.87	40.44	1.86	30.01	8.7
AUG	.00	.00	2.87	40.44	1.94	30.29	8.7
SEP	22.14	.00	2.78	39.14	1.71	28.73	8.7
OCT	85.31	.00	2.87	40.44	1.99	30.44	8.7
NOV	174.27	.00	2.78	39.14	1.98	29.66	8.7
DEC	351.27	.00	2.87	40.44	1.97	30.39	8.7
YEAR	1595.64	.00	33.84	476.17	23.46	358.65	8.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 596518. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL KITCHEN ZONE 1 DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.9680E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.8981E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.8060E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5452E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.3448E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2332E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4464E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.7044E+06
DEC	856.	586.	1.000	35.	0.	0.	0	6	.0000	-.1129E+07

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD W

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	40515.000000
FLOOR AREA (SQFT)	3801.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	1128650.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	76020.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	357.000000

INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA)	5.290000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	24800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	159.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	41.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1361.0	596.0	.0	610.0
WINDOW AREA SQFT (AWND)	127.0	28.0	.0	35.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	12.7	2.8	.0	3.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3801.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 2.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	5.	25544.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	60.0	.0
2	.100	.100	.000	.000	60.0	.0
3	.600	.400	.400	.400	60.0	.0
4	1.000	.600	.600	.600	60.0	.0
5	1.000	.800	.800	.800	60.0	.0
6	1.000	.800	1.000	1.000	60.0	.0
7	1.000	.800	1.000	1.000	60.0	.0
8	1.000	.800	1.000	1.000	60.0	.0
9	1.000	.800	1.000	1.000	60.0	.0
10	1.000	1.000	1.000	1.000	60.0	.0
11	1.000	1.000	.800	.800	60.0	.0
12	1.000	.800	1.000	1.000	60.0	.0

13	1.000	.800	1.000	1.000	60.0	.0
14	1.000	.600	.500	.500	60.0	.0
15	1.000	.600	.500	.500	60.0	.0
16	1.000	1.000	1.000	1.000	60.0	.0
17	1.000	1.000	1.000	1.000	60.0	.0
18	1.000	1.000	1.000	1.000	60.0	.0
19	1.000	.600	1.000	1.000	60.0	.0
20	.600	.300	.500	.500	60.0	.0
21	.100	.100	.000	.000	60.0	.0
22	.100	.100	.000	.000	60.0	.0
23	.100	.100	.000	.000	60.0	.0
24	.100	.100	.000	.000	60.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 16500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 1.000000
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1128650.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1410813.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD W

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-240.	LOSS		-4.	-4.	0.	-8.	-2.	-257.	0.
FEB	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-197.	LOSS		-3.	-3.	0.	-6.	-2.	-215.	0.
MAR	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-174.	LOSS		-3.	-3.	0.	-5.	-2.	-198.	0.
APR	.00	GAIN	4.34	.27	.01	.00	2.63	.01	.88	.00
	-58.76	LOSS		-1.90	-1.79	.00	-2.35	-.90	-88.96	.00
MAY	.00	GAIN	4.70	.39	.01	.00	3.61	.01	1.26	.00
	-14.36	LOSS		-1.30	-1.21	.00	-1.12	-.58	-50.24	.00
JUN	.00	GAIN	4.70	.44	.01	.00	3.76	.01	.98	.00
	-.10	LOSS		-1.18	-1.13	.00	-1.01	-.55	-34.36	.00
JUL	.00	GAIN	4.77	.49	.01	.00	3.79	.01	1.20	.00
	-.01	LOSS		-1.26	-1.19	.00	-1.22	-.59	-36.58	.00
AUG	.00	GAIN	4.34	.42	.01	.00	3.59	.01	.96	.00
	.00	LOSS		-1.19	-1.06	.00	-.94	-.52	-36.13	.00
SEP	.00	GAIN	3.90	.23	.02	.00	2.80	.01	1.49	.00
	-12.17	LOSS		-1.52	-1.30	.00	-1.41	-.64	-44.31	.00
OCT	.00	GAIN	3.60	.11	.01	.00	1.89	.00	.73	.00
	-54.13	LOSS		-1.98	-1.60	.00	-2.38	-.78	-84.46	.00
NOV	0.	GAIN	3.	0.	0.	0.	1.	0.	0.	0.
	-124.	LOSS		-3.	-2.	0.	-4.	-1.	-147.	0.
DEC	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-268.	LOSS		-4.	-4.	0.	-9.	-2.	-283.	0.
TOT	0.	GAIN	48.	2.	0.	0.	25.	0.	8.	0.
	-1142.	LOSS		-28.	-26.	0.	-43.	-13.	-1475.	0.

MAX HEATING LOAD= -1128650. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 977.8

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD W

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	68.		4	13	64.	2.87	40.44	8.32	31.98
			59.	29	2	9.				
FEB	61.	77.		17	18	44.	2.60	36.53	6.79	28.16
			59.	2	2	15.				
MAR	64.	87.		11	19	61.	2.87	40.44	7.08	30.74
			59.	14	2	21.				
APR	68.	95.		29	19	69.	2.78	39.14	6.24	29.13
			60.	11	2	33.				
MAY	73.	104.		27	19	76.	2.87	40.44	6.67	30.33
			60.	11	2	39.				
JUN	81.	106.		24	19	75.	2.78	39.14	6.06	28.95
			60.	19	2	57.				
JUL	85.	116.		15	19	87.	2.87	40.44	6.35	30.01
			60.	10	4	57.				
AUG	83.	111.		12	19	84.	2.87	40.44	6.63	30.29
			62.	24	24	59.				
SEP	77.	111.		2	19	83.	2.78	39.14	5.83	28.73
			60.	26	2	45.				
OCT	68.	94.		14	19	71.	2.87	40.44	6.69	30.35
			60.	11	1	36.				
NOV	64.	84.		17	19	59.	2.78	39.14	6.85	29.75
			59.	2	24	20.				
DEC	62.	80.		23	19	54.	2.87	40.44	6.74	30.40
			54.	18	7	-1.				
YEAR							33.84	476.17	80.25	358.83

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD W

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	653	0	0	0	-.1055E+07	.0000
FEB	533	0	0	0	-.9225E+06	.0000
MAR	527	0	0	0	-.8295E+06	.0000
APR	263	0	0	0	-.5626E+06	.0000
MAY	118	0	0	0	-.3923E+06	.0000
JUN	5	0	0	0	-.4361E+05	.0000
JUL	1	0	0	0	-7715.	.0000
AUG	0	0	0	0	.0000	.0000
SEP	110	0	0	0	-.2662E+06	.0000
OCT	311	0	0	0	-.4868E+06	.0000
NOV	420	0	0	0	-.7936E+06	.0000
DEC	557	0	11	0	-.1129E+07	.0000
YEAR	3498	0	11	0	-.1129E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	368.76	.00	2.87	40.44	2.44	31.98	8.7
FEB	300.08	.00	2.60	36.53	1.99	28.16	8.7
MAR	273.42	.00	2.87	40.44	2.07	30.74	8.7
APR	107.50	.00	2.78	39.14	1.83	29.13	8.7
MAY	37.53	.00	2.87	40.44	1.95	30.33	8.7
JUN	1.34	.00	2.78	39.14	1.77	28.95	8.7
JUL	.27	.00	2.87	40.44	1.86	30.01	8.7
AUG	.00	.00	2.87	40.44	1.94	30.29	8.7
SEP	32.52	.00	2.78	39.14	1.71	28.73	8.7
OCT	112.60	.00	2.87	40.44	1.96	30.35	8.7
NOV	201.86	.00	2.78	39.14	2.01	29.75	8.7
DEC	379.67	.00	2.87	40.44	1.98	30.40	8.7
YEAR	1815.56	.00	33.84	476.17	23.51	358.83	8.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 654424. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD W

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1055E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.9225E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.8295E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5626E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.3923E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.4361E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-7715.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2662E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4868E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.7936E+06
DEC	856.	586.	1.000	35.	0.	0.	0	11	.0000	-.1129E+07

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	40515.000000
FLOOR AREA (SQFT)	3801.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	1128650.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	76020.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	357.000000

INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA)	5.290000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	24800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	159.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	41.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1361.0	596.0	.0	610.0
WINDOW AREA SQFT (AWND)	127.0	28.0	.0	35.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	12.7	2.8	.0	3.5
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3801.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 2.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -		THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	5.	25544.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	60.0	.0
2	.100	.100	.000	.000	60.0	.0
3	.600	.400	.400	.400	60.0	.0
4	1.000	.600	.600	.600	60.0	.0
5	1.000	.800	.800	.800	60.0	.0
6	1.000	.800	1.000	1.000	60.0	.0
7	1.000	.800	1.000	1.000	60.0	.0
8	1.000	.800	1.000	1.000	60.0	.0
9	1.000	.800	1.000	1.000	60.0	.0
10	1.000	1.000	1.000	1.000	60.0	.0
11	1.000	1.000	.800	.800	60.0	.0
12	1.000	.800	1.000	1.000	60.0	.0

13	1.000	.800	1.000	1.000	60.0	.0
14	1.000	.600	.500	.500	60.0	.0
15	1.000	.600	.500	.500	60.0	.0
16	1.000	1.000	1.000	1.000	60.0	.0
17	1.000	1.000	1.000	1.000	60.0	.0
18	1.000	1.000	1.000	1.000	60.0	.0
19	1.000	.600	1.000	1.000	60.0	.0
20	.600	.300	.500	.500	60.0	.0
21	.100	.100	.000	.000	60.0	.0
22	.100	.100	.000	.000	60.0	.0
23	.100	.100	.000	.000	60.0	.0
24	.100	.100	.000	.000	60.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 16500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 1.000000
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1128650.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1410813.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-242.	LOSS		-4.	-4.	0.	-8.	-2.	-259.	0.
FEB	0.	GAIN	4.	0.	0.	0.	0.	0.	0.	0.
	-199.	LOSS		-3.	-3.	0.	-6.	-2.	-217.	0.
MAR	0.	GAIN	4.	0.	0.	0.	1.	0.	0.	0.
	-176.	LOSS		-3.	-3.	0.	-5.	-2.	-200.	0.
APR	.00	GAIN	4.34	.27	.01	.00	2.65	.01	.87	.00
	-59.61	LOSS		-1.87	-1.76	.00	-2.27	-.88	-90.10	.00
MAY	.00	GAIN	4.70	.39	.02	.00	3.66	.01	1.26	.00
	-14.77	LOSS		-1.26	-1.16	.00	-1.01	-.56	-50.92	.00
JUN	.00	GAIN	4.70	.44	.01	.00	3.80	.01	.98	.00
	-.11	LOSS		-1.13	-1.08	.00	-.89	-.53	-34.70	.00
JUL	.00	GAIN	4.77	.50	.01	.00	3.83	.01	1.20	.00
	-.01	LOSS		-1.21	-1.13	.00	-1.08	-.56	-36.86	.00
AUG	.00	GAIN	4.34	.43	.01	.00	3.64	.01	.95	.00
	.00	LOSS		-1.14	-1.01	.00	-.82	-.49	-36.42	.00
SEP	.00	GAIN	3.90	.24	.02	.00	2.85	.01	1.47	.00
	-12.50	LOSS		-1.47	-1.24	.00	-1.28	-.62	-45.00	.00
OCT	.00	GAIN	3.60	.11	.01	.00	1.92	.00	.72	.00
	-54.99	LOSS		-1.95	-1.56	.00	-2.28	-.76	-85.57	.00
NOV	0.	GAIN	3.	0.	0.	0.	1.	0.	0.	0.
	-126.	LOSS		-3.	-2.	0.	-4.	-1.	-149.	0.
DEC	0.	GAIN	3.	0.	0.	0.	0.	0.	0.	0.
	-271.	LOSS		-4.	-4.	0.	-9.	-2.	-285.	0.
TOT	0.	GAIN	48.	3.	0.	0.	25.	0.	8.	0.
	-1155.	LOSS		-28.	-25.	0.	-42.	-12.	-1490.	0.

MAX HEATING LOAD= -1128650. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 977.8

BEACON Energy Analysis By Energy Systems Engineers, Inc. 630A-5.I

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL INTERNAL HEAT GAIN MILLION BTU
JAN	60.	68.		4	13	64.	2.87	40.44	8.28	31.94
			59.	29	2	9.				
FEB	61.	77.		17	17	50.	2.60	36.53	6.75	28.12
			59.	2	2	15.				
MAR	63.	87.		11	18	63.	2.87	40.44	7.08	30.74
			59.	14	2	21.				
APR	68.	94.		29	19	69.	2.78	39.14	6.37	29.27
			60.	9	2	33.				
MAY	73.	103.		27	19	76.	2.87	40.44	6.67	30.33
			60.	11	2	39.				
JUN	80.	105.		24	19	75.	2.78	39.14	6.06	28.95
			60.	19	2	57.				
JUL	85.	115.		15	19	87.	2.87	40.44	6.35	30.01
			60.	10	5	57.				
AUG	83.	110.		12	19	84.	2.87	40.44	6.63	30.29
			62.	24	24	59.				
SEP	77.	110.		2	18	86.	2.78	39.14	5.83	28.73
			60.	26	2	45.				
OCT	67.	92.		14	19	71.	2.87	40.44	6.79	30.45
			60.	11	1	36.				
NOV	64.	84.		17	19	59.	2.78	39.14	6.84	29.74
			59.	2	24	20.				
DEC	61.	79.		23	19	54.	2.87	40.44	6.81	30.47
			53.	18	7	-1.				
YEAR							33.84	476.17	80.47	359.04

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WO

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	650	0	0	0	-.1077E+07	.0000
FEB	530	0	0	0	-.9416E+06	.0000
MAR	528	0	0	0	-.8468E+06	.0000
APR	275	0	0	0	-.5748E+06	.0000
MAY	118	0	0	0	-.4008E+06	.0000
JUN	6	0	0	0	-.4773E+05	.0000
JUL	1	0	0	0	-9153.	.0000
AUG	0	0	0	0	.0000	.0000
SEP	110	0	0	0	-.2719E+06	.0000
OCT	319	0	0	0	-.4969E+06	.0000
NOV	420	0	0	0	-.8096E+06	.0000
DEC	563	0	12	0	-.1129E+07	.0000
YEAR	3520	0	12	0	-.1129E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	370.50	.00	2.87	40.44	2.43	31.94	8.7
FEB	302.47	.00	2.60	36.53	1.98	28.12	8.7
MAR	274.98	.00	2.87	40.44	2.07	30.74	8.7
APR	110.04	.00	2.78	39.14	1.87	29.27	8.7
MAY	38.07	.00	2.87	40.44	1.95	30.33	8.7
JUN	1.61	.00	2.78	39.14	1.77	28.95	8.7
JUL	.27	.00	2.87	40.44	1.86	30.01	8.7
AUG	.00	.00	2.87	40.44	1.94	30.29	8.7
SEP	32.79	.00	2.78	39.14	1.71	28.73	8.7
OCT	115.28	.00	2.87	40.44	1.99	30.45	8.7
NOV	205.00	.00	2.78	39.14	2.00	29.74	8.7
DEC	382.13	.00	2.87	40.44	2.00	30.47	8.7
YEAR	1833.15	.00	33.84	476.17	23.58	359.04	8.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 659108. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL KITCHEN AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1077E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.9416E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.8468E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5748E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.4008E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.4773E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-9153.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2719E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4969E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.8096E+06
DEC	856.	586.	1.000	35.	0.	0.	0	12	.0000	-.1129E+07

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 630Z2
BLDG. TYPE: MESS HALL (DINING)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	753.1	507.0	465.4	465.4	656.6	709.7
COOLING (kWH)	37410	29430	27730	26400	37190	36580

SUPPLY AIR FAN	14000 CFM
FLOOR AREA	7190 FT²
CFMI	700 CFM
UA	2642 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	500	1900	70 HR
SAT.	500	1900	14 HR
SUN.	500	1900	14 HR
	TOTAL OCCUPY HR.		98 HR/WK
	TOTAL UNOCC. HR.		70 HR/WK
	ANNUAL OCCUPY HR.		5110 HR/YR
	ANNUAL UNOCC. HR.		3650 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	2548 HR/YR
HR. ON COOLING	1708 HR/YR
HR. OFF HEATING	1820 HR/YR
HR. OFF COOLING	1220 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 2548 = 1820 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 1708 = 1220 HR/YR

HOAUHC	753.1 MBtu –	656.6 MBtu	=	3.78E+01 Btu/CFM-HR
	700 CFM *	3650 HR/YR		
HOAUH	753.1 MBtu –	656.6 MBtu	=	7.57E+01 Btu/CFM-HR
	700 CFM *	1820 HR/YR		
COAUHC	37410 kWH –	37190 kWH	=	8.61E-05 kWH/CFM-HR
	700 CFM *	3650 HR/YR		
COAUC	37410 kWH –	37190 kWH	=	2.58E-04 kWH/CFM-HR
	700 CFM *	1220 HR/YR		
HOAOHC	753.1 MBtu –	709.7 MBtu	=	1.21E+01 Btu/CFM-HR
	700 CFM *	5110 HR/YR		
HOAOH	753.1 MBtu –	709.7 MBtu	=	2.43E+01 Btu/CFM-HR
	700 CFM *	2548 HR/YR		
COAOHC	37410 kWH	36580 kWH	=	2.32E-04 kWH/CFM-HR
	700 CFM *	5110 HR/YR		
COAOC	37410 kWH	36580 kWH	=	6.94E-04 kWH/CFM-HR
	700 CFM *	1708 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 630Z2
BLDG. TYPE: MESS HALL (DINING)

ENERGY CONSTANT CALCULATIONS

ECC	27730 kWH –	26400 kWH	=	5.56E-05 kWH/CFM-HR
	14000 CFM *	1708 HR/YR		
ECHC	27730 kWH –	26400 kWH	=	1.86E-05 kWH/CFM-HR
	14000 CFM *	5110 HR/YR		
NSUCHC	37410 kWH –	29430 kWH	=	1.56E-04 kWH/CFM-HR
	14000 CFM *	3650 HR/YR		
NSUCC	37410 kWH –	29430 kWH	=	4.67E-04 kWH/CFM-HR
	14000 CFM *	1220 HR/YR		
DDCCHC	29430 kWH –	27730 kWH	=	2.38E-05 kWH/CFM-HR
	14000 CFM *	5110 HR/YR		
DDCCC	29430 kWH –	27730 kWH	=	7.11E-05 kWH/CFM-HR
	14000 CFM *	1708 HR/YR		
NSC	753.1 MBtu –	507.03 MBtu	=	9.31E+04 Btu/UA
	2642 UA			
DSC	507.03 MBtu –	465.43 MBtu	=	1.57E+04 Btu/UA
	2642 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	630Z2BHL

BUILDING HEATING LOAD CALCULATION SHEET

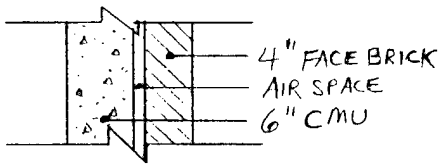
BLDG NO: 630 BLDG NAME: MESS HALL - ZONE 2
BLDG FUNCTION: DINING AREA
FLOOR AREA: (SQ. FT) 7,190 # FLOORS 1
SLAB PERIMETER: (FT) 257

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,530	0	1,678	1,678	4,886
GLASS	(SQ. FT)	84	0	128	144	356
PERSONNEL DOOR	(SQ. FT)	0	0	63	63	126
INSULATED PANEL	(SQ. FT)	0	0	400	400	800
WALLS, NET	(SQ. FT)	1,446	0	1,087	1,071	3,604
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	7,190
INSULATED PANEL	(SQ. FT)	800	PERSONNEL DOOR		(SQ. FT)	126
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

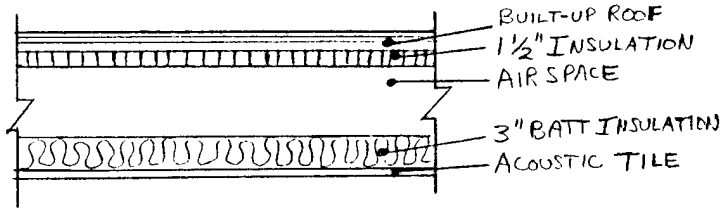
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	1.5" INSULATION	4.98
4.	CEILING AIR SPACE	1.00
5.	3" INSULATION	11.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	19.95
	U=1/R	0.050

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	4886	X CFM / SQ.FT.	0.115	=	562
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		100	X CFM /OPENING /HR	1.385	=	139
			TOTAL INFILTRATION (CFM)		=	700

UA PANEL	= PANEL AREA	800	X PANEL "U"	0.238	=	190
UA PDOOR	= PDOOR AREA	126	X DOOR "U"	0.391	=	49
UA WALL	= WALL AREA	3,604	X WALL "U"	0.245	=	883
UA ROOF	= ROOF AREA	7,190	X ROOF "U"	0.050	=	360
UA GLASS	= GLASS AREA	356	X GLASS "U"	0.621	=	221
UA SLAB	= SLAB PERIM.	257	X SLF	0.830	=	213
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	700	X A. T. F.	1.035	=	725
			TOTAL UA (BTU/HR°F)			2,642

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 630Z2
BLDG: 630 ZONE: 2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2	240	3	Seated Eating	Restaurant	225	325	54,000	78,000
	10	5	Standing, light work, or walking slowly	Retail store, bank	270	220	2,700	2,200
TOTAL	250					TOTAL	56,700	80,200

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2	32	18	Incandescent - 60w	60	1,920
	68	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	5,712
TOTAL	100			TOTAL	7,632

Peak Value for Internal Gains

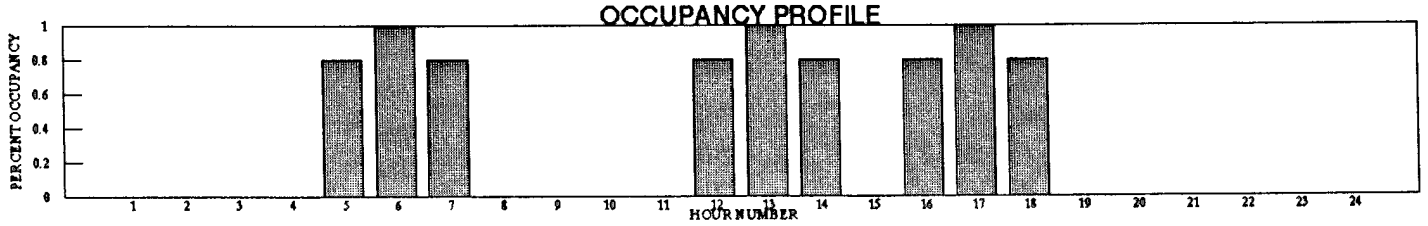
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
2	2	86	Ice maker	1,089	251%	2,178	7,434
	2	24	Coffee Maker	1,500	30%	3,000	10,239
	3	74	Cabinet (large hot holding)	2,080	14%	6,240	21,297
	2	25	Cold Food/Beverage	1,535	50%	3,070	10,478
	3	93	Toaster (Large pop-up) 10 slice	5,297	100%	15,891	54,236
	2	81	Food Warmer (infrared buld), per lamp	249	100%	498	1,700
	4	80	Display case (refrigerated), per cu. ft.of interior	45	40%	180	614
				TOTAL	81%	31,057	105,998

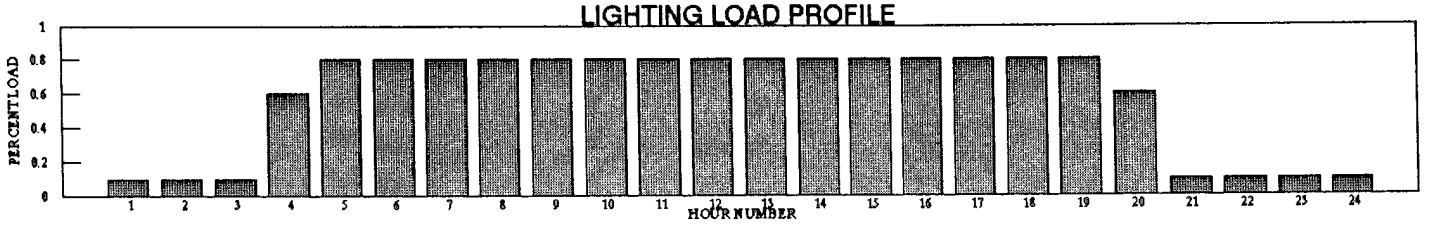
E M C Engineers, Inc.

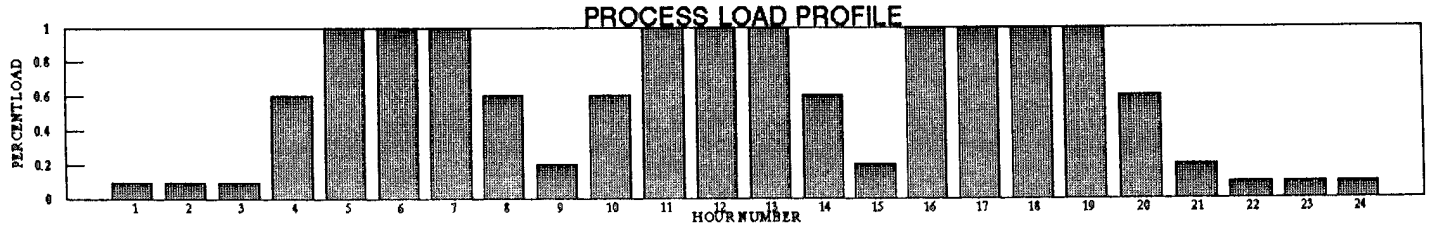
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 630Z2
BLDG: 630
ZONE: 2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Mess Hall	OCCUPANCY					0.8	1	0.8					0.8	1	0.8		0.8	1	0.8						
		LIGHTING	0.1	0.1	0.1	0.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.6	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.6	1	1	1	0.6	0.2	0.6	1	1	1	0.6	0.2	1	1	1	1	0.6	0.2	0.1	0.1	0.1







BLDG 630 - MESS HALL DINING AREA - ZONE 2 BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	76646.000000
FLOOR AREA (SQFT)	7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	700.000000

INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA)	5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	213.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	49.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	85858.	56700.	80200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	70.0	75.0
2	.100	.100	.000	.000	70.0	75.0
3	.100	.100	.000	.000	70.0	75.0
4	.600	.600	.000	.000	70.0	75.0
5	.800	1.000	.800	.800	70.0	75.0
6	.800	1.000	1.000	1.000	70.0	75.0
7	.800	1.000	.800	.800	70.0	75.0
8	.800	.600	.000	.000	70.0	75.0
9	.800	.200	.000	.000	70.0	75.0
10	.800	.600	.000	.000	70.0	75.0
11	.800	1.000	.800	.800	70.0	75.0
12	.800	1.000	1.000	1.000	70.0	75.0

13	.800	1.000	.800	.800	70.0	75.0
14	.800	.600	.000	.000	70.0	75.0
15	.800	.200	.000	.000	70.0	75.0
16	.800	1.000	.800	.800	70.0	75.0
17	.800	1.000	1.000	1.000	70.0	75.0
18	.800	1.000	.800	.800	70.0	75.0
19	.800	1.000	.000	.000	70.0	75.0
20	.600	.600	.000	.000	70.0	75.0
21	.100	.200	.000	.000	70.0	75.0
22	.100	.100	.000	.000	70.0	75.0
23	.100	.100	.000	.000	70.0	75.0
24	.100	.100	.000	.000	70.0	75.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 14000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 630 - MESS HALL DINING AREA - ZONE 2 BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	5.	0.	0.	0.	0.	0.	0.	0.
	-79.	LOSS		-11.	-7.	0.	-24.	-5.	-111.	0.
FEB	.20	GAIN	6.30	.00	.00	.00	.01	.00	.00	.08
	-59.99	LOSS		-8.88	-5.98	.00	-18.13	-4.29	-95.82	.00
MAR	6.72	GAIN	7.96	.09	.00	.00	.65	.00	.01	1.34
	-45.15	LOSS		-8.08	-5.59	.00	-14.47	-4.00	-90.47	.00
APR	32.40	GAIN	8.53	.52	.04	.00	2.87	.03	.54	6.70
	-14.61	LOSS		-4.98	-3.36	.00	-7.11	-2.41	-55.10	.00
MAY	67.71	GAIN	9.31	1.14	.14	.00	6.01	.10	1.71	19.20
	-2.38	LOSS		-3.19	-1.93	.00	-2.78	-1.34	-37.12	.00
JUN	138.	GAIN	9.	2.	0.	0.	9.	0.	5.	58.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-14.	0.
JUL	173.	GAIN	10.	3.	1.	0.	13.	1.	12.	73.
	0.	LOSS		-1.	0.	0.	0.	0.	-9.	0.
AUG	166.	GAIN	9.	2.	1.	0.	10.	0.	9.	73.
	0.	LOSS		-1.	-1.	0.	0.	0.	-9.	0.
SEP	105.	GAIN	7.	1.	0.	0.	5.	0.	5.	45.
	-3.	LOSS		-3.	-2.	0.	-3.	-1.	-26.	0.
OCT	31.87	GAIN	5.80	.25	.05	.00	1.19	.04	.69	10.06
	-12.41	LOSS		-5.30	-3.23	.00	-8.34	-2.26	-53.59	.00
NOV	9.56	GAIN	4.41	.02	.00	.00	.15	.00	.01	2.86
	-33.30	LOSS		-7.30	-4.62	.00	-14.65	-3.24	-73.11	.00
DEC	0.	GAIN	4.	0.	0.	0.	0.	0.	0.	0.
	-75.	LOSS		-11.	-7.	0.	-24.	-5.	-106.	0.
TOT	731.	GAIN	86.	10.	3.	0.	49.	2.	32.	290.
	-325.	LOSS		-66.	-42.	0.	-118.	-30.	-681.	0.

MAX HEATING LOAD= -402660. BTUH ON DEC 18 HOUR 2 AMBIENT TEMP 3.
MAX COOLING LOAD= 521827. BTUH ON JUL 28 HOUR 17 AMBIENT TEMP 92.

ZONE UA BTU/HR-F 1702.3

BLDG 630 - MESS HALL DINING AREA - ZONE 2 BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	71.	76.		4	13	64.	3.29	46.66	11.38	74.11
			69.	29	3	10.				
FEB	71.	76.		9	13	57.	2.97	42.14	10.28	66.94
			69.	2	3	15.				
MAR	72.	77.		12	13	74.	3.29	46.66	11.38	74.11
			69.	4	3	17.				
APR	74.	77.		30	17	83.	3.18	45.16	11.01	71.72
			69.	9	3	32.				
MAY	75.	77.		28	13	85.	3.29	46.66	11.38	74.11
			70.	11	3	38.				
JUN	76.	77.		27	13	88.	3.18	45.16	11.01	71.72
			71.	17	3	55.				
JUL	76.	77.		15	13	93.	3.29	46.66	11.38	74.11
			72.	10	3	59.				
AUG	76.	77.		10	13	85.	3.29	46.66	11.38	74.11
			71.	25	3	54.				
SEP	75.	77.		3	13	89.	3.18	45.16	11.01	71.72
			70.	15	3	41.				
OCT	74.	77.		4	13	83.	3.29	46.66	11.38	74.11
			70.	28	3	32.				
NOV	72.	77.		8	13	77.	3.18	45.16	11.01	71.72
			69.	3	3	18.				
DEC	71.	76.		23	17	62.	3.29	46.66	11.38	74.11
			69.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	601	44	0	0	-.3593E+06	.0000
FEB	476	62	0	0	-.3171E+06	.2008E+06
MAR	421	140	0	0	-.2851E+06	.2992E+06
APR	185	291	0	0	-.1853E+06	.3280E+06
MAY	38	494	0	0	-.1332E+06	.3838E+06
JUN	0	597	0	0	.0000	.4758E+06
JUL	0	688	0	0	.0000	.5218E+06
AUG	0	688	0	0	.0000	.4746E+06
SEP	58	516	0	0	-.1166E+06	.4867E+06
OCT	189	323	0	0	-.1728E+06	.3787E+06
NOV	353	174	0	0	-.2679E+06	.2897E+06
DEC	559	33	0	0	-.4027E+06	.1194E+06
YEAR	2880	4050	0	0	-.4027E+06	.5218E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	170.52	.00	3.29	46.66	3.33	74.11	10.6
FEB	132.96	.01	2.97	42.14	3.01	66.94	23.0
MAR	110.92	.49	3.29	46.66	3.33	74.11	26.2
APR	44.69	2.18	3.18	45.16	3.23	71.72	27.1
MAY	8.68	4.19	3.29	46.66	3.33	74.11	29.5
JUN	.00	7.89	3.18	45.16	3.23	71.72	34.1
JUL	.00	9.73	3.29	46.66	3.33	74.11	36.6
AUG	.00	9.44	3.29	46.66	3.33	74.11	34.0
SEP	13.00	6.16	3.18	45.16	3.23	71.72	34.7
OCT	43.74	2.15	3.29	46.66	3.33	74.11	29.3
NOV	89.92	.71	3.18	45.16	3.23	71.72	25.9
DEC	160.31	.04	3.29	46.66	3.33	74.11	20.6
YEAR	774.74	42.98	38.72	549.39	39.26	872.58	36.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 241580. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.3593E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.2008E+06	-.3171E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2992E+06	-.2851E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3280E+06	-.1853E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3838E+06	-.1332E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.4758E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.5218E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.4746E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.4867E+06	-.1166E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.3787E+06	-.1728E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2897E+06	-.2679E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1194E+06	-.4027E+06

BLDG 630 - MESS HALL DINING AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 76646.000000
FLOOR AREA (SQFT) 7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 700.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 213.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	75.0	75.0	75.0
75.0	75.0	75.0	75.0	75.0	75.0	75.0	75.0
75.0	75.0	75.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	70.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
70.0	70.0	70.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -		THERMOSTAT SET POINT DEG F	
		PEOPLE	PEOPLE		
	LIGHTS	PROCESS SENSIBLE	LATENT	HEATING	COOLING
PEAK VAL	8.	85858. 56700.	80200.		

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	90.0
2	.100	.100	.000	.000	55.0	90.0
3	.100	.100	.000	.000	55.0	90.0
4	.600	.600	.000	.000	55.0	90.0
5	.800	1.000	.800	.800	55.0	90.0
6	.800	1.000	1.000	1.000	70.0	75.0
7	.800	1.000	.800	.800	70.0	75.0
8	.800	.600	.000	.000	70.0	75.0
9	.800	.200	.000	.000	70.0	75.0
10	.800	.600	.000	.000	70.0	75.0
11	.800	1.000	.800	.800	70.0	75.0
12	.800	1.000	1.000	1.000	70.0	75.0
13	.800	1.000	.800	.800	70.0	75.0
14	.800	.600	.000	.000	70.0	75.0
15	.800	.200	.000	.000	70.0	75.0
16	.800	1.000	.800	.800	70.0	75.0
17	.800	1.000	1.000	1.000	70.0	75.0
18	.800	1.000	.800	.800	70.0	75.0
19	.800	1.000	.000	.000	70.0	75.0
20	.600	.600	.000	.000	55.0	90.0
21	.100	.200	.000	.000	55.0	90.0
22	.100	.100	.000	.000	55.0	90.0
23	.100	.100	.000	.000	55.0	90.0
24	.100	.100	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 14000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 630 - MESS HALL DINING AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	4.73	.00	.00	.00	.00	.00	.00	.00
	-56.40	LOSS		-9.43	-6.09	.00	-20.20	-4.36	-95.48	.00
FEB	.20	GAIN	6.30	.00	.00	.00	.01	.00	.00	.08
	-42.51	LOSS		-7.88	-5.25	.00	-15.15	-3.77	-83.60	.00
MAR	6.48	GAIN	7.96	.09	.00	.00	.69	.00	.01	1.26
	-30.00	LOSS		-7.23	-4.96	.00	-11.99	-3.56	-80.11	.00
APR	30.75	GAIN	8.53	.52	.04	.00	2.84	.03	.54	6.28
	-7.81	LOSS		-4.64	-3.11	.00	-6.04	-2.24	-50.67	.00
MAY	63.29	GAIN	9.31	1.14	.14	.00	5.76	.10	1.71	17.75
	-.57	LOSS		-3.32	-2.03	.00	-2.90	-1.40	-37.56	.00
JUN	121.	GAIN	9.	2.	0.	0.	9.	0.	5.	47.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-17.	0.
JUL	141.	GAIN	10.	3.	1.	0.	11.	1.	11.	51.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-15.	0.
AUG	134.	GAIN	9.	2.	1.	0.	9.	0.	8.	50.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-15.	0.
SEP	89.05	GAIN	7.04	1.08	.35	.00	4.89	.25	4.55	33.82
	-.61	LOSS		-3.00	-1.65	.00	-2.75	-1.16	-27.17	.00
OCT	30.00	GAIN	5.80	.25	.05	.00	1.16	.04	.69	9.24
	-5.79	LOSS		-4.99	-3.00	.00	-7.38	-2.10	-49.73	.00
NOV	9.25	GAIN	4.41	.02	.00	.00	.16	.00	.01	2.71
	-20.50	LOSS		-6.59	-4.10	.00	-12.56	-2.87	-64.54	.00
DEC	.36	GAIN	4.04	.00	.00	.00	.00	.00	.00	.00
	-54.01	LOSS		-9.38	-5.98	.00	-20.58	-4.23	-91.49	.00
TOT	625.	GAIN	86.	10.	3.	0.	44.	2.	32.	219.
	-218.	LOSS		-63.	-39.	0.	-102.	-28.	-627.	0.

MAX HEATING LOAD= -544704. BTUH ON DEC 18 HOUR 6 AMBIENT TEMP 0.
MAX COOLING LOAD= 632203. BTUH ON JUL 16 HOUR 6 AMBIENT TEMP 74.

ZONE UA BTU/HR-F 1702.3

BLDG 630 - MESS HALL DINING AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	66.	76.		4	13	64.	3.29	46.66	11.38	74.11
			54.	29	3	10.				
FEB	67.	77.		9	20	63.	2.97	42.14	10.28	66.94
			54.	2	3	15.				
MAR	69.	78.		24	21	69.	3.29	46.66	11.38	74.11
			54.	4	3	17.				
APR	72.	81.		27	5	68.	3.18	45.16	11.01	71.72
			55.	1	3	37.				
MAY	76.	81.		30	5	65.	3.29	46.66	11.38	74.11
			58.	11	4	38.				
JUN	78.	86.		30	5	72.	3.18	45.16	11.01	71.72
			72.	17	3	55.				
JUL	79.	90.		16	5	74.	3.29	46.66	11.38	74.11
			74.	10	3	59.				
AUG	78.	89.		1	5	74.	3.29	46.66	11.38	74.11
			72.	25	3	54.				
SEP	76.	87.		3	5	74.	3.18	45.16	11.01	71.72
			61.	15	4	41.				
OCT	73.	82.		5	5	67.	3.29	46.66	11.38	74.11
			55.	11	4	39.				
NOV	70.	78.		8	5	66.	3.18	45.16	11.01	71.72
			54.	3	3	18.				
DEC	66.	76.		23	17	62.	3.29	46.66	11.38	74.11
			54.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	452	42	0	0	-.5242E+06	.0000
FEB	337	63	0	0	-.4535E+06	.2028E+06
MAR	273	132	0	0	-.4525E+06	.3006E+06
APR	82	252	0	0	-.3463E+06	.3472E+06
MAY	8	401	0	0	-.2142E+06	.3832E+06
JUN	0	420	0	0	.0000	.5472E+06
JUL	0	435	0	0	.0000	.6322E+06
AUG	0	434	0	0	.0000	.6201E+06
SEP	13	368	0	0	-.1623E+06	.5824E+06
OCT	75	278	0	0	-.3246E+06	.3778E+06
NOV	203	156	0	0	-.4193E+06	.2893E+06
DEC	421	32	0	0	-.5447E+06	.1208E+06
YEAR	1864	3013	0	0	-.5447E+06	.6322E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	126.38	.00	3.29	46.66	3.33	74.11	10.6
FEB	94.96	.01	2.97	42.14	3.01	66.94	23.1
MAR	73.31	.47	3.29	46.66	3.33	74.11	26.2
APR	21.30	1.96	3.18	45.16	3.23	71.72	27.9
MAY	2.00	3.75	3.29	46.66	3.33	74.11	29.5
JUN	.00	6.45	3.18	45.16	3.23	71.72	38.0
JUL	.00	7.36	3.29	46.66	3.33	74.11	42.8
AUG	.00	7.01	3.29	46.66	3.33	74.11	42.1
SEP	3.01	4.86	3.18	45.16	3.23	71.72	39.9
OCT	18.50	1.92	3.29	46.66	3.33	74.11	29.2
NOV	53.21	.66	3.18	45.16	3.23	71.72	25.9
DEC	119.36	.04	3.29	46.66	3.33	74.11	20.7
YEAR	512.04	34.49	38.72	549.39	39.26	872.58	42.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 201015. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.5242E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.2028E+06	-.4535E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.3006E+06	-.4525E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3472E+06	-.3463E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3832E+06	-.2142E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.5472E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.6322E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.6201E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.5824E+06	-.1623E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.3778E+06	-.3246E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2893E+06	-.4193E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1208E+06	-.5447E+06

BLDG 630 - MESS HALL DINING AREA - ZONE 2 DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 76646.000000
FLOOR AREA (SQFT) 7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 700.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 213.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	78.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
78.0	78.0	78.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
68.0	68.0	68.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

KW	BTU/HR		THERMOSTAT SET POINT DEG F	
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 8. 85858. 56700. 80200.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	90.0
2	.100	.100	.000	.000	55.0	90.0
3	.100	.100	.000	.000	55.0	90.0
4	.600	.600	.000	.000	55.0	90.0
5	.800	1.000	.800	.800	55.0	90.0
6	.800	1.000	1.000	1.000	68.0	78.0
7	.800	1.000	.800	.800	68.0	78.0
8	.800	.600	.000	.000	68.0	78.0
9	.800	.200	.000	.000	68.0	78.0
10	.800	.600	.000	.000	68.0	78.0
11	.800	1.000	.800	.800	68.0	78.0
12	.800	1.000	1.000	1.000	68.0	78.0
13	.800	1.000	.800	.800	68.0	78.0
14	.800	.600	.000	.000	68.0	78.0
15	.800	.200	.000	.000	68.0	78.0
16	.800	1.000	.800	.800	68.0	78.0
17	.800	1.000	1.000	1.000	68.0	78.0
18	.800	1.000	.800	.800	68.0	78.0
19	.800	1.000	.000	.000	68.0	78.0
20	.600	.600	.000	.000	55.0	90.0
21	.100	.200	.000	.000	55.0	90.0
22	.100	.100	.000	.000	55.0	90.0
23	.100	.100	.000	.000	55.0	90.0
24	.100	.100	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 14000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 630 - MESS HALL DINING AREA - ZONE 2 DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	4.73	.00	.00	.00	.00	.00	.00	.00
	-51.34	LOSS		-9.22	-5.94	.00	-19.55	-4.25	-91.51	.00
FEB	.18	GAIN	6.30	.00	.00	.00	.00	.00	.00	.08
	-38.14	LOSS		-7.76	-5.16	.00	-14.78	-3.70	-79.89	.00
MAR	5.55	GAIN	7.96	.06	.00	.00	.53	.00	.00	1.24
	-25.93	LOSS		-7.20	-4.97	.00	-11.85	-3.56	-76.95	.00
APR	27.58	GAIN	8.53	.40	.02	.00	2.30	.01	.21	6.28
	-6.13	LOSS		-4.82	-3.30	.00	-6.36	-2.38	-50.23	.00
MAY	58.21	GAIN	9.31	.92	.06	.00	4.75	.04	.67	17.40
	-.31	LOSS		-3.66	-2.35	.00	-3.57	-1.63	-38.02	.00
JUN	112.	GAIN	9.	2.	0.	0.	7.	0.	3.	46.
	0.	LOSS		-3.	-1.	0.	-2.	-1.	-20.	0.
JUL	131.	GAIN	10.	2.	1.	0.	10.	0.	8.	49.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-17.	0.
AUG	125.	GAIN	9.	2.	0.	0.	8.	0.	5.	49.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-17.	0.
SEP	81.85	GAIN	7.04	.86	.22	.00	3.97	.16	2.89	33.42
	-.20	LOSS		-3.31	-1.90	.00	-3.40	-1.35	-29.19	.00
OCT	26.19	GAIN	5.80	.18	.02	.00	.83	.02	.30	8.68
	-3.90	LOSS		-5.27	-3.23	.00	-8.10	-2.26	-48.85	.00
NOV	7.66	GAIN	4.41	.01	.00	.00	.08	.00	.00	2.64
	-17.47	LOSS		-6.66	-4.16	.00	-12.75	-2.92	-62.61	.00
DEC	.19	GAIN	4.04	.00	.00	.00	.00	.00	.00	.00
	-48.97	LOSS		-9.15	-5.82	.00	-19.92	-4.11	-87.80	.00
TOT	575.	GAIN	86.	8.	2.	0.	37.	1.	20.	214.
	-192.	LOSS		-64.	-41.	0.	-105.	-29.	-618.	0.

MAX HEATING LOAD= -493744. BTUH ON DEC 18 HOUR 6 AMBIENT TEMP 0.
MAX COOLING LOAD= 561619. BTUH ON JUL 16 HOUR 6 AMBIENT TEMP 74.

ZONE UA BTU/HR-F 1702.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 630B-1.I

BLDG 630 - MESS HALL DINING AREA - ZONE 2 DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL INTERNAL HEAT GAIN MILLION BTU
JAN	65.	79.		4	13	64.	3.29	46.66	11.38	74.11
			54.	29	3	10.				
FEB	67.	79.		13	17	64.	2.97	42.14	10.28	66.94
			54.	2	3	15.				
MAR	69.	80.		24	20	69.	3.29	46.66	11.38	74.11
			54.	4	3	17.				
APR	74.	82.		30	21	71.	3.18	45.16	11.01	71.72
			55.	1	3	37.				
MAY	78.	83.		31	22	73.	3.29	46.66	11.38	74.11
			59.	11	4	38.				
JUN	80.	87.		30	5	72.	3.18	45.16	11.01	71.72
			73.	17	3	55.				
JUL	81.	91.		16	5	74.	3.29	46.66	11.38	74.11
			74.	10	3	59.				
AUG	81.	89.		1	5	74.	3.29	46.66	11.38	74.11
			73.	25	3	54.				
SEP	78.	88.		3	5	74.	3.18	45.16	11.01	71.72
			61.	15	4	41.				
OCT	74.	82.		5	5	67.	3.29	46.66	11.38	74.11
			55.	11	4	39.				
NOV	70.	80.		8	20	67.	3.18	45.16	11.01	71.72
			54.	3	3	18.				
DEC	65.	79.		23	17	62.	3.29	46.66	11.38	74.11
			54.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	439	21	0	0	-.4733E+06	.0000
FEB	325	30	0	0	-.4025E+06	.1752E+06
MAR	256	88	0	0	-.4015E+06	.2857E+06
APR	71	202	0	0	-.2955E+06	.3120E+06
MAY	5	375	0	0	-.1528E+06	.3670E+06
JUN	0	417	0	0	.0000	.4842E+06
JUL	0	435	0	0	.0000	.5616E+06
AUG	0	429	0	0	.0000	.5574E+06
SEP	6	354	0	0	-.1001E+06	.5185E+06
OCT	60	224	0	0	-.2732E+06	.3616E+06
NOV	189	114	0	0	-.3683E+06	.2736E+06
DEC	396	18	0	0	-.4937E+06	.1034E+06
YEAR	1747	2707	0	0	-.4937E+06	.5616E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	119.47	.00	3.29	46.66	3.33	74.11	10.6
FEB	88.99	.01	2.97	42.14	3.01	66.94	22.2
MAR	66.89	.42	3.29	46.66	3.33	74.11	25.8
APR	17.80	1.83	3.18	45.16	3.23	71.72	26.6
MAY	1.19	3.56	3.29	46.66	3.33	74.11	28.8
JUN	.00	6.10	3.18	45.16	3.23	71.72	34.5
JUL	.00	6.91	3.29	46.66	3.33	74.11	38.7
AUG	.00	6.64	3.29	46.66	3.33	74.11	38.5
SEP	1.35	4.52	3.18	45.16	3.23	71.72	36.4
OCT	14.31	1.75	3.29	46.66	3.33	74.11	28.5
NOV	48.00	.60	3.18	45.16	3.23	71.72	25.4
DEC	109.98	.04	3.29	46.66	3.33	74.11	20.2
YEAR	467.97	32.40	38.72	549.39	39.26	872.58	38.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 193893. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.4733E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1752E+06	-.4025E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2857E+06	-.4015E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3120E+06	-.2955E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3670E+06	-.1528E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.4842E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.5616E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.5574E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.5185E+06	-.1001E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.3616E+06	-.2732E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2736E+06	-.3683E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1034E+06	-.4937E+06

BLDG 630 - MESS HALL DINING AREA - ZONE 2 ECONOMIZER (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 76646.000000
FLOOR AREA (SQFT) 7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 700.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 213.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	78.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
78.0	78.0	78.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
68.0	68.0	68.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR		THERMOSTAT SET POINT DEG F	
		PEOPLE	PEOPLE		
LIGHTS	PROCESS	SENSIBLE	LATENT	HEATING	COOLING

PEAK VAL		8.	85858.	56700.	80200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -						
1	.100	.100	.000	.000	55.0	90.0	
2	.100	.100	.000	.000	55.0	90.0	
3	.100	.100	.000	.000	55.0	90.0	
4	.600	.600	.000	.000	55.0	90.0	
5	.800	1.000	.800	.800	55.0	90.0	
6	.800	1.000	1.000	1.000	68.0	78.0	
7	.800	1.000	.800	.800	68.0	78.0	
8	.800	.600	.000	.000	68.0	78.0	
9	.800	.200	.000	.000	68.0	78.0	
10	.800	.600	.000	.000	68.0	78.0	
11	.800	1.000	.800	.800	68.0	78.0	
12	.800	1.000	1.000	1.000	68.0	78.0	
13	.800	1.000	.800	.800	68.0	78.0	
14	.800	.600	.000	.000	68.0	78.0	
15	.800	.200	.000	.000	68.0	78.0	
16	.800	1.000	.800	.800	68.0	78.0	
17	.800	1.000	1.000	1.000	68.0	78.0	
18	.800	1.000	.800	.800	68.0	78.0	
19	.800	1.000	.000	.000	68.0	78.0	
20	.600	.600	.000	.000	55.0	90.0	
21	.100	.200	.000	.000	55.0	90.0	
22	.100	.100	.000	.000	55.0	90.0	
23	.100	.100	.000	.000	55.0	90.0	
24	.100	.100	.000	.000	55.0	90.0	

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 14000.000000
ECONOMIZER HIGH TEMP LIMIT F 72.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 630 - MESS HALL DINING AREA - ZONE 2 ECONOMIZER (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	4.73	.00	.00	.00	.00	.00	.00	.00
	-51.34	LOSS		-9.22	-5.94	.00	-19.55	-4.25	-91.51	.00
FEB	.00	GAIN	6.30	.00	.00	.00	.00	.00	.00	.00
	-38.14	LOSS		-7.76	-5.16	.00	-14.78	-3.70	-79.99	.00
MAR	3.04	GAIN	7.96	.06	.00	.00	.53	.00	.00	.90
	-25.93	LOSS		-7.20	-4.97	.00	-11.85	-3.56	-79.12	.00
APR	20.69	GAIN	8.53	.40	.02	.00	2.30	.01	.21	6.42
	-6.13	LOSS		-4.82	-3.30	.00	-6.36	-2.38	-57.26	.00
MAY	51.24	GAIN	9.31	.92	.06	.00	4.75	.04	.67	17.89
	-.31	LOSS		-3.66	-2.35	.00	-3.57	-1.63	-45.49	.00
JUN	109.	GAIN	9.	2.	0.	0.	7.	0.	3.	54.
	0.	LOSS		-3.	-1.	0.	-2.	-1.	-31.	0.
JUL	130.	GAIN	10.	2.	1.	0.	10.	0.	8.	55.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-23.	0.
AUG	125.	GAIN	9.	2.	0.	0.	8.	0.	5.	57.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-25.	0.
SEP	78.15	GAIN	7.04	.86	.22	.00	3.97	.16	2.89	38.77
	-.20	LOSS		-3.31	-1.90	.00	-3.40	-1.35	-38.24	.00
OCT	19.31	GAIN	5.80	.18	.02	.00	.83	.02	.30	8.91
	-3.90	LOSS		-5.27	-3.23	.00	-8.10	-2.26	-55.96	.00
NOV	3.13	GAIN	4.41	.01	.00	.00	.08	.00	.00	1.56
	-17.47	LOSS		-6.66	-4.16	.00	-12.75	-2.92	-66.06	.00
DEC	.00	GAIN	4.04	.00	.00	.00	.00	.00	.00	.00
	-48.97	LOSS		-9.15	-5.82	.00	-19.92	-4.11	-87.99	.00
TOT	540.	GAIN	86.	8.	2.	0.	37.	1.	20.	241.
	-192.	LOSS		-64.	-41.	0.	-105.	-29.	-681.	0.

MAX HEATING LOAD= -493744. BTUH ON DEC 18 HOUR 6 AMBIENT TEMP 0.
MAX COOLING LOAD= 689215. BTUH ON JUL 6 HOUR 7 AMBIENT TEMP 72.

ZONE UA BTU/HR-F 1702.3

BLDG 630 - MESS HALL DINING AREA - ZONE 2 ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	65.	79.		4	13	64.	3.29	46.66	11.38	74.11
			54.	29	3	10.				
FEB	67.	79.		13	17	64.	2.97	42.14	10.28	66.94
			54.	2	3	15.				
MAR	69.	80.		24	20	69.	3.29	46.66	11.38	74.11
			54.	4	3	17.				
APR	74.	82.		30	21	71.	3.18	45.16	11.01	71.72
			55.	1	3	37.				
MAY	78.	83.		31	22	73.	3.29	46.66	11.38	74.11
			59.	11	4	38.				
JUN	80.	87.		30	5	72.	3.18	45.16	11.01	71.72
			73.	17	3	55.				
JUL	81.	91.		16	5	74.	3.29	46.66	11.38	74.11
			74.	10	3	59.				
AUG	81.	89.		1	5	74.	3.29	46.66	11.38	74.11
			73.	25	3	54.				
SEP	78.	88.		3	5	74.	3.18	45.16	11.01	71.72
			61.	15	4	41.				
OCT	74.	82.		5	5	67.	3.29	46.66	11.38	74.11
			55.	11	4	39.				
NOV	70.	80.		8	20	67.	3.18	45.16	11.01	71.72
			54.	3	3	18.				
DEC	65.	79.		23	17	62.	3.29	46.66	11.38	74.11
			54.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	439	21	0	0	-.4733E+06	.0000
FEB	325	30	0	0	-.4025E+06	.0000
MAR	256	88	0	0	-.4015E+06	.2898E+06
APR	71	202	0	0	-.2955E+06	.3120E+06
MAY	5	375	0	0	-.1528E+06	.3670E+06
JUN	0	417	0	0	.0000	.6245E+06
JUL	0	435	0	0	.0000	.6892E+06
AUG	0	429	0	0	.0000	.6616E+06
SEP	6	354	0	0	-.1001E+06	.5959E+06
OCT	60	224	0	0	-.2732E+06	.4696E+06
NOV	189	114	0	0	-.3683E+06	.2736E+06
DEC	396	18	0	0	-.4937E+06	.0000
YEAR	1747	2707	0	0	-.4937E+06	.6892E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	119.47	.00	3.29	46.66	3.33	74.11	10.6
FEB	88.99	.00	2.97	42.14	3.01	66.94	10.6
MAR	66.89	.23	3.29	46.66	3.33	74.11	25.9
APR	17.80	1.40	3.18	45.16	3.23	71.72	26.6
MAY	1.19	3.01	3.29	46.66	3.33	74.11	28.8
JUN	.00	5.76	3.18	45.16	3.23	71.72	42.4
JUL	.00	6.80	3.29	46.66	3.33	74.11	46.3
AUG	.00	6.60	3.29	46.66	3.33	74.11	44.6
SEP	1.35	4.23	3.18	45.16	3.23	71.72	40.7
OCT	14.31	1.18	3.29	46.66	3.33	74.11	33.8
NOV	48.00	.23	3.18	45.16	3.23	71.72	25.4
DEC	109.98	.00	3.29	46.66	3.33	74.11	10.6
YEAR	467.97	29.44	38.72	549.39	39.26	872.58	46.3

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 192490. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 ECONOMIZER (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.4733E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.4025E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2898E+06	-.4015E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3120E+06	-.2955E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3670E+06	-.1528E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.6245E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.6892E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.6616E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.5959E+06	-.1001E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.4696E+06	-.2732E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2736E+06	-.3683E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.4937E+06

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

---------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 76646.000000
FLOOR AREA (SQFT) 7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 700.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 213.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 49.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	85858.	56700.	80200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	70.0	75.0
2	.100	.100	.000	.000	70.0	75.0
3	.100	.100	.000	.000	70.0	75.0
4	.600	.600	.000	.000	70.0	75.0
5	.800	1.000	.800	.800	70.0	75.0
6	.800	1.000	1.000	1.000	70.0	75.0
7	.800	1.000	.800	.800	70.0	75.0
8	.800	.600	.000	.000	70.0	75.0
9	.800	.200	.000	.000	70.0	75.0
10	.800	.600	.000	.000	70.0	75.0
11	.800	1.000	.800	.800	70.0	75.0
12	.800	1.000	1.000	1.000	70.0	75.0

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 13          .800      1.000       .800       .800          70.0         75.0
 14          .800       .600       .000       .000          70.0         75.0
 15          .800       .200       .000       .000          70.0         75.0
 16          .800      1.000       .800       .800          70.0         75.0
 17          .800      1.000      1.000      1.000          70.0         75.0
 18          .800      1.000       .800       .800          70.0         75.0
 19          .800      1.000       .000       .000          70.0         75.0
 20          .600       .600       .000       .000          70.0         75.0
 21          .100       .200       .000       .000          70.0         75.0
 22          .100       .100       .000       .000          70.0         75.0
 23          .100       .100       .000       .000          70.0         75.0
 24          .100       .100       .000       .000          70.0         75.0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)        60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)        60.000000
SYSTEM TYPE, (IECN)              2
SUPPLY AIR CFM (SACFM)    14000.000000
ECONOMIZER HIGH TEMP LIMIT F         65.000000
SYSTEM SUPPLY AIR START TIME HR      0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR         24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)        60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)     1.000000E-01
FAN EFFICIENCY (EFAN)     5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)           1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT)   936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN)   1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100       .191       .200       .286       .300       .369       .400       .451

 .500       .537       .600       .625       .700       .718       .800       .812

 .900       .906       1.00       1.00
CHILLER TYPE (ITYPCH)              0
COOLING PLANT RATED OUTPUT BTU (CFLOT)    836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN)    154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .100       .200       .200       .250       .300       .310       .400       .370

 .500       .450       .600       .550       .700       .650       .800       .760

 .900       .880       1.00       1.00
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BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	4.73	.00	.00	.00	.00	.00	.00	.00
	-65.71	LOSS		-10.71	-7.02	.00	-23.98	-5.02	-97.83	.00
FEB	.20	GAIN	6.30	.00	.00	.00	.00	.00	.00	.08
	-49.46	LOSS		-8.92	-6.00	.00	-18.23	-4.31	-85.12	.00
MAR	6.96	GAIN	7.96	.09	.00	.00	.64	.00	.01	1.49
	-36.02	LOSS		-8.13	-5.62	.00	-14.60	-4.02	-81.00	.00
APR	32.72	GAIN	8.53	.52	.04	.00	2.84	.03	.51	6.72
	-10.51	LOSS		-5.03	-3.40	.00	-7.26	-2.44	-50.37	.00
MAY	67.68	GAIN	9.31	1.14	.14	.00	5.97	.10	1.63	18.83
	-1.51	LOSS		-3.25	-1.98	.00	-2.92	-1.37	-35.54	.00
JUN	136.	GAIN	9.	2.	0.	0.	9.	0.	5.	55.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-13.	0.
JUL	167.	GAIN	10.	3.	1.	0.	13.	1.	11.	66.
	0.	LOSS		-1.	-1.	0.	0.	0.	-8.	0.
AUG	159.	GAIN	9.	2.	1.	0.	10.	0.	8.	66.
	0.	LOSS		-1.	-1.	0.	0.	0.	-8.	0.
SEP	102.	GAIN	7.	1.	0.	0.	5.	0.	4.	42.
	-2.	LOSS		-3.	-2.	0.	-3.	-1.	-24.	0.
OCT	32.13	GAIN	5.80	.25	.05	.00	1.18	.04	.68	9.86
	-8.65	LOSS		-5.36	-3.28	.00	-8.51	-2.29	-49.05	.00
NOV	9.65	GAIN	4.41	.02	.00	.00	.15	.00	.01	2.82
	-25.94	LOSS		-7.35	-4.66	.00	-14.80	-3.26	-65.37	.00
DEC	.35	GAIN	4.04	.00	.00	.00	.00	.00	.00	.00
	-62.67	LOSS		-10.66	-6.91	.00	-24.40	-4.89	-93.61	.00
TOT	714.	GAIN	86.	10.	3.	0.	49.	2.	31.	269.
	-262.	LOSS		-67.	-42.	0.	-119.	-30.	-611.	0.

MAX HEATING LOAD= -347498. BTUH ON DEC 18 HOUR 2 AMBIENT TEMP 3.
MAX COOLING LOAD= 486741. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 1702.3

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	71.	76.		4	13	64.	3.29	46.66	11.38	74.11
			69.	29	3	10.				
FEB	71.	76.		9	13	57.	2.97	42.14	10.28	66.94
			69.	2	3	15.				
MAR	72.	77.		12	13	74.	3.29	46.66	11.38	74.11
			69.	4	3	17.				
APR	74.	77.		30	17	83.	3.18	45.16	11.01	71.72
			69.	1	3	37.				
MAY	75.	77.		28	13	85.	3.29	46.66	11.38	74.11
			70.	9	3	44.				
JUN	76.	77.		27	13	88.	3.18	45.16	11.01	71.72
			72.	17	3	55.				
JUL	76.	77.		15	13	93.	3.29	46.66	11.38	74.11
			73.	10	3	59.				
AUG	76.	77.		10	13	85.	3.29	46.66	11.38	74.11
			72.	25	3	54.				
SEP	75.	77.		3	13	89.	3.18	45.16	11.01	71.72
			70.	15	3	41.				
OCT	74.	77.		4	13	83.	3.29	46.66	11.38	74.11
			70.	28	3	32.				
NOV	73.	77.		8	13	77.	3.18	45.16	11.01	71.72
			69.	3	3	18.				
DEC	71.	76.		23	17	62.	3.29	46.66	11.38	74.11
			69.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
MONTH	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	573	50	0	0	-.3080E+06	.0000
FEB	448	69	0	0	-.2730E+06	.2006E+06
MAR	379	148	0	0	-.2572E+06	.2911E+06
APR	154	320	0	0	-.1561E+06	.3203E+06
MAY	28	513	0	0	-.1086E+06	.3654E+06
JUN	0	629	0	0	.0000	.4641E+06
JUL	0	702	0	0	.0000	.4838E+06
AUG	0	699	0	0	.0000	.4615E+06
SEP	45	542	0	0	-.9443E+05	.4867E+06
OCT	148	342	0	0	-.1434E+06	.3787E+06
NOV	307	180	0	0	-.2264E+06	.2896E+06
DEC	525	39	0	0	-.3475E+06	.1192E+06
YEAR	2607	4233	0	0	-.3475E+06	.4867E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	154.48	.00	3.29	46.66	3.33	74.11	10.6
FEB	118.60	.01	2.97	42.14	3.01	66.94	23.0
MAR	95.82	.52	3.29	46.66	3.33	74.11	25.9
APR	35.91	2.22	3.18	45.16	3.23	71.72	26.9
MAY	6.27	4.22	3.29	46.66	3.33	74.11	28.7
JUN	.00	7.97	3.18	45.16	3.23	71.72	33.5
JUL	.00	9.58	3.29	46.66	3.33	74.11	34.5
AUG	.00	9.27	3.29	46.66	3.33	74.11	33.3
SEP	10.04	6.15	3.18	45.16	3.23	71.72	34.7
OCT	33.52	2.20	3.29	46.66	3.33	74.11	29.3
NOV	75.27	.71	3.18	45.16	3.23	71.72	25.9
DEC	143.02	.04	3.29	46.66	3.33	74.11	20.6
YEAR	672.94	42.88	38.72	549.39	39.26	872.58	34.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 227376. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F −	HOURS SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.3080E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.2006E+06	-.2730E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2911E+06	-.2572E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3203E+06	-.1561E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3654E+06	-.1086E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.4641E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.4838E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.4615E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.4867E+06	-.9443E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.3787E+06	-.1434E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2896E+06	-.2264E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1192E+06	-.3475E+06

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1

WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	76646.000000
FLOOR AREA (SQFT)	7190.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	936800.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-836640.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	71900.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	700.000000

INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA)	5.480000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	39779.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	213.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	49.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	1471.0	1446.0	1487.0
WINDOW AREA SQFT (AWND)	.0	144.0	84.0	128.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	14.4	8.4	12.8
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.245	.243	.245	.243
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01822	.01837	.01822
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00280	.00283	.00280
N=3	.01017	.01008	.01017	.01008
N=4	.00498	.00494	.00498	.00494
N=5	.00037	.00036	.00037	.00036
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7190.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 5.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.423913E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.136E-02 .140E-01 .848E-02 .380E-03 543. 543.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 8.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	85858.	56700.	80200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	70.0	75.0
2	.100	.100	.000	.000	70.0	75.0
3	.100	.100	.000	.000	70.0	75.0
4	.600	.600	.000	.000	70.0	75.0
5	.800	1.000	.800	.800	70.0	75.0
6	.800	1.000	1.000	1.000	70.0	75.0
7	.800	1.000	.800	.800	70.0	75.0
8	.800	.600	.000	.000	70.0	75.0
9	.800	.200	.000	.000	70.0	75.0
10	.800	.600	.000	.000	70.0	75.0
11	.800	1.000	.800	.800	70.0	75.0
12	.800	1.000	1.000	1.000	70.0	75.0
13	.800	1.000	.800	.800	70.0	75.0

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  14          .800       .600       .000       .000          70.0         75.0
  15          .800       .200       .000       .000          70.0         75.0
  16          .800      1.000       .800       .800          70.0         75.0
  17          .800      1.000      1.000      1.000          70.0         75.0
  18          .800      1.000       .800       .800          70.0         75.0
  19          .800      1.000       .000       .000          70.0         75.0
  20          .600       .600       .000       .000          70.0         75.0
  21          .100       .200       .000       .000          70.0         75.0
  22          .100       .100       .000       .000          70.0         75.0
  23          .100       .100       .000       .000          70.0         75.0
  24          .100       .100       .000       .000          70.0         75.0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)        60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)        60.000000
SYSTEM TYPE, (IECN)                2
SUPPLY AIR CFM (SACFM)    14000.000000
ECONOMIZER HIGH TEMP LIMIT F         65.000000
SYSTEM SUPPLY AIR START TIME HR      0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR         24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)        60.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)     1.000000E-01
FAN EFFICIENCY (EFAN)     5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)          1.500000
HEATING PLANT RATED OUTPUT BTU (HFLOT)   936800.000000
HEATING PLANT RATED INPUT BTU (HFLIN)   1171000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100       .191       .200       .286       .300       .369       .400       .451

 .500       .537       .600       .625       .700       .718       .800       .812

 .900       .906       1.00       1.00
CHILLER TYPE (ITYPCH)                0
COOLING PLANT RATED OUTPUT BTU (CFLOT)    836640.000000
COOLING PLANT RATED INPUT BTU (CFLIN)    154670.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .100       .200       .200       .250       .300       .310       .400       .370

 .500       .450       .600       .550       .700       .650       .800       .760

 .900       .880       1.00       1.00
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BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	5.	0.	0.	0.	0.	0.	0.	0.
	-72.	LOSS		-11.	-7.	0.	-24.	-5.	-105.	0.
FEB	.20	GAIN	6.30	.00	.00	.00	.00	.00	.00	.07
	-55.29	LOSS		-8.92	-6.01	.00	-18.23	-4.31	-90.94	.00
MAR	6.99	GAIN	7.96	.09	.00	.00	.64	.00	.01	1.47
	-41.68	LOSS		-8.12	-5.61	.00	-14.58	-4.02	-86.65	.00
APR	32.46	GAIN	8.53	.52	.04	.00	2.86	.03	.45	6.57
	-13.99	LOSS		-5.01	-3.38	.00	-7.20	-2.42	-54.04	.00
MAY	66.54	GAIN	9.31	1.14	.14	.00	6.01	.10	1.41	18.05
	-2.38	LOSS		-3.19	-1.94	.00	-2.79	-1.34	-36.82	.00
JUN	133.	GAIN	9.	2.	0.	0.	9.	0.	4.	53.
	0.	LOSS		-2.	-1.	0.	-1.	-1.	-14.	0.
JUL	167.	GAIN	10.	3.	1.	0.	13.	1.	10.	69.
	0.	LOSS		-1.	0.	0.	0.	0.	-9.	0.
AUG	160.	GAIN	9.	2.	1.	0.	10.	0.	7.	68.
	0.	LOSS		-1.	-1.	0.	0.	0.	-9.	0.
SEP	101.	GAIN	7.	1.	0.	0.	5.	0.	4.	42.
	-3.	LOSS		-3.	-2.	0.	-3.	-1.	-26.	0.
OCT	31.45	GAIN	5.80	.25	.05	.00	1.19	.04	.55	9.43
	-11.91	LOSS		-5.33	-3.25	.00	-8.40	-2.27	-52.64	.00
NOV	9.67	GAIN	4.41	.02	.00	.00	.15	.00	.01	2.76
	-30.89	LOSS		-7.34	-4.65	.00	-14.77	-3.26	-70.29	.00
DEC	0.	GAIN	4.	0.	0.	0.	0.	0.	0.	0.
	-70.	LOSS		-11.	-7.	0.	-24.	-5.	-101.	0.
TOT	709.	GAIN	86.	10.	3.	0.	49.	2.	27.	270.
	-301.	LOSS		-67.	-42.	0.	-119.	-30.	-654.	0.

MAX HEATING LOAD= -402674. BTUH ON DEC 18 HOUR 2 AMBIENT TEMP 3.
MAX COOLING LOAD= 521701. BTUH ON JUL 28 HOUR 17 AMBIENT TEMP 92.

ZONE UA BTU/HR-F 1702.3

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	71.	76.		4	13	64.	3.29	46.66	11.38	74.11
			69.	29	3	10.				
FEB	71.	76.		9	13	57.	2.97	42.14	10.28	66.94
			69.	2	3	15.				
MAR	72.	77.		12	13	74.	3.29	46.66	11.38	74.11
			69.	4	3	17.				
APR	74.	77.		30	17	83.	3.18	45.16	11.01	71.72
			69.	9	3	32.				
MAY	75.	77.		29	18	84.	3.29	46.66	11.38	74.11
			70.	11	3	38.				
JUN	76.	77.		27	13	88.	3.18	45.16	11.01	71.72
			71.	17	3	55.				
JUL	76.	77.		15	13	93.	3.29	46.66	11.38	74.11
			72.	10	3	59.				
AUG	76.	77.		10	13	85.	3.29	46.66	11.38	74.11
			71.	25	3	54.				
SEP	75.	77.		3	13	89.	3.18	45.16	11.01	71.72
			70.	15	3	41.				
OCT	74.	77.		4	13	83.	3.29	46.66	11.38	74.11
			70.	28	3	32.				
NOV	72.	77.		8	13	77.	3.18	45.16	11.01	71.72
			69.	3	3	18.				
DEC	71.	76.		29	13	63.	3.29	46.66	11.38	74.11
			69.	18	3	2.				
YEAR							38.72	549.39	134.00	872.58

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	570	51	0	0	-.3596E+06	.0000
FEB	451	74	0	0	-.3171E+06	.2013E+06
MAR	401	158	0	0	-.2851E+06	.2992E+06
APR	179	312	0	0	-.1857E+06	.3279E+06
MAY	38	498	0	0	-.1332E+06	.3837E+06
JUN	0	597	0	0	.0000	.4758E+06
JUL	0	688	0	0	.0000	.5217E+06
AUG	0	688	0	0	.0000	.4745E+06
SEP	58	518	0	0	-.1167E+06	.4714E+06
OCT	181	341	0	0	-.1729E+06	.3597E+06
NOV	330	189	0	0	-.2679E+06	.2822E+06
DEC	529	41	0	0	-.4027E+06	.1373E+06
YEAR	2737	4155	0	0	-.4027E+06	.5217E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	160.20	.00	3.29	46.66	3.33	74.11	10.6
FEB	124.91	.01	2.97	42.14	3.01	66.94	23.0
MAR	105.05	.51	3.29	46.66	3.33	74.11	26.2
APR	43.30	2.18	3.18	45.16	3.23	71.72	27.1
MAY	8.68	4.16	3.29	46.66	3.33	74.11	29.5
JUN	.00	7.68	3.18	45.16	3.23	71.72	34.1
JUL	.00	9.50	3.29	46.66	3.33	74.11	36.6
AUG	.00	9.21	3.29	46.66	3.33	74.11	34.0
SEP	13.00	6.03	3.18	45.16	3.23	71.72	33.9
OCT	41.95	2.13	3.29	46.66	3.33	74.11	28.4
NOV	83.99	.71	3.18	45.16	3.23	71.72	25.7
DEC	150.25	.04	3.29	46.66	3.33	74.11	21.1
YEAR	731.34	42.16	38.72	549.39	39.26	872.58	36.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 235155. BTU/(SQFT-YEAR)

BLDG 630 - MESS HALL DINING AREA - ZONE 2 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.3596E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.2013E+06	-.3171E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2992E+06	-.2851E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3279E+06	-.1857E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.3837E+06	-.1332E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.4758E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.5217E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.4745E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.4714E+06	-.1167E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.3597E+06	-.1729E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2822E+06	-.2679E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1373E+06	-.4027E+06

COMPUTER SIMULATIONS

BUILDING 637

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 637Z1
BLDG. TYPE: CHURCH (CHAPEL AREA)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	1129.8	620.3	615.6	615.6	1065.6	1099.4
COOLING (kWH)	32780	13650	13320	12610	31380	31240

SUPPLY AIR FAN	6970 CFM
FLOOR AREA	4647 FT²
CFMI	604 CFM
UA	3143 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	1900	2000	5 HR
SAT.	1100	1200	1 HR
SUN.	700	1200	5 HR
	TOTAL OCCUPY HR.		11 HR/WK
	TOTAL UNOCC. HR.		157 HR/WK
	ANNUAL OCCUPY HR.		574 HR/YR
	ANNUAL UNOCC. HR.		8186 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	286 HR/YR
HR. ON COOLING	192 HR/YR
HR. OFF HEATING	4082 HR/YR
HR. OFF COOLING	2736 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 286 = 4082 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 192 = 2736 HR/YR

HOAUHC	1129.8 MBtu	–	1065.6 MBtu	=	1.30E+01 Btu/CFM-HR
	604 CFM	*	8186 HR/YR		
HOAUH	1129.8 MBtu	–	1065.6 MBtu	=	2.60E+01 Btu/CFM-HR
	604 CFM	*	4082 HR/YR		
COAUHC	32780 kWH	–	31380 kWH	=	2.83E-04 kWH/CFM-HR
	604 CFM	*	8186 HR/YR		
COAUC	32780 kWH	–	31380 kWH	=	8.47E-04 kWH/CFM-HR
	604 CFM	*	2736 HR/YR		
HOAOHC	1129.8 MBtu	–	1099.4 MBtu	=	8.78E+01 Btu/CFM-HR
	604 CFM	*	574 HR/YR		
HOAOH	1129.8 MBtu	–	1099.4 MBtu	=	1.76E+02 Btu/CFM-HR
	604 CFM	*	286 HR/YR		
COAOHC	32780 kWH		31240 kWH	=	4.45E-03 kWH/CFM-HR
	604 CFM	*	574 HR/YR		
COAOC	32780 kWH		31240 kWH	=	1.33E-02 kWH/CFM-HR
	604 CFM	*	192 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)			=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)			=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 637Z1
BLDG. TYPE: CHURCH (CHAPEL AREA)

ENERGY CONSTANT CALCULATIONS

ECC	13320 kWH	–	12610 kWH	=	5.31E-04 kWH/CFM-HR
	6970 CFM	*	192 HR/YR		
ECHC	13320 kWH	–	12610 kWH	=	1.78E-04 kWH/CFM-HR
	6970 CFM	*	574 HR/YR		
NSUCHC	32780 kWH	–	13650 kWH	=	3.35E-04 kWH/CFM-HR
	6970 CFM	*	8186 HR/YR		
NSUCC	32780 kWH	–	13650 kWH	=	1.00E-03 kWH/CFM-HR
	6970 CFM	*	2736 HR/YR		
DDCCHC	13650 kWH	–	13320 kWH	=	8.25E-05 kWH/CFM-HR
	6970 CFM	*	574 HR/YR		
DDCCC	13650 kWH	–	13320 kWH	=	2.47E-04 kWH/CFM-HR
	6970 CFM	*	192 HR/YR		
NSC	1129.8 MBtu	–	620.25 MBtu	=	1.62E+05 Btu/UA
		3143 UA			
DSC	620.25 MBtu	–	615.64 MBtu	=	1.47E+03 Btu/UA
		3143 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			=	13.9 kWH/TON
OAR	506 HR/YR	*	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

DATE:	10-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	637Z1BHL

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

BUILDING HEATING LOAD CALCULATION SHEET

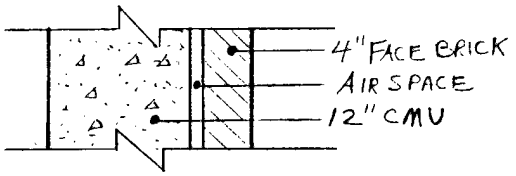
BLDG NO: 637 BLDG NAME: CHAPEL - ZONE 1
BLDG FUNCTION: CHAPEL AREA
FLOOR AREA: (SQ. FT) 4,647 # FLOORS 1
SLAB PERIMETER: (FT) 300

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,822	2,369	1,458	1,458	7,107
GLASS	(SQ. FT)	253	486	94	0	833
PERSONNEL DOOR	(SQ. FT)	21	21	41	0	82
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	1,548	1,862	1,323	1,458	6,192
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	5,313
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	82
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

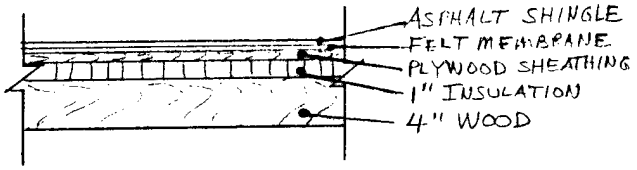
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	12" CMU	3.03
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.22
	U=1/R	0.191

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	ASPHALT SHINGLE	0.20
3.	.375" FELT MEMBRANE	0.29
4.	PLYWOOD SHEATHING	0.47
5.	1" INSULATION	3.33
6.	4" WOOD	4.76
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	9.90
	U=1/R	0.101

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	2" RED OAK WITH 80% SINGLE GLASS	R-PDOOR	1.06

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)	H	7107	X CFM / SQ.FT.	0.083	=	590
AVG. WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		10	X CFM /OPENING /HR	1.385	=	14
			TOTAL INFILTRATION (CFM)		=	604

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	82	X DOOR "U"	0.943	=	78
UA WALL	= WALL AREA	6,192	X WALL "U"	0.191	=	1,185
UA ROOF	= ROOF AREA	5,313	X ROOF "U"	0.101	=	537
UA GLASS	= GLASS AREA	833	X GLASS "U"	0.621	=	517
UA SLAB	= SLAB PERIM.	300	X SLF	0.670	=	201
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	604	X A. T. F.	1.035	=	625
			TOTAL UA (BTU/HR°F)			3,143

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 05-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 637Z1
BLDG: 637 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	100	1	Seated at rest	Theater, Movie	225	105	22,500	10,500
TOTAL	100					TOTAL	22,500	10,500

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	10		Incandescent – 750w	750	7,500
	4		Incandescent – 200w	200	800
	6	21	Incandescent – 150w	150	900
	7	18	Incandescent – 60w	60	420
TOTAL	27			TOTAL	9,620

Peak Value for Internal Gains

Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	1		Church Organ	1,150	15%	1,150	3,925
				TOTAL	15%	1,150	3,925

E M C Engineers, Inc.

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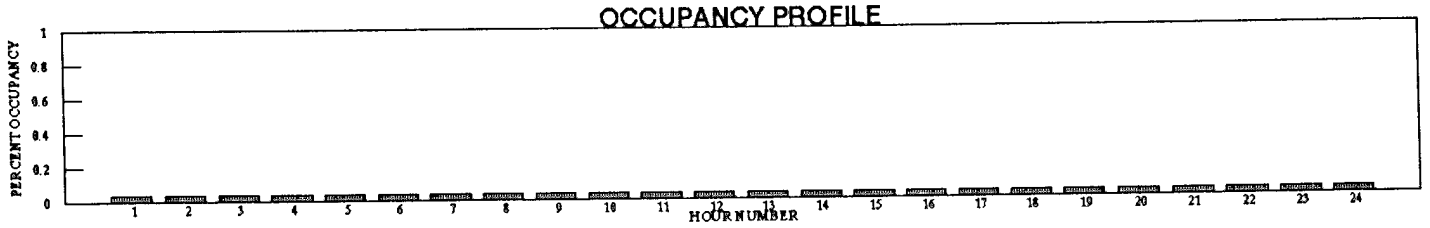
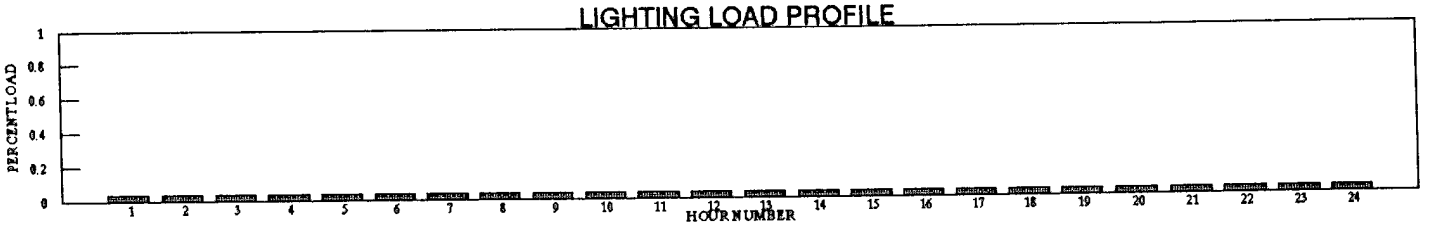
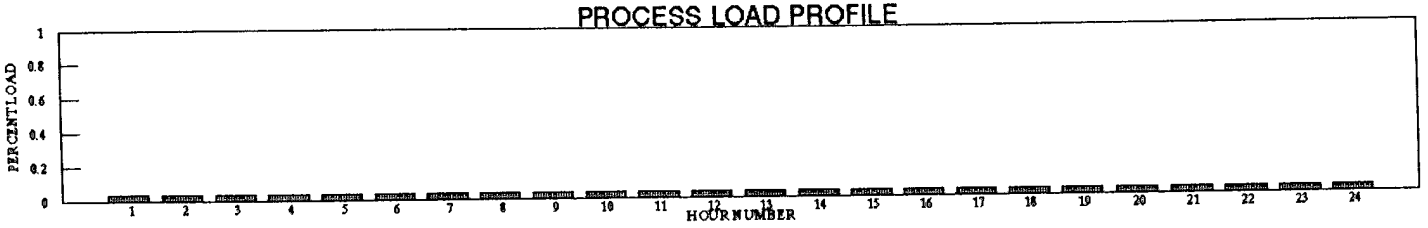
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 05-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 637Z1
BLDG: 637
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	Church	OCCUPANCY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		LIGHTING	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		PROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0







BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.000	.476E-03	.114E-02	.572E-03	.953E-04

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.98	1.34	-.374	.434E-01	-.170E-02

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	10.	589.	22500.	10500.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	70.0	75.0
2	.040	.040	.040	.040	70.0	75.0
3	.040	.040	.040	.040	70.0	75.0
4	.040	.040	.040	.040	70.0	75.0
5	.040	.040	.040	.040	70.0	75.0
6	.040	.040	.040	.040	70.0	75.0
7	.040	.040	.040	.040	70.0	75.0
8	.040	.040	.040	.040	70.0	75.0
9	.040	.040	.040	.040	70.0	75.0
10	.040	.040	.040	.040	70.0	75.0
11	.040	.040	.040	.040	70.0	75.0
12	.040	.040	.040	.040	70.0	75.0

13	.040	.040	.040	.040	70.0	75.0
14	.040	.040	.040	.040	70.0	75.0
15	.040	.040	.040	.040	70.0	75.0
16	.040	.040	.040	.040	70.0	75.0
17	.040	.040	.040	.040	70.0	75.0
18	.040	.040	.040	.040	70.0	75.0
19	.040	.040	.040	.040	70.0	75.0
20	.040	.040	.040	.040	70.0	75.0
21	.040	.040	.040	.040	70.0	75.0
22	.040	.040	.040	.040	70.0	75.0
23	.040	.040	.040	.040	70.0	75.0
24	.040	.040	.040	.040	70.0	75.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6970.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-172.	LOSS		-15.	-7.	0.	-63.	-11.	-96.	0.
FEB	0.	GAIN	18.	0.	0.	0.	0.	0.	0.	0.
	-138.	LOSS		-13.	-6.	0.	-51.	-10.	-81.	0.
MAR	1.	GAIN	23.	0.	0.	0.	0.	0.	0.	0.
	-106.	LOSS		-11.	-6.	0.	-35.	-9.	-72.	0.
APR	9.80	GAIN	21.65	.05	.05	.00	2.67	.08	.54	1.84
	-45.45	LOSS		-6.24	-3.22	.00	-14.39	-5.07	-38.49	.00
MAY	30.65	GAIN	22.60	.34	.15	.00	12.21	.23	1.34	8.22
	-8.50	LOSS		-2.90	-1.82	.00	-1.04	-2.77	-19.48	.00
JUN	82.81	GAIN	22.60	1.00	.41	.00	24.70	.63	3.85	36.44
	-.19	LOSS		-1.01	-.87	.00	.00	-1.32	-8.67	.00
JUL	117.	GAIN	23.	2.	1.	0.	36.	2.	10.	46.
	0.	LOSS		-1.	-1.	0.	0.	-1.	-6.	0.
AUG	106.	GAIN	21.	2.	1.	0.	31.	1.	7.	46.
	0.	LOSS		-1.	-1.	0.	0.	-1.	-6.	0.
SEP	60.20	GAIN	19.56	.56	.37	.00	15.60	.60	3.96	27.50
	-10.54	LOSS		-2.59	-1.42	.00	-1.30	-2.20	-15.84	.00
OCT	10.43	GAIN	17.90	.01	.06	.00	2.04	.09	.59	3.53
	-42.84	LOSS		-6.68	-3.04	.00	-14.38	-4.66	-32.98	.00
NOV	1.44	GAIN	15.90	.00	.01	.00	.00	.01	.09	.44
	-88.98	LOSS		-10.02	-4.57	.00	-34.20	-7.04	-53.09	.00
DEC	0.	GAIN	15.	0.	0.	0.	0.	0.	0.	0.
	-172.	LOSS		-15.	-7.	0.	-67.	-11.	-91.	0.
TOT	419.	GAIN	236.	6.	3.	0.	124.	4.	27.	171.
	-786.	LOSS		-85.	-42.	0.	-282.	-66.	-521.	0.

MAX HEATING LOAD= -475000. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 346002. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 2313.6

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	69.	74.		1	13	53.	.23	.09	3.78	5.09
			67.	29	7	14.				
FEB	69.	77.		17	13	59.	.20	.08	3.41	4.57
			67.	6	7	14.				
MAR	70.	78.		12	13	74.	.22	.09	3.78	5.05
			57.	24	19	69.				
APR	71.	78.		25	12	77.	.21	.09	3.66	4.87
			58.	2	19	69.				
MAY	74.	78.		31	12	80.	.23	.09	3.78	5.09
			69.	11	5	39.				
JUN	76.	78.		29	12	87.	.21	.09	3.66	4.87
			70.	17	5	56.				
JUL	76.	78.		5	12	85.	.22	.09	3.78	5.05
			71.	24	5	65.				
AUG	76.	78.		30	12	86.	.23	.09	3.78	5.09
			70.	26	5	57.				
SEP	74.	79.		25	12	63.	.20	.08	3.66	4.83
			69.	16	17	69.				
OCT	71.	78.		4	12	83.	.23	.09	3.78	5.09
			66.	14	20	69.				
NOV	70.	77.		8	13	77.	.22	.09	3.66	4.92
			57.	7	18	69.				
DEC	68.	75.		23	13	71.	.21	.09	3.78	5.01
			66.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	741	0	0	0	-.4598E+06	.0000
FEB	666	1	0	0	-.3972E+06	.0000
MAR	681	37	0	0	-.3815E+06	.1158E+06
APR	496	154	0	0	-.2270E+06	.1550E+06
MAY	228	387	0	0	-.1269E+06	.2166E+06
JUN	21	634	0	0	-.1884E+05	.3108E+06
JUL	0	714	0	0	.0000	.3258E+06
AUG	14	703	0	0	-.2885E+05	.3039E+06
SEP	208	454	0	0	-.1195E+06	.3460E+06
OCT	527	146	0	0	-.2061E+06	.2303E+06
NOV	661	33	0	0	-.3162E+06	.1292E+06
DEC	741	0	2	0	-.4750E+06	.0000
YEAR	4984	3263	2	0	-.4750E+06	.3460E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	234.63	.00	.23	.09	1.11	5.09	1.9
FEB	192.80	.00	.20	.08	1.00	4.57	1.9
MAR	159.85	.14	.22	.09	1.11	5.05	11.7
APR	84.28	.92	.21	.09	1.07	4.87	14.0
MAY	28.26	2.70	.23	.09	1.11	5.09	19.1
JUN	2.38	6.91	.21	.09	1.07	4.87	26.6
JUL	.00	9.47	.22	.09	1.11	5.05	27.3
AUG	1.58	8.67	.23	.09	1.11	5.09	25.8
SEP	26.83	5.03	.20	.08	1.07	4.83	28.1
OCT	83.99	.95	.23	.09	1.11	5.09	20.2
NOV	140.11	.15	.22	.09	1.07	4.92	12.5
DEC	234.12	.00	.21	.09	1.11	5.01	1.9
YEAR	1188.82	34.94	2.59	1.06	13.03	59.55	28.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 293193. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.4598E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.3972E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.1158E+06	-.3815E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1550E+06	-.2270E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.2166E+06	-.1269E+06
JUN	2566.	1934.	1.000	72.	0.	0.	0	0	.3108E+06	-.1884E+05
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.3258E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.3039E+06	-.2885E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3460E+06	-.1195E+06
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.2303E+06	-.2061E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.1292E+06	-.3162E+06
DEC	888.	608.	1.000	35.	0.	0.	0	2	.0000	-.4750E+06

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.000	.476E-03	.114E-02	.572E-03	.953E-04

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.98	1.34	-.374	.434E-01	-.170E-02

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	75.0	75.0
75.0	75.0	75.0	75.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	70.0	70.0
70.0	70.0	70.0	70.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
		PEOPLE	PEOPLE			
	LIGHTS	PROCESS SENSIBLE	LATENT		HEATING	COOLING
PEAK VAL	10.	589. 22500.	10500.			

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	55.0	90.0
2	.040	.040	.040	.040	55.0	90.0
3	.040	.040	.040	.040	55.0	90.0
4	.040	.040	.040	.040	55.0	90.0
5	.040	.040	.040	.040	55.0	90.0
6	.040	.040	.040	.040	55.0	90.0
7	.040	.040	.040	.040	55.0	90.0
8	.040	.040	.040	.040	55.0	90.0
9	.040	.040	.040	.040	55.0	90.0
10	.040	.040	.040	.040	55.0	90.0
11	.040	.040	.040	.040	55.0	90.0
12	.040	.040	.040	.040	55.0	90.0
13	.040	.040	.040	.040	55.0	90.0
14	.040	.040	.040	.040	55.0	90.0
15	.040	.040	.040	.040	55.0	90.0
16	.040	.040	.040	.040	55.0	90.0
17	.040	.040	.040	.040	55.0	90.0
18	.040	.040	.040	.040	55.0	90.0
19	.040	.040	.040	.040	55.0	90.0
20	.040	.040	.040	.040	55.0	90.0
21	.040	.040	.040	.040	55.0	90.0
22	.040	.040	.040	.040	55.0	90.0
23	.040	.040	.040	.040	55.0	90.0
24	.040	.040	.040	.040	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6970.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100 .191 .200 .286 .300 .369 .400 .451

.500 .537 .600 .625 .700 .718 .800 .812

.900 .906 1.00 1.00

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000 .000 .000 .000 .000 .000 .000 .000

.000 .000 .000 .000 .000 .000 .000 .000

.000 .000 .000 .000

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	15.89	.00	.01	.00	.02	.01	.06	.00
	-92.24	LOSS		-10.31	-4.60	.00	-34.11	-7.23	-57.13	.00
FEB	.00	GAIN	18.08	.00	.01	.00	.00	.02	.13	.00
	-67.12	LOSS		-8.28	-3.84	.00	-23.98	-6.04	-47.77	.00
MAR	.72	GAIN	22.89	.00	.01	.00	.80	.01	.07	.11
	-43.11	LOSS		-7.19	-3.56	.00	-12.00	-5.60	-42.99	.00
APR	3.92	GAIN	21.65	.00	.00	.00	3.81	.01	.04	.81
	-12.48	LOSS		-4.33	-2.28	.00	-3.29	-3.61	-26.20	.00
MAY	14.59	GAIN	22.60	.02	.01	.00	8.27	.02	.13	5.11
	-1.10	LOSS		-3.17	-1.99	.00	-.06	-3.05	-19.46	.00
JUN	35.80	GAIN	22.60	.04	.04	.00	11.33	.07	.41	19.52
	.00	LOSS		-2.36	-1.71	.00	.00	-2.63	-16.34	.00
JUL	48.04	GAIN	22.60	.27	.14	.00	15.07	.22	1.42	24.05
	.00	LOSS		-1.99	-1.54	.00	.00	-2.37	-14.87	.00
AUG	38.52	GAIN	20.82	.10	.08	.00	11.68	.12	.75	20.42
	-.03	LOSS		-2.19	-1.55	.00	.00	-2.36	-14.52	.00
SEP	24.90	GAIN	19.56	.03	.08	.00	8.08	.13	.89	12.67
	-1.36	LOSS		-2.94	-1.53	.00	-.10	-2.39	-15.86	.00
OCT	4.99	GAIN	17.90	.00	.01	.00	1.95	.02	.12	1.81
	-9.86	LOSS		-4.57	-1.89	.00	-2.69	-2.92	-19.70	.00
NOV	.63	GAIN	15.90	.00	.03	.00	.18	.04	.27	.33
	-34.02	LOSS		-6.33	-2.67	.00	-12.65	-4.11	-29.31	.00
DEC	.00	GAIN	15.02	.00	.00	.00	.00	.00	.03	.00
	-90.86	LOSS		-10.25	-4.46	.00	-35.89	-6.93	-53.38	.00
TOT	172.	GAIN	236.	0.	0.	0.	61.	1.	4.	85.
	-352.	LOSS		-64.	-32.	0.	-125.	-49.	-358.	0.

MAX HEATING LOAD= -348893. BTUH ON JAN 27 HOUR 7 AMBIENT TEMP 4.
MAX COOLING LOAD= 318877. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 2313.6

BEACON Energy Analysis By Energy Systems Engineers, Inc. 637A-2.I

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	INTERNAL LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	56.	79.		5	15	64.	.23	.09	3.78	5.09
			53.	29	7	14.				
FEB	57.	88.		17	13	59.	.20	.08	3.41	4.57
			53.	20	6	15.				
MAR	60.	93.		12	13	74.	.22	.09	3.78	5.05
			53.	4	6	15.				
APR	67.	93.		25	12	77.	.21	.09	3.66	4.87
			54.	1	1	33.				
MAY	75.	93.		29	12	85.	.23	.09	3.78	5.09
			55.	12	3	41.				
JUN	82.	93.		29	12	87.	.21	.09	3.66	4.87
			61.	16	4	55.				
JUL	85.	93.		27	12	90.	.22	.09	3.78	5.05
			65.	10	5	57.				
AUG	83.	93.		30	12	86.	.23	.09	3.78	5.09
			57.	25	6	51.				
SEP	76.	93.		10	12	85.	.20	.08	3.66	4.83
			55.	15	6	39.				
OCT	66.	93.		4	12	83.	.23	.09	3.78	5.09
			54.	28	5	31.				
NOV	61.	92.		8	13	77.	.22	.09	3.66	4.92
			54.	3	6	18.				
DEC	56.	85.		23	13	71.	.21	.09	3.78	5.01
			53.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	661	0	0	0	-.3489E+06	.0000
FEB	578	4	0	0	-.2687E+06	.0000
MAR	523	29	0	0	-.3069E+06	.7068E+05
APR	264	86	0	0	-.1313E+06	.1589E+06
MAY	47	185	0	0	-.4714E+05	.1955E+06
JUN	0	276	0	0	.0000	.2798E+06
JUL	0	350	0	0	.0000	.2899E+06
AUG	2	303	0	0	-.2350E+05	.2720E+06
SEP	79	194	0	0	-.7964E+05	.3189E+06
OCT	286	74	0	0	-.1537E+06	.1699E+06
NOV	452	19	0	0	-.2504E+06	.9055E+05
DEC	694	0	0	0	-.3419E+06	.0000
YEAR	3586	1520	0	0	-.3489E+06	.3189E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	143.28	.00	.23	.09	1.11	5.09	1.9
FEB	111.72	.00	.20	.08	1.00	4.57	1.9
MAR	83.83	.08	.22	.09	1.11	5.05	8.5
APR	33.88	.40	.21	.09	1.07	4.87	14.3
MAY	5.32	1.35	.23	.09	1.11	5.09	17.0
JUN	.00	2.99	.21	.09	1.07	4.87	24.0
JUL	.00	3.99	.22	.09	1.11	5.05	24.8
AUG	.23	3.22	.23	.09	1.11	5.09	23.4
SEP	9.01	2.08	.20	.08	1.07	4.83	26.8
OCT	34.39	.46	.23	.09	1.11	5.09	15.2
NOV	69.24	.07	.22	.09	1.07	4.92	10.1
DEC	143.92	.00	.21	.09	1.11	5.01	1.9
YEAR	634.81	14.66	2.59	1.06	13.03	59.55	26.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 159075. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.3489E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.2687E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.7068E+05	-.3069E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1589E+06	-.1313E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.1955E+06	-.4714E+05
JUN	2566.	1934.	1.000	72.	0.	0.	0	0	.2798E+06	.0000
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.2899E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.2720E+06	-.2350E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3189E+06	-.7964E+05
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.1699E+06	-.1537E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.9055E+05	-.2504E+06
DEC	888.	608.	1.000	35.	0.	0.	0	0	.0000	-.3419E+06

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.000	.476E-03	.114E-02	.572E-03	.953E-04

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.98	1.34	-.374	.434E-01	-.170E-02

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	78.0	78.0
78.0	78.0	78.0	78.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	68.0	68.0
68.0	68.0	68.0	68.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 10. 589. 22500. 10500.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	55.0	90.0
2	.040	.040	.040	.040	55.0	90.0
3	.040	.040	.040	.040	55.0	90.0
4	.040	.040	.040	.040	55.0	90.0
5	.040	.040	.040	.040	55.0	90.0
6	.040	.040	.040	.040	55.0	90.0
7	.040	.040	.040	.040	55.0	90.0
8	.040	.040	.040	.040	55.0	90.0
9	.040	.040	.040	.040	55.0	90.0
10	.040	.040	.040	.040	55.0	90.0
11	.040	.040	.040	.040	55.0	90.0
12	.040	.040	.040	.040	55.0	90.0
13	.040	.040	.040	.040	55.0	90.0
14	.040	.040	.040	.040	55.0	90.0
15	.040	.040	.040	.040	55.0	90.0
16	.040	.040	.040	.040	55.0	90.0
17	.040	.040	.040	.040	55.0	90.0
18	.040	.040	.040	.040	55.0	90.0
19	.040	.040	.040	.040	55.0	90.0
20	.040	.040	.040	.040	55.0	90.0
21	.040	.040	.040	.040	55.0	90.0
22	.040	.040	.040	.040	55.0	90.0
23	.040	.040	.040	.040	55.0	90.0
24	.040	.040	.040	.040	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6970.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	15.89	.00	.01	.00	.02	.01	.06	.00
	-91.40	LOSS		-10.26	-4.58	.00	-33.82	-7.19	-56.70	.00
FEB	.00	GAIN	18.08	.00	.01	.00	.00	.02	.13	.00
	-66.46	LOSS		-8.25	-3.82	.00	-23.77	-6.01	-47.41	.00
MAR	.68	GAIN	22.89	.00	.01	.00	.79	.01	.07	.11
	-42.64	LOSS		-7.17	-3.54	.00	-11.88	-5.58	-42.70	.00
APR	3.79	GAIN	21.65	.00	.00	.00	3.77	.01	.04	.81
	-12.16	LOSS		-4.33	-2.28	.00	-3.21	-3.61	-26.05	.00
MAY	14.07	GAIN	22.60	.01	.00	.00	8.05	.01	.04	5.03
	-1.08	LOSS		-3.20	-2.00	.00	-.06	-3.06	-19.50	.00
JUN	34.89	GAIN	22.60	.03	.02	.00	11.06	.03	.18	19.25
	.00	LOSS		-2.40	-1.72	.00	.00	-2.64	-16.36	.00
JUL	46.75	GAIN	22.60	.25	.10	.00	14.70	.17	1.06	23.56
	.00	LOSS		-2.03	-1.53	.00	.00	-2.36	-14.80	.00
AUG	37.83	GAIN	20.82	.08	.05	.00	11.41	.08	.50	20.29
	-.02	LOSS		-2.22	-1.54	.00	.00	-2.35	-14.46	.00
SEP	24.16	GAIN	19.56	.02	.05	.00	7.85	.09	.60	12.48
	-1.33	LOSS		-2.97	-1.53	.00	-.11	-2.38	-15.74	.00
OCT	4.87	GAIN	17.90	.00	.01	.00	1.90	.02	.10	1.82
	-9.67	LOSS		-4.58	-1.89	.00	-2.67	-2.92	-19.59	.00
NOV	.63	GAIN	15.90	.00	.03	.00	.19	.04	.26	.33
	-33.53	LOSS		-6.30	-2.65	.00	-12.48	-4.08	-29.06	.00
DEC	.00	GAIN	15.02	.00	.00	.00	.00	.00	.03	.00
	-89.97	LOSS		-10.19	-4.43	.00	-35.57	-6.88	-52.96	.00
TOT	168.	GAIN	236.	0.	0.	0.	60.	0.	3.	84.
	-348.	LOSS		-64.	-32.	0.	-124.	-49.	-355.	0.

MAX HEATING LOAD= -341482. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 301743. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 2313.6

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL INTERNAL HEAT GAIN MILLION BTU
JAN	56.	79.		5	15	64.	.23	.09	3.78	5.09
			53.	29	7	14.				
FEB	57.	89.		17	13	59.	.20	.08	3.41	4.57
			53.	20	6	15.				
MAR	60.	93.		12	13	74.	.22	.09	3.78	5.05
			53.	4	6	15.				
APR	67.	93.		25	12	77.	.21	.09	3.66	4.87
			54.	1	1	33.				
MAY	75.	93.		29	12	85.	.23	.09	3.78	5.09
			55.	12	3	41.				
JUN	82.	93.		29	12	87.	.21	.09	3.66	4.87
			61.	16	4	55.				
JUL	85.	93.		27	12	90.	.22	.09	3.78	5.05
			65.	10	5	57.				
AUG	84.	93.		30	12	86.	.23	.09	3.78	5.09
			57.	25	6	51.				
SEP	76.	93.		10	12	85.	.20	.08	3.66	4.83
			55.	15	6	39.				
OCT	66.	93.		4	12	83.	.23	.09	3.78	5.09
			54.	28	5	31.				
NOV	61.	92.		8	13	77.	.22	.09	3.66	4.92
			54.	3	6	18.				
DEC	56.	86.		23	13	71.	.21	.09	3.78	5.01
			53.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	661	0	0	0	-.3411E+06	.0000
FEB	578	2	0	0	-.2593E+06	.0000
MAR	523	29	0	0	-.2935E+06	.6438E+05
APR	259	82	0	0	-.1236E+06	.1473E+06
MAY	47	180	0	0	-.4716E+05	.1841E+06
JUN	0	273	0	0	.0000	.2651E+06
JUL	0	345	0	0	.0000	.2759E+06
AUG	1	301	0	0	-.1575E+05	.2576E+06
SEP	78	192	0	0	-.7189E+05	.3017E+06
OCT	284	73	0	0	-.1455E+06	.1677E+06
NOV	450	18	0	0	-.2426E+06	.9062E+05
DEC	693	0	0	0	-.3415E+06	.0000
YEAR	3574	1495	0	0	-.3415E+06	.3017E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	142.40	.00	.23	.09	1.11	5.09	1.9
FEB	111.07	.00	.20	.08	1.00	4.57	1.9
MAR	83.41	.08	.22	.09	1.11	5.05	8.4
APR	33.13	.39	.21	.09	1.07	4.87	13.5
MAY	5.32	1.31	.23	.09	1.11	5.09	16.2
JUN	.00	2.92	.21	.09	1.07	4.87	22.8
JUL	.00	3.88	.22	.09	1.11	5.05	23.7
AUG	.11	3.17	.23	.09	1.11	5.09	22.2
SEP	8.88	2.02	.20	.08	1.07	4.83	25.7
OCT	34.04	.45	.23	.09	1.11	5.09	15.2
NOV	68.61	.07	.22	.09	1.07	4.92	10.1
DEC	142.98	.00	.21	.09	1.11	5.01	1.9
YEAR	629.95	14.31	2.59	1.06	13.03	59.55	25.7

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 157771. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.3411E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.2593E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.6438E+05	-.2935E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1473E+06	-.1236E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.1841E+06	-.4716E+05
JUN	2566.	1934.	1.000	72.	0.	0.	0	0	.2651E+06	.0000
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.2759E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.2576E+06	-.1575E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3017E+06	-.7189E+05
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.1677E+06	-.1455E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.9062E+05	-.2426E+06
DEC	888.	608.	1.000	35.	0.	0.	0	0	.0000	-.3415E+06

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 ECONOMIZER (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.000	.476E-03	.114E-02	.572E-03	.953E-04

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.98	1.34	-.374	.434E-01	-.170E-02

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	78.0	78.0
78.0	78.0	78.0	78.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	68.0	68.0
68.0	68.0	68.0	68.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 10. 589. 22500. 10500.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	55.0	90.0
2	.040	.040	.040	.040	55.0	90.0
3	.040	.040	.040	.040	55.0	90.0
4	.040	.040	.040	.040	55.0	90.0
5	.040	.040	.040	.040	55.0	90.0
6	.040	.040	.040	.040	55.0	90.0
7	.040	.040	.040	.040	55.0	90.0
8	.040	.040	.040	.040	55.0	90.0
9	.040	.040	.040	.040	55.0	90.0
10	.040	.040	.040	.040	55.0	90.0
11	.040	.040	.040	.040	55.0	90.0
12	.040	.040	.040	.040	55.0	90.0
13	.040	.040	.040	.040	55.0	90.0
14	.040	.040	.040	.040	55.0	90.0
15	.040	.040	.040	.040	55.0	90.0
16	.040	.040	.040	.040	55.0	90.0
17	.040	.040	.040	.040	55.0	90.0
18	.040	.040	.040	.040	55.0	90.0
19	.040	.040	.040	.040	55.0	90.0
20	.040	.040	.040	.040	55.0	90.0
21	.040	.040	.040	.040	55.0	90.0
22	.040	.040	.040	.040	55.0	90.0
23	.040	.040	.040	.040	55.0	90.0
24	.040	.040	.040	.040	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6970.000000
ECONOMIZER HIGH TEMP LIMIT F 75.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 ECONOMIZER (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	15.89	.00	.01	.00	.02	.01	.06	.00
	-91.40	LOSS		-10.26	-4.58	.00	-33.82	-7.19	-56.70	.00
FEB	.00	GAIN	18.08	.00	.01	.00	.00	.02	.13	.00
	-66.46	LOSS		-8.25	-3.82	.00	-23.77	-6.01	-47.41	.00
MAR	.03	GAIN	22.89	.00	.01	.00	.79	.01	.07	.00
	-42.64	LOSS		-7.17	-3.54	.00	-11.88	-5.58	-43.24	.00
APR	1.86	GAIN	21.65	.00	.00	.00	3.77	.01	.04	.28
	-12.16	LOSS		-4.33	-2.28	.00	-3.21	-3.61	-27.45	.00
MAY	11.58	GAIN	22.60	.01	.00	.00	8.05	.01	.04	4.99
	-1.08	LOSS		-3.20	-2.00	.00	-.06	-3.06	-21.95	.00
JUN	33.50	GAIN	22.60	.03	.02	.00	11.05	.03	.18	19.22
	.00	LOSS		-2.40	-1.72	.00	.00	-2.64	-17.71	.00
JUL	46.59	GAIN	22.60	.25	.10	.00	14.70	.17	1.06	24.14
	.00	LOSS		-2.03	-1.53	.00	.00	-2.36	-15.54	.00
AUG	36.68	GAIN	20.82	.08	.05	.00	11.41	.08	.50	20.02
	-.02	LOSS		-2.22	-1.54	.00	.00	-2.35	-15.33	.00
SEP	23.37	GAIN	19.56	.02	.05	.00	7.85	.09	.60	12.82
	-1.33	LOSS		-2.97	-1.53	.00	-.11	-2.38	-16.88	.00
OCT	4.05	GAIN	17.90	.00	.01	.00	1.90	.02	.10	1.75
	-9.67	LOSS		-4.58	-1.89	.00	-2.67	-2.92	-20.34	.00
NOV	.21	GAIN	15.90	.00	.03	.00	.19	.04	.26	.10
	-33.53	LOSS		-6.30	-2.65	.00	-12.48	-4.08	-29.25	.00
DEC	.00	GAIN	15.02	.00	.00	.00	.00	.00	.03	.00
	-89.97	LOSS		-10.19	-4.43	.00	-35.57	-6.88	-52.96	.00
TOT	158.	GAIN	236.	0.	0.	0.	60.	0.	3.	83.
	-348.	LOSS		-64.	-32.	0.	-124.	-49.	-365.	0.

MAX HEATING LOAD= -341482. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 360000. BTUH ON JUN 23 HOUR 10 AMBIENT TEMP 74.

ZONE UA BTU/HR-F 2313.6

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	56.	79.		5	15	64.	.23	.09	3.78	5.09
			53.	29	7	14.				
FEB	57.	89.		17	13	59.	.20	.08	3.41	4.57
			53.	20	6	15.				
MAR	60.	93.		12	13	74.	.22	.09	3.78	5.05
			53.	4	6	15.				
APR	67.	93.		25	12	77.	.21	.09	3.66	4.87
			54.	1	1	33.				
MAY	75.	93.		29	12	85.	.23	.09	3.78	5.09
			55.	12	3	41.				
JUN	82.	93.		29	12	87.	.21	.09	3.66	4.87
			61.	16	4	55.				
JUL	85.	93.		27	12	90.	.22	.09	3.78	5.05
			65.	10	5	57.				
AUG	84.	93.		30	12	86.	.23	.09	3.78	5.09
			57.	25	6	51.				
SEP	76.	93.		10	12	85.	.20	.08	3.66	4.83
			55.	15	6	39.				
OCT	66.	93.		4	12	83.	.23	.09	3.78	5.09
			54.	28	5	31.				
NOV	61.	92.		8	13	77.	.22	.09	3.66	4.92
			54.	3	6	18.				
DEC	56.	86.		23	13	71.	.21	.09	3.78	5.01
			53.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	661	0	0	0	-.3411E+06	.0000
FEB	578	2	0	0	-.2593E+06	.0000
MAR	523	29	0	0	-.2935E+06	.2623E+05
APR	259	82	0	0	-.1236E+06	.1769E+06
MAY	47	180	0	0	-.4716E+05	.2456E+06
JUN	0	273	0	1	.0000	.3600E+06
JUL	0	345	0	0	.0000	.3304E+06
AUG	1	301	0	0	-.1575E+05	.2971E+06
SEP	78	192	0	0	-.7189E+05	.3148E+06
OCT	284	73	0	0	-.1455E+06	.1993E+06
NOV	450	18	0	0	-.2426E+06	.9062E+05
DEC	693	0	0	0	-.3415E+06	.0000
YEAR	3574	1495	0	1	-.3415E+06	.3600E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	142.40	.00	.23	.09	1.11	5.09	1.9
FEB	111.07	.00	.20	.08	1.00	4.57	1.9
MAR	83.41	.00	.22	.09	1.11	5.05	5.4
APR	33.13	.19	.21	.09	1.07	4.87	15.6
MAY	5.32	1.03	.23	.09	1.11	5.09	21.2
JUN	.00	2.76	.21	.09	1.07	4.87	28.6
JUL	.00	3.85	.22	.09	1.11	5.05	27.4
AUG	.11	3.05	.23	.09	1.11	5.09	25.3
SEP	8.88	1.91	.20	.08	1.07	4.83	26.6
OCT	34.04	.35	.23	.09	1.11	5.09	17.3
NOV	68.61	.02	.22	.09	1.07	4.92	10.1
DEC	142.98	.00	.21	.09	1.11	5.01	1.9
YEAR	629.95	13.17	2.59	1.06	13.03	59.55	28.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 156936. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 ECONOMIZER (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.3411E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.2593E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.2623E+05	-.2935E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1769E+06	-.1236E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.2456E+06	-.4716E+05
JUN	2566.	1934.	1.000	72.	0.	0.	1	0	.3600E+06	.0000
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.3304E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.2971E+06	-.1575E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3148E+06	-.7189E+05
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.1993E+06	-.1455E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.9062E+05	-.2426E+06
DEC	888.	608.	1.000	35.	0.	0.	0	0	.0000	-.3415E+06

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

---------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.000	.476E-03	.114E-02	.572E-03	.953E-04

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.98	1.34	-.374	.434E-01	-.170E-02

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
			PEOPLE	PEOPLE		
	LIGHTS	PROCESS	SENSIBLE	LATENT	HEATING	COOLING
PEAK VAL	10.	589.	22500.	10500.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	70.0	75.0
2	.040	.040	.040	.040	70.0	75.0
3	.040	.040	.040	.040	70.0	75.0
4	.040	.040	.040	.040	70.0	75.0
5	.040	.040	.040	.040	70.0	75.0
6	.040	.040	.040	.040	70.0	75.0
7	.040	.040	.040	.040	70.0	75.0
8	.040	.040	.040	.040	70.0	75.0
9	.040	.040	.040	.040	70.0	75.0
10	.040	.040	.040	.040	70.0	75.0
11	.040	.040	.040	.040	70.0	75.0
12	.040	.040	.040	.040	70.0	75.0

13	.040	.040	.040	.040	70.0	75.0
14	.040	.040	.040	.040	70.0	75.0
15	.040	.040	.040	.040	70.0	75.0
16	.040	.040	.040	.040	70.0	75.0
17	.040	.040	.040	.040	70.0	75.0
18	.040	.040	.040	.040	70.0	75.0
19	.040	.040	.040	.040	70.0	75.0
20	.040	.040	.040	.040	70.0	75.0
21	.040	.040	.040	.040	70.0	75.0
22	.040	.040	.040	.040	70.0	75.0
23	.040	.040	.040	.040	70.0	75.0
24	.040	.040	.040	.040	70.0	75.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6970.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-161.	LOSS		-15.	-7.	0.	-63.	-11.	-84.	0.
FEB	0.	GAIN	18.	0.	0.	0.	0.	0.	0.	0.
	-129.	LOSS		-13.	-6.	0.	-51.	-10.	-71.	0.
MAR	1.37	GAIN	22.89	.00	.02	.00	.03	.03	.19	.12
	-97.36	LOSS		-11.24	-5.68	.00	-35.31	-8.93	-63.16	.00
APR	9.77	GAIN	21.65	.05	.05	.00	2.59	.08	.51	1.82
	-40.40	LOSS		-6.26	-3.23	.00	-14.42	-5.09	-33.25	.00
MAY	29.97	GAIN	22.60	.32	.15	.00	11.72	.23	1.27	7.58
	-6.63	LOSS		-2.98	-1.87	.00	-1.09	-2.84	-16.84	.00
JUN	79.01	GAIN	22.60	.99	.41	.00	24.47	.63	3.67	32.10
	-.05	LOSS		-1.04	-.89	.00	.00	-1.35	-7.49	.00
JUL	110.	GAIN	23.	2.	1.	0.	36.	2.	9.	40.
	0.	LOSS		-1.	-1.	0.	0.	-1.	-5.	0.
AUG	99.01	GAIN	20.82	1.60	.74	.00	30.52	1.13	6.46	39.42
	-.09	LOSS		-.55	-.58	.00	.00	-.89	-4.85	.00
SEP	57.31	GAIN	19.56	.56	.37	.00	15.50	.60	3.80	24.37
	-8.58	LOSS		-2.61	-1.43	.00	-1.31	-2.21	-13.31	.00
OCT	10.42	GAIN	17.90	.01	.06	.00	1.98	.09	.58	3.44
	-38.04	LOSS		-6.69	-3.05	.00	-14.41	-4.68	-27.96	.00
NOV	1.44	GAIN	15.90	.00	.01	.00	.00	.01	.08	.44
	-81.59	LOSS		-10.03	-4.58	.00	-34.22	-7.04	-45.66	.00
DEC	0.	GAIN	15.	0.	0.	0.	0.	0.	0.	0.
	-161.	LOSS		-15.	-7.	0.	-67.	-11.	-80.	0.
TOT	398.	GAIN	236.	6.	3.	0.	123.	4.	26.	149.
	-723.	LOSS		-86.	-42.	0.	-282.	-66.	-454.	0.

MAX HEATING LOAD= -466331. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 345973. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 2313.6

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	69.	74.		1	13	53.	.23	.09	3.78	5.09
			67.	29	7	14.				
FEB	69.	77.		17	13	59.	.20	.08	3.41	4.57
			67.	6	7	14.				
MAR	70.	78.		12	13	74.	.22	.09	3.78	5.05
			55.	24	19	69.				
APR	71.	78.		25	12	77.	.21	.09	3.66	4.87
			57.	2	19	69.				
MAY	74.	78.		31	12	80.	.23	.09	3.78	5.09
			69.	11	5	39.				
JUN	76.	78.		29	12	87.	.21	.09	3.66	4.87
			70.	17	5	56.				
JUL	76.	78.		5	12	85.	.22	.09	3.78	5.05
			72.	24	5	65.				
AUG	76.	78.		30	12	86.	.23	.09	3.78	5.09
			70.	26	5	57.				
SEP	74.	79.		25	12	63.	.20	.08	3.66	4.83
			69.	16	6	43.				
OCT	71.	78.		4	12	83.	.23	.09	3.78	5.09
			65.	14	20	69.				
NOV	70.	77.		8	13	77.	.22	.09	3.66	4.92
			55.	7	18	69.				
DEC	68.	75.		23	13	71.	.21	.09	3.78	5.01
			67.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	741	0	0	0	-.4146E+06	.0000
FEB	666	1	0	0	-.3648E+06	.0000
MAR	681	37	0	0	-.3527E+06	.1157E+06
APR	489	157	0	0	-.1996E+06	.1547E+06
MAY	200	413	0	0	-.1060E+06	.2163E+06
JUN	12	663	0	0	-.1123E+05	.3108E+06
JUL	0	726	0	0	.0000	.3257E+06
AUG	9	714	0	0	-.1744E+05	.3039E+06
SEP	201	459	0	0	-.9913E+05	.3460E+06
OCT	523	153	0	0	-.1797E+06	.2295E+06
NOV	661	33	0	0	-.2806E+06	.1293E+06
DEC	741	0	0	0	-.4663E+06	.0000
YEAR	4924	3356	0	0	-.4663E+06	.3460E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	221.77	.00	.23	.09	1.11	5.09	1.9
FEB	182.19	.00	.20	.08	1.00	4.57	1.9
MAR	150.26	.14	.22	.09	1.11	5.05	11.7
APR	78.82	.92	.21	.09	1.07	4.87	14.0
MAY	24.19	2.67	.23	.09	1.11	5.09	19.0
JUN	1.24	6.67	.21	.09	1.07	4.87	26.6
JUL	.00	9.00	.22	.09	1.11	5.05	27.3
AUG	1.02	8.20	.23	.09	1.11	5.09	25.8
SEP	24.54	4.84	.20	.08	1.07	4.83	28.1
OCT	78.73	.96	.23	.09	1.11	5.09	20.1
NOV	132.31	.15	.22	.09	1.07	4.92	12.6
DEC	221.49	.00	.21	.09	1.11	5.01	1.9
YEAR	1116.55	33.55	2.59	1.06	13.03	59.55	28.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 276620. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (NIGHTIME)(FT LEONARD WO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.4146E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.3648E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.1157E+06	-.3527E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1547E+06	-.1996E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.2163E+06	-.1060E+06
JUN	2566.	1934.	1.000	72.	0.	0.	0	0	.3108E+06	-.1123E+05
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.3257E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.3039E+06	-.1744E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3460E+06	-.9913E+05
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.2295E+06	-.1797E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.1293E+06	-.2806E+06
DEC	888.	608.	1.000	35.	0.	0.	0	0	.0000	-.4663E+06

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.900000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

---------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 127093.000000
FLOOR AREA (SQFT) 4647.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 475000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -360000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 46470.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 604.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.850000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4250.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 201.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 78.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 1.000000

WALL DATA

	1	2	3	4
WALL NUMBER				
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	1862.0	1458.0	1548.0	1323.0
WINDOW AREA SQFT (AWND)	486.0	.0	253.0	94.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	48.6	.0	25.3	9.4
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.191	.191	.191	.191
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00155	.00155	.00155	.00155
NUMBER OF BN FACTORS (NB	6	6	6	6
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00000	.00000	.00000	.00000
N=3	.00015	.00015	.00015	.00015
N=4	.00064	.00064	.00064	.00064
N=5	.00060	.00060	.00060	.00060
N=6	.00015	.00015	.00015	.00015
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-2.48050	-2.48050	-2.48050	-2.48050
N=3	2.22216	2.22216	2.22216	2.22216
N=4	-.87313	-.87313	-.87313	-.87313
N=5	.14299	.14299	.14299	.14299
N=6	-.00853	-.00853	-.00853	-.00853

ROOF AREA SQFT (AROF) 5313.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.010000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 2.286793E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .000 .476E-03 .114E-02 .572E-03 .953E-04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.98 1.34 -.374 .434E-01 -.170E-02
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	10.	589.	22500.	10500.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.040	.040	.040	.040	70.0	75.0
2	.040	.040	.040	.040	70.0	75.0
3	.040	.040	.040	.040	70.0	75.0
4	.040	.040	.040	.040	70.0	75.0
5	.040	.040	.040	.040	70.0	75.0
6	.040	.040	.040	.040	70.0	75.0
7	.040	.040	.040	.040	70.0	75.0
8	.040	.040	.040	.040	70.0	75.0
9	.040	.040	.040	.040	70.0	75.0
10	.040	.040	.040	.040	70.0	75.0
11	.040	.040	.040	.040	70.0	75.0
12	.040	.040	.040	.040	70.0	75.0
13	.040	.040	.040	.040	70.0	75.0

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 14          .040       .040       .040       .040          70.0          75.0
 15          .040       .040       .040       .040          70.0          75.0
 16          .040       .040       .040       .040          70.0          75.0
 17          .040       .040       .040       .040          70.0          75.0
 18          .040       .040       .040       .040          70.0          75.0
 19          .040       .040       .040       .040          70.0          75.0
 20          .040       .040       .040       .040          70.0          75.0
 21          .040       .040       .040       .040          70.0          75.0
 22          .040       .040       .040       .040          70.0          75.0
 23          .040       .040       .040       .040          70.0          75.0
 24          .040       .040       .040       .040          70.0          75.0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)          68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)          65.000000
SYSTEM TYPE, (IECN)                  2
SUPPLY AIR CFM (SACFM)         6970.000000
ECONOMIZER HIGH TEMP LIMIT F             65.000000
SYSTEM SUPPLY AIR START TIME HR          0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR             24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)            55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)         1.000000E-01
FAN EFFICIENCY (EFAN)          5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)               1.000000
HEATING PLANT RATED OUTPUT BTU (HFLOT)       475000.000000
HEATING PLANT RATED INPUT BTU (HFLIN)        593750.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100       .191       .200       .286       .300       .369       .400       .451

 .500       .537       .600       .625       .700       .718       .800       .812

 .900       .906       1.00       1.00
CHILLER TYPE (ITYPCH)                    4
COOLING PLANT RATED OUTPUT BTU (CFLOT)       360000.000000
COOLING PLANT RATED INPUT BTU (CFLIN)        92151.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000
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BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-166.	LOSS		-15.	-7.	0.	-63.	-11.	-90.	0.
FEB	0.	GAIN	18.	0.	0.	0.	0.	0.	0.	0.
	-133.	LOSS		-13.	-6.	0.	-51.	-10.	-76.	0.
MAR	1.	GAIN	23.	0.	0.	0.	0.	0.	0.	0.
	-102.	LOSS		-11.	-6.	0.	-35.	-9.	-68.	0.
APR	9.57	GAIN	21.65	.05	.05	.00	2.65	.08	.46	1.54
	-43.89	LOSS		-6.26	-3.23	.00	-14.49	-5.08	-36.60	.00
MAY	29.34	GAIN	22.60	.34	.15	.00	12.19	.23	1.08	6.95
	-8.43	LOSS		-2.91	-1.83	.00	-1.08	-2.78	-19.09	.00
JUN	78.10	GAIN	22.60	1.00	.41	.00	24.70	.63	3.15	32.27
	-.19	LOSS		-1.01	-.87	.00	.00	-1.32	-8.51	.00
JUL	111.	GAIN	23.	2.	1.	0.	36.	2.	8.	42.
	0.	LOSS		-1.	-1.	0.	0.	-1.	-6.	0.
AUG	101.	GAIN	21.	2.	1.	0.	31.	1.	6.	42.
	0.	LOSS		-1.	-1.	0.	0.	-1.	-6.	0.
SEP	56.97	GAIN	19.56	.56	.37	.00	15.58	.60	3.31	24.76
	-10.42	LOSS		-2.60	-1.43	.00	-1.34	-2.21	-15.47	.00
OCT	9.93	GAIN	17.90	.01	.06	.00	2.03	.09	.47	3.01
	-41.53	LOSS		-6.70	-3.05	.00	-14.50	-4.68	-31.33	.00
NOV	1.43	GAIN	15.90	.00	.01	.00	.00	.01	.09	.36
	-85.91	LOSS		-10.04	-4.58	.00	-34.30	-7.05	-49.80	.00
DEC	0.	GAIN	15.	0.	0.	0.	0.	0.	0.	0.
	-166.	LOSS		-15.	-7.	0.	-67.	-11.	-86.	0.
TOT	399.	GAIN	236.	6.	3.	0.	124.	4.	23.	153.
	-759.	LOSS		-86.	-42.	0.	-283.	-66.	-492.	0.

MAX HEATING LOAD= -475000. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 315378. BTUH ON SEP 2 HOUR 12 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 2313.6

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT AMBT. DAY	HR		LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	69.	77.		1	13	53.	.23	.09	3.78	5.09
			67.	29	7	14.				
FEB	69.	77.		17	13	59.	.20	.08	3.41	4.57
			67.	6	7	14.				
MAR	70.	78.		12	13	74.	.22	.09	3.78	5.05
			57.	24	19	69.				
APR	71.	78.		25	12	77.	.21	.09	3.66	4.87
			58.	2	19	69.				
MAY	74.	78.		31	12	80.	.23	.09	3.78	5.09
			69.	11	5	39.				
JUN	76.	78.		29	12	87.	.21	.09	3.66	4.87
			70.	17	5	56.				
JUL	76.	78.		5	12	85.	.22	.09	3.78	5.05
			71.	24	5	65.				
AUG	76.	78.		30	12	86.	.23	.09	3.78	5.09
			70.	26	5	57.				
SEP	74.	81.		25	12	63.	.20	.08	3.66	4.83
			69.	16	17	69.				
OCT	71.	78.		4	12	83.	.23	.09	3.78	5.09
			66.	14	20	69.				
NOV	70.	77.		8	13	77.	.22	.09	3.66	4.92
			57.	7	18	69.				
DEC	68.	74.		23	13	71.	.21	.09	3.78	5.01
			66.	18	7	-1.				
YEAR							2.59	1.06	44.48	59.55

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	739	0	0	0	-.4598E+06	.0000
FEB	662	2	0	0	-.3972E+06	.0000
MAR	675	45	0	0	-.3816E+06	.1142E+06
APR	489	159	0	0	-.2270E+06	.1501E+06
MAY	224	398	0	0	-.1274E+06	.2020E+06
JUN	21	634	0	0	-.1884E+05	.2790E+06
JUL	0	714	0	0	.0000	.2936E+06
AUG	14	703	0	0	-.2885E+05	.2743E+06
SEP	205	457	0	0	-.1200E+06	.3154E+06
OCT	518	154	0	0	-.2065E+06	.2127E+06
NOV	654	36	0	0	-.3162E+06	.1210E+06
DEC	741	0	2	0	-.4750E+06	.0000
YEAR	4942	3302	2	0	-.4750E+06	.3154E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	228.15	.00	.23	.09	1.11	5.09	1.9
FEB	187.24	.00	.20	.08	1.00	4.57	1.9
MAR	155.22	.14	.22	.09	1.11	5.05	11.6
APR	82.31	.90	.21	.09	1.07	4.87	13.7
MAY	27.83	2.61	.23	.09	1.11	5.09	17.9
JUN	2.38	6.54	.21	.09	1.07	4.87	24.3
JUL	.00	9.05	.22	.09	1.11	5.05	25.4
AUG	1.58	8.25	.23	.09	1.11	5.09	23.6
SEP	26.50	4.79	.20	.08	1.07	4.83	26.6
OCT	82.14	.92	.23	.09	1.11	5.09	18.7
NOV	136.48	.15	.22	.09	1.07	4.92	12.0
DEC	227.90	.00	.21	.09	1.11	5.01	1.9
YEAR	1157.73	33.36	2.59	1.06	13.03	59.55	26.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 285336. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL SANCTUARY AREA - ZONE 1 OUTSIDE AIR (DAYTIME)(FT LEONARD WOO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DEG. F −	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1042.	675.	1.000	35.	0.	0.	0	0	.0000	-.4598E+06
FEB	1450.	919.	1.000	37.	0.	0.	0	0	.0000	-.3972E+06
MAR	1886.	1231.	1.000	43.	0.	0.	0	0	.1142E+06	-.3816E+06
APR	2254.	1560.	1.000	55.	0.	0.	0	0	.1501E+06	-.2270E+06
MAY	2493.	1774.	1.000	65.	0.	0.	0	0	.2020E+06	-.1274E+06
JUN	2566.	1934.	1.000	72.	0.	0.	0	0	.2790E+06	-.1884E+05
JUL	2473.	1957.	1.000	77.	0.	0.	0	0	.2936E+06	.0000
AUG	2222.	1793.	1.000	76.	0.	0.	0	0	.2743E+06	-.2885E+05
SEP	1821.	1346.	1.000	68.	0.	0.	0	0	.3154E+06	-.1200E+06
OCT	1423.	943.	1.000	57.	0.	0.	0	0	.2127E+06	-.2065E+06
NOV	1039.	731.	1.000	47.	0.	0.	0	0	.1210E+06	-.3162E+06
DEC	888.	608.	1.000	35.	0.	0.	0	2	.0000	-.4750E+06

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 637Z2
BLDG. TYPE: CHURCH (OFFICE AREA)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	80.1	63.5	57.8			
COOLING (kWH)	13000	6640	6100			

SUPPLY AIR FAN	4785 CFM
FLOOR AREA	3189 FT²
CFMI	215 CFM
UA	1265 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	700	1700	50 HR
SAT.	0	0	0 HR
SUN.	0	0	0 HR
	TOTAL OCCUPY HR.		50 HR/WK
	TOTAL UNOCC. HR.		118 HR/WK
	ANNUAL OCCUPY HR.		2607 HR/YR
	ANNUAL UNOCC. HR.		6153 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1300 HR/YR
HR. ON COOLING	871 HR/YR
HR. OFF HEATING	3068 HR/YR
HR. OFF COOLING	2057 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	1300	=	3068 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	871	=	2057 HR/YR

HOAUHC	80.1 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	215 CFM	* 6153 HR/YR		
HOAUH	80.1 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	215 CFM	* 3068 HR/YR		
COAUHC	13000 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	215 CFM	* 6153 HR/YR		
COAUC	13000 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	215 CFM	* 2057 HR/YR		
HOAOHC	80.1 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	215 CFM	* 2607 HR/YR		
HOAOH	80.1 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	215 CFM	* 1300 HR/YR		
COAOHC	13000 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	215 CFM	* 2607 HR/YR		
COAOC	13000 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	215 CFM	* 871 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER ● ATLANTA ● GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 637Z2
BLDG. TYPE: CHURCH (OFFICE AREA)

ENERGY CONSTANT CALCULATIONS

ECC	6100 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	4785 CFM	*	871 HR/YR		
ECHC	6100 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	4785 CFM	*	2607 HR/YR		
NSUCHC	13000 kWH	–	6640 kWH	=	2.16E-04 kWH/CFM-HR
	4785 CFM	*	6153 HR/YR		
NSUCC	13000 kWH	–	6640 kWH	=	6.46E-04 kWH/CFM-HR
	4785 CFM	*	2057 HR/YR		
DDCCHC	6640 kWH	–	6100 kWH	=	4.33E-05 kWH/CFM-HR
	4785 CFM	*	2607 HR/YR		
DDCCC	6640 kWH	–	6100 kWH	=	1.30E-04 kWH/CFM-HR
	4785 CFM	*	871 HR/YR		
NSC	80.1 MBtu	–	63.54 MBtu	=	1.31E+04 Btu/UA
	1265 UA				
DSC	63.54 MBtu	–	57.76 MBtu	=	4.57E+03 Btu/UA
	1265 UA				
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			=	13.9 kWH/TON
OAR	506 HR/YR *		0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	637Z2BHL

BUILDING HEATING LOAD CALCULATION SHEET

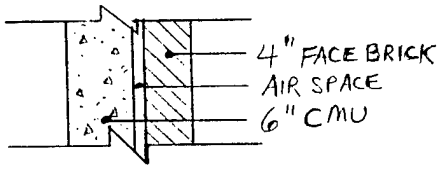
BLDG NO: 637 BLDG NAME: CHAPEL – ZONE 2
BLDG FUNCTION: OFFICE AREA
FLOOR AREA: (SQ. FT) 3,189 # FLOORS 1
SLAB PERIMETER: (FT) 219

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	358	0	950	950	2,258
GLASS	(SQ. FT)	0	0	106	42	149
PERSONNEL DOOR	(SQ. FT)	0	0	74	0	74
INSULATED PANEL	(SQ. FT)	0	0	53	21	74
WALLS, NET	(SQ. FT)	358	0	769	908	2,035
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	3,189
INSULATED PANEL	(SQ. FT)	74	PERSONNEL DOOR		(SQ. FT)	74
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

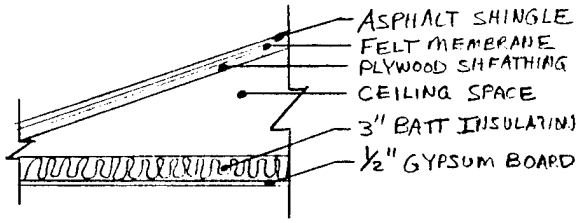
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	ASPHALT SHINGLES	0.20
3.	FELT / PLYWOOD	0.76
4.	CEILING AIR SPACE	1.00
5.	3" BATT INSULATION	11.00
6.	.5" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.26
	U=1/R	0.070

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	L	2258	X CFM / SQ.FT.	0.092	=	208
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR – SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR – DOUBLE DOORS		5	X CFM /OPENING /HR	1.385	=	7
			TOTAL INFILTRATION (CFM)		=	215

UA PANEL	= PANEL AREA	74	X PANEL "U"	0.238	=	18
UA PDOOR	= PDOOR AREA	74	X DOOR "U"	0.391	=	29
UA WALL	= WALL AREA	2,035	X WALL "U"	0.245	=	498
UA ROOF	= ROOF AREA	3,189	X ROOF "U"	0.070	=	224
UA GLASS	= GLASS AREA	149	X GLASS "U"	0.621	=	92
UA SLAB	= SLAB PERIM.	219	X SLF	0.830	=	182
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	215	X A. T. F.	1.035	=	222
			TOTAL UA (BTU/HR°F)			1,265

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 05-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 637Z2
BLDG: 637 ZONE: 2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2	5	2	Seated very light work (writing)	Offices, hotels, apts	245	155	1,225	775
TOTAL	5					TOTAL	1,225	775

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2	35	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	2,940
	15	18	Incandescent – 60w	60	900
TOTAL	50			TOTAL	3,840

Peak Value for Internal Gains

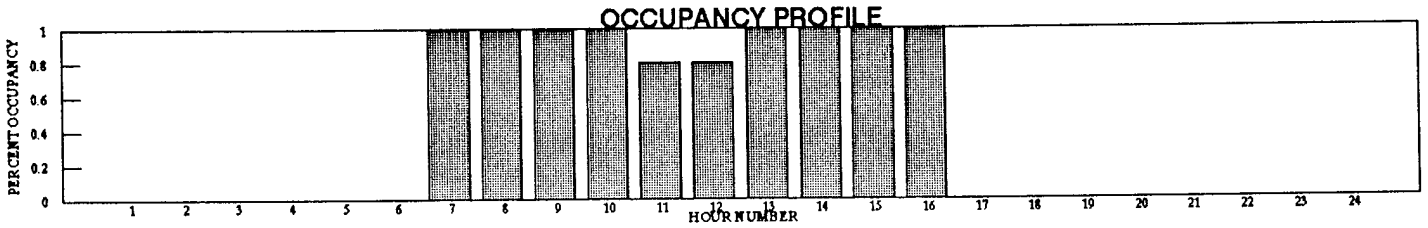
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
2	1	55	Refrigerator/Freezer	326	20%	326	1,113
	1	62	Television (Color, tube)	300	15%	300	1,024
	1	24	Coffee Maker	1,500	30%	1,500	5,120
	1	46	Microwave Oven	600	65%	600	2,048
	1	51	Range with Oven	10,262	80%	10,262	35,024
				TOTAL	71%	12,988	44,328

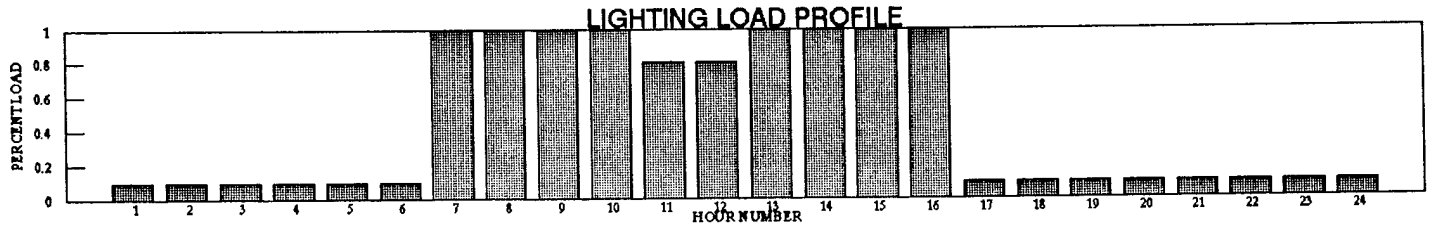
E M C Engineers, Inc.

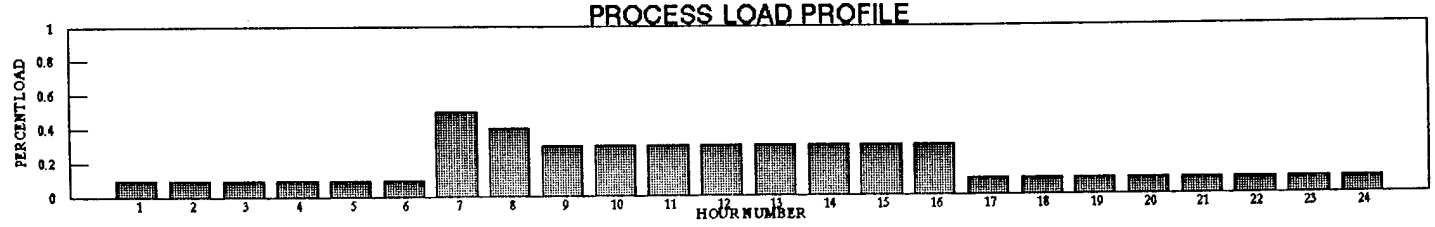
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 05-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 637Z2
BLDG: 637
ZONE: 2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	Church Office	OCCUPANCY							1	1	1	1	0.8	0.8	1	1	1	1								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.8	1	1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1







BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 BASERUN (FT LEONARD WOOD)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 7.500000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 29753.000000
FLOOR AREA (SQFT) 3189.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 120000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -180000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 31890.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 215.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 4.340000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 13970.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 182.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 29.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	929.0	358.0	822.0
WINDOW AREA SQFT (AWND)	.0	42.3	.0	106.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	4.2	.0	10.6
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3189.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 9.445784E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.843E-04 .287E-02 .531E-02 .118E-02 .000 843.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.09 .227 -.690E-02 .000 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 7.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	4.	31473.	1225.	775.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	70.0	75.0
2	.100	.100	.000	.000	70.0	75.0
3	.100	.100	.000	.000	70.0	75.0
4	.100	.100	.000	.000	70.0	75.0
5	.100	.100	.000	.000	70.0	75.0
6	.100	.100	.000	.000	70.0	75.0
7	.200	.500	.100	.100	70.0	75.0
8	1.000	.400	.100	.100	70.0	75.0
9	1.000	.300	.100	.100	70.0	75.0
10	1.000	.300	.100	.100	70.0	75.0
11	1.000	.300	.100	.100	70.0	75.0
12	1.000	.300	.100	.100	70.0	75.0

13	1.000	.300	.100	.100	70.0	75.0
14	1.000	.300	.100	.100	70.0	75.0
15	1.000	.300	1.000	1.000	70.0	75.0
16	1.000	.300	1.000	1.000	70.0	75.0
17	1.000	.100	.100	.100	70.0	75.0
18	1.000	.100	.100	.100	70.0	75.0
19	1.000	.100	.100	.100	70.0	75.0
20	.200	.100	.100	.100	70.0	75.0
21	.100	.100	.000	.000	70.0	75.0
22	.100	.100	.000	.000	70.0	75.0
23	.100	.100	.000	.000	70.0	75.0
24	.100	.100	.000	.000	70.0	75.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 4785.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 120000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 150000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.420	.100	.560	.200	.650	.300	.710	.400
.740	.500	.750	.600	.760	.700	.780	.800
.790	.900	.800	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 180000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 46075.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 BASERUN (FT LEONARD WOOD)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.12	GAIN	2.09	.00	.00	.00	.00	.00	.00	.04
	-33.78	LOSS		-6.49	-5.57	.00	-11.06	-2.06	-22.18	.00
FEB	.08	GAIN	2.68	.00	.00	.00	.02	.00	.00	.05
	-25.75	LOSS		-5.36	-4.71	.00	-8.18	-1.75	-18.81	.00
MAR	1.17	GAIN	3.32	.01	.00	.00	.47	.00	.00	.11
	-19.83	LOSS		-4.79	-4.39	.00	-6.46	-1.62	-16.80	.00
APR	5.84	GAIN	3.54	.12	.03	.00	1.69	.01	.11	.56
	-7.35	LOSS		-2.76	-2.59	.00	-3.06	-.96	-9.22	.00
MAY	13.37	GAIN	3.88	.38	.11	.00	3.25	.04	.30	2.09
	-1.17	LOSS		-1.56	-1.52	.00	-1.23	-.54	-4.57	.00
JUN	26.22	GAIN	3.89	.75	.31	.00	4.91	.11	.88	8.06
	-.01	LOSS		-.71	-.67	.00	-.30	-.24	-1.87	.00
JUL	34.77	GAIN	4.01	1.26	.72	.00	6.46	.27	2.20	10.61
	.00	LOSS		-.45	-.40	.00	-.14	-.14	-1.12	.00
AUG	31.73	GAIN	3.52	.97	.56	.00	5.39	.20	1.58	10.39
	-.02	LOSS		-.49	-.44	.00	-.17	-.16	-1.22	.00
SEP	18.76	GAIN	3.01	.40	.28	.00	2.94	.11	.91	6.20
	-1.66	LOSS		-1.35	-1.17	.00	-1.15	-.43	-3.74	.00
OCT	4.80	GAIN	2.50	.05	.04	.00	.76	.02	.13	.98
	-6.58	LOSS		-2.99	-2.46	.00	-3.52	-.89	-7.98	.00
NOV	1.17	GAIN	1.95	.00	.00	.00	.13	.00	.00	.20
	-15.99	LOSS		-4.32	-3.59	.00	-6.50	-1.30	-12.57	.00
DEC	.00	GAIN	1.78	.00	.00	.00	.00	.00	.00	.00
	-33.01	LOSS		-6.46	-5.45	.00	-11.20	-1.99	-21.09	.00
TOT	138.	GAIN	36.	4.	2.	0.	26.	1.	6.	39.
	-145.	LOSS		-38.	-33.	0.	-53.	-12.	-121.	0.

MAX HEATING LOAD= -120000. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 100509. BTUH ON JUL 27 HOUR 15 AMBIENT TEMP 92.

ZONE UA BTU/HR-F 860.9

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 BASERUN (FT LEONARD WOOD)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	75.		4	16	63.	1.49	6.04	2.07	11.57
			69.	27	6	4.				
FEB	70.	75.		9	16	61.	1.34	5.42	1.87	10.39
			69.	2	6	14.				
MAR	71.	77.		25	17	56.	1.48	5.99	2.07	11.49
			69.	4	6	15.				
APR	72.	79.		3	18	56.	1.43	5.78	2.01	11.09
			69.	9	6	30.				
MAY	74.	81.		10	17	53.	1.49	6.04	2.07	11.57
			69.	11	6	39.				
JUN	75.	76.		29	16	87.	1.43	5.78	2.01	11.09
			70.	17	6	57.				
JUL	76.	76.		26	16	94.	1.48	5.99	2.07	11.49
			72.	10	6	60.				
AUG	75.	76.		29	16	95.	1.49	6.04	2.07	11.57
			70.	25	6	51.				
SEP	74.	77.		24	19	59.	1.42	5.73	2.01	11.01
			69.	15	6	39.				
OCT	72.	78.		24	15	59.	1.49	6.04	2.07	11.57
			69.	28	6	33.				
NOV	71.	76.		9	15	51.	1.44	5.83	2.01	11.18
			69.	3	6	18.				
DEC	70.	75.		23	17	62.	1.47	5.94	2.07	11.41
			67.	18	6	0.				
YEAR							17.44	70.63	24.43	135.44

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 BASERUN (FT LEONARD WOOD)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	690	9	1	0	-.1200E+06	.1949E+05
FEB	587	8	0	0	-.9855E+05	.1468E+05
MAR	538	54	0	0	-.9947E+05	.4209E+05
APR	296	201	0	0	-.6134E+05	.5730E+05
MAY	68	393	0	0	-.4175E+05	.7130E+05
JUN	1	577	0	0	-5139.	.9171E+05
JUL	0	674	0	0	.0000	.1005E+06
AUG	4	664	0	0	-.1261E+05	.8897E+05
SEP	86	443	0	0	-.3943E+05	.9244E+05
OCT	299	179	0	0	-.5635E+05	.6208E+05
NOV	491	60	0	0	-.8459E+05	.4153E+05
DEC	710	0	7	0	-.1200E+06	.0000
YEAR	3770	3262	8	0	-.1200E+06	.1005E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	18.77	.02	1.49	6.04	.61	11.57	7.0
FEB	14.13	.01	1.34	5.42	.55	10.39	6.5
MAR	10.94	.14	1.48	5.99	.61	11.49	9.2
APR	4.54	.65	1.43	5.78	.59	11.09	10.5
MAY	1.02	1.46	1.49	6.04	.61	11.57	11.6
JUN	.02	2.73	1.43	5.78	.59	11.09	13.0
JUL	.00	3.54	1.48	5.99	.61	11.49	13.6
AUG	.06	3.29	1.49	6.04	.61	11.57	12.9
SEP	1.29	1.98	1.42	5.73	.59	11.01	12.6
OCT	4.50	.54	1.49	6.04	.61	11.57	10.9
NOV	8.30	.14	1.44	5.83	.59	11.18	9.2
DEC	18.95	.00	1.47	5.94	.61	11.41	4.7
YEAR	82.51	14.50	17.44	70.63	7.16	135.44	13.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 89866. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 BASERUN (FT LEONARD WOOD)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1074.	696.	1.000	35.	0.	0.	0	1	.1949E+05	-.1200E+06
FEB	1494.	948.	1.000	37.	0.	0.	0	0	.1468E+05	-.9855E+05
MAR	1944.	1269.	1.000	43.	0.	0.	0	0	.4209E+05	-.9947E+05
APR	2323.	1608.	1.000	55.	0.	0.	0	0	.5730E+05	-.6134E+05
MAY	2570.	1829.	1.000	65.	0.	0.	0	0	.7130E+05	-.4175E+05
JUN	2646.	1993.	1.000	72.	0.	0.	0	0	.9171E+05	-5139.
JUL	2549.	2018.	1.000	77.	0.	0.	0	0	.1005E+06	.0000
AUG	2291.	1849.	1.000	76.	0.	0.	0	0	.8897E+05	-.1261E+05
SEP	1878.	1388.	1.000	68.	0.	0.	0	0	.9244E+05	-.3943E+05
OCT	1467.	972.	1.000	57.	0.	0.	0	0	.6208E+05	-.5635E+05
NOV	1071.	754.	1.000	47.	0.	0.	0	0	.4153E+05	-.8459E+05
DEC	916.	627.	1.000	35.	0.	0.	0	7	.0000	-.1200E+06

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 7.500000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 29753.000000
FLOOR AREA (SQFT) 3189.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 120000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -180000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 31890.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 215.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 4.340000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 13970.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 182.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 29.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	929.0	358.0	822.0
WINDOW AREA SQFT (AWND)	.0	42.3	.0	106.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	4.2	.0	10.6
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3189.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 9.445784E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.843E-04 .287E-02 .531E-02 .118E-02 .000 843.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.09 .227 -.690E-02 .000 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 7.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 4. 31473. 1225. 775.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	90.0
2	.100	.100	.000	.000	55.0	90.0
3	.100	.100	.000	.000	55.0	90.0
4	.100	.100	.000	.000	55.0	90.0
5	.100	.100	.000	.000	55.0	90.0
6	.100	.100	.000	.000	55.0	90.0
7	.200	.500	.100	.100	55.0	90.0
8	1.000	.400	.100	.100	70.0	75.0
9	1.000	.300	.100	.100	70.0	75.0
10	1.000	.300	.100	.100	70.0	75.0
11	1.000	.300	.100	.100	70.0	75.0
12	1.000	.300	.100	.100	70.0	75.0
13	1.000	.300	.100	.100	70.0	75.0
14	1.000	.300	.100	.100	70.0	75.0
15	1.000	.300	1.000	1.000	70.0	75.0
16	1.000	.300	1.000	1.000	70.0	75.0
17	1.000	.100	.100	.100	55.0	90.0
18	1.000	.100	.100	.100	55.0	90.0
19	1.000	.100	.100	.100	55.0	90.0
20	.200	.100	.100	.100	55.0	90.0
21	.100	.100	.000	.000	55.0	90.0
22	.100	.100	.000	.000	55.0	90.0
23	.100	.100	.000	.000	55.0	90.0
24	.100	.100	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 4785.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 120000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 150000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.420 .100 .560 .200 .650 .300 .710 .400

.740 .500 .750 .600 .760 .700 .780 .800

.790 .900 .800 1.00

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 180000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 46075.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000 .000 .000 .000 .000 .000 .000 .000

.000 .000 .000 .000 .000 .000 .000 .000

.000 .000 .000 .000

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.09	GAIN	2.09	.00	.00	.00	.00	.00	.00	.02
	-20.45	LOSS		-5.02	-4.17	.00	-7.66	-1.54	-15.79	.00
FEB	.06	GAIN	2.68	.00	.00	.00	.13	.00	.00	.03
	-14.86	LOSS		-4.14	-3.56	.00	-5.46	-1.32	-13.53	.00
MAR	.54	GAIN	3.32	.01	.00	.00	.62	.00	.01	.01
	-10.84	LOSS		-3.85	-3.48	.00	-4.43	-1.29	-12.80	.00
APR	3.01	GAIN	3.54	.10	.03	.00	1.63	.01	.10	.27
	-2.90	LOSS		-2.46	-2.35	.00	-2.35	-.87	-8.21	.00
MAY	6.86	GAIN	3.88	.23	.07	.00	2.45	.03	.20	1.00
	-.38	LOSS		-2.02	-2.06	.00	-1.84	-.74	-6.25	.00
JUN	13.90	GAIN	3.89	.43	.20	.00	3.36	.07	.58	3.83
	.00	LOSS		-1.47	-1.59	.00	-1.23	-.57	-4.67	.00
JUL	19.02	GAIN	4.01	.70	.42	.00	4.13	.15	1.26	5.09
	.00	LOSS		-1.26	-1.38	.00	-.97	-.50	-4.12	.00
AUG	16.76	GAIN	3.52	.53	.34	.00	3.44	.13	.99	4.39
	.00	LOSS		-1.29	-1.38	.00	-1.07	-.49	-4.00	.00
SEP	9.59	GAIN	3.01	.19	.15	.00	1.97	.05	.45	2.87
	-.39	LOSS		-1.77	-1.62	.00	-1.62	-.59	-5.16	.00
OCT	2.60	GAIN	2.50	.05	.05	.00	.76	.02	.16	.40
	-2.70	LOSS		-2.72	-2.21	.00	-2.90	-.80	-7.00	.00
NOV	.82	GAIN	1.95	.00	.00	.00	.16	.00	.00	.15
	-8.26	LOSS		-3.45	-2.76	.00	-4.53	-1.00	-9.26	.00
DEC	.00	GAIN	1.78	.00	.01	.00	.07	.00	.02	.00
	-19.54	LOSS		-4.91	-4.00	.00	-7.68	-1.46	-14.78	.00
TOT	73.24	GAIN	36.17	2.23	1.28	.00	18.70	.47	3.79	18.04
	-80.33	LOSS		-34.35	-30.57	.00	-41.74	-11.18	-105.57	.00

MAX HEATING LOAD= -120000. BTUH ON DEC 31 HOUR 8 AMBIENT TEMP 38.
MAX COOLING LOAD= 168600. BTUH ON JUL 16 HOUR 8 AMBIENT TEMP 82.

ZONE UA BTU/HR-F 860.9

BEACON Energy Analysis By Energy Systems Engineers, Inc. 637B-2.I

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	61.	76.		4	18	61.	1.49	6.04	2.07	11.57
			54.	27	6	4.				
FEB	62.	77.		13	19	60.	1.34	5.42	1.87	10.39
			54.	2	6	14.				
MAR	65.	82.		28	20	64.	1.48	5.99	2.07	11.49
			54.	4	6	15.				
APR	71.	90.		7	18	71.	1.43	5.78	2.01	11.09
			55.	9	6	30.				
MAY	78.	91.		26	16	80.	1.49	6.04	2.07	11.57
			55.	9	6	44.				
JUN	82.	91.		2	16	83.	1.43	5.78	2.01	11.09
			73.	17	6	57.				
JUL	84.	91.		28	15	93.	1.48	5.99	2.07	11.49
			73.	24	6	66.				
AUG	83.	91.		12	14	90.	1.49	6.04	2.07	11.57
			71.	25	7	55.				
SEP	78.	91.		2	16	91.	1.42	5.73	2.01	11.01
			57.	15	7	44.				
OCT	71.	84.		14	20	69.	1.49	6.04	2.07	11.57
			55.	28	6	33.				
NOV	66.	80.		8	20	67.	1.44	5.83	2.01	11.18
			54.	3	6	18.				
DEC	60.	74.		12	16	59.	1.47	5.94	2.07	11.41
			54.	18	6	0.				
YEAR							17.44	70.63	24.43	135.44

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	519	6	25	0	-.1200E+06	.2026E+05
FEB	389	5	23	0	-.1200E+06	.2056E+05
MAR	303	20	18	0	-.1200E+06	.4294E+05
APR	103	82	6	0	-.1200E+06	.5633E+05
MAY	9	174	0	0	-.1146E+06	.9014E+05
JUN	0	244	0	0	.0000	.1509E+06
JUL	0	313	0	0	.0000	.1686E+06
AUG	0	271	0	0	.0000	.1615E+06
SEP	13	191	0	0	-.9577E+05	.1476E+06
OCT	88	72	8	0	-.1200E+06	.6491E+05
NOV	259	34	14	0	-.1200E+06	.4096E+05
DEC	482	0	29	0	-.1200E+06	.0000
YEAR	2165	1412	123	0	-.1200E+06	.1686E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	14.49	.01	1.49	6.04	.61	11.57	7.1
FEB	11.38	.01	1.34	5.42	.55	10.39	7.1
MAR	8.90	.06	1.48	5.99	.61	11.49	9.3
APR	3.02	.33	1.43	5.78	.59	11.09	10.4
MAY	.46	.74	1.49	6.04	.61	11.57	12.9
JUN	.00	1.39	1.43	5.78	.59	11.09	16.6
JUL	.00	1.87	1.48	5.99	.61	11.49	17.6
AUG	.00	1.65	1.49	6.04	.61	11.57	17.2
SEP	.36	.98	1.42	5.73	.59	11.01	16.4
OCT	2.99	.28	1.49	6.04	.61	11.57	11.1
NOV	7.37	.10	1.44	5.83	.59	11.18	9.1
DEC	15.39	.00	1.47	5.94	.61	11.41	4.7
YEAR	64.36	7.43	17.44	70.63	7.16	135.44	17.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 76608. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 NIGHT SETBACK (FT LEONARD WOOD)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1074.	696.	1.000	35.	0.	0.	0	25	.2026E+05	-.1200E+06
FEB	1494.	948.	1.000	37.	0.	0.	0	23	.2056E+05	-.1200E+06
MAR	1944.	1269.	1.000	43.	0.	0.	0	18	.4294E+05	-.1200E+06
APR	2323.	1608.	1.000	55.	0.	0.	0	6	.5633E+05	-.1200E+06
MAY	2570.	1829.	1.000	65.	0.	0.	0	0	.9014E+05	-.1146E+06
JUN	2646.	1993.	1.000	72.	0.	0.	0	0	.1509E+06	.0000
JUL	2549.	2018.	1.000	77.	0.	0.	0	0	.1686E+06	.0000
AUG	2291.	1849.	1.000	76.	0.	0.	0	0	.1615E+06	.0000
SEP	1878.	1388.	1.000	68.	0.	0.	0	0	.1476E+06	-.9577E+05
OCT	1467.	972.	1.000	57.	0.	0.	0	8	.6491E+05	-.1200E+06
NOV	1071.	754.	1.000	47.	0.	0.	0	14	.4096E+05	-.1200E+06
DEC	916.	627.	1.000	35.	0.	0.	0	29	.0000	-.1200E+06

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 DDC (FT LEONARD WOOD)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 7.500000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.000000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 29753.000000
FLOOR AREA (SQFT) 3189.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 120000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -180000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 31890.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 215.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 4.340000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 13970.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 182.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 29.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	.0	929.0	358.0	822.0
WINDOW AREA SQFT (AWND)	.0	42.3	.0	106.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	4.2	.0	10.6
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 3189.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.000000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 9.445784E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.843E-04	.287E-02	.531E-02	.118E-02	.000	843.

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.09	.227	-.690E-02	.000	999.

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 7.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 4. 31473. 1225. 775.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.100	.000	.000	55.0	90.0
2	.100	.100	.000	.000	55.0	90.0
3	.100	.100	.000	.000	55.0	90.0
4	.100	.100	.000	.000	55.0	90.0
5	.100	.100	.000	.000	55.0	90.0
6	.100	.100	.000	.000	55.0	90.0
7	.200	.500	.100	.100	55.0	90.0
8	1.000	.400	.100	.100	68.0	78.0
9	1.000	.300	.100	.100	68.0	78.0
10	1.000	.300	.100	.100	68.0	78.0
11	1.000	.300	.100	.100	68.0	78.0
12	1.000	.300	.100	.100	68.0	78.0
13	1.000	.300	.100	.100	68.0	78.0
14	1.000	.300	.100	.100	68.0	78.0
15	1.000	.300	1.000	1.000	68.0	78.0
16	1.000	.300	1.000	1.000	68.0	78.0
17	1.000	.100	.100	.100	55.0	90.0
18	1.000	.100	.100	.100	55.0	90.0
19	1.000	.100	.100	.100	55.0	90.0
20	.200	.100	.100	.100	55.0	90.0
21	.100	.100	.000	.000	55.0	90.0
22	.100	.100	.000	.000	55.0	90.0
23	.100	.100	.000	.000	55.0	90.0
24	.100	.100	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 4785.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 120000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 150000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.420 .100 .560 .200 .650 .300 .710 .400

.740 .500 .750 .600 .760 .700 .780 .800

.790 .900 .800 1.00

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 180000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 46075.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

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BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 DDC (FT LEONARD WOOD)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.09	.00	.00	.00	.00	.00	.00	.00
	-19.53	LOSS		-4.92	-4.08	.00	-7.44	-1.51	-15.39	.00
FEB	.00	GAIN	2.68	.00	.00	.00	.14	.00	.00	.00
	-14.10	LOSS		-4.05	-3.48	.00	-5.28	-1.29	-13.19	.00
MAR	.26	GAIN	3.32	.01	.00	.00	.62	.00	.01	.00
	-10.07	LOSS		-3.79	-3.43	.00	-4.30	-1.27	-12.56	.00
APR	2.11	GAIN	3.54	.08	.02	.00	1.51	.01	.05	.24
	-2.53	LOSS		-2.50	-2.39	.00	-2.38	-.89	-8.37	.00
MAY	5.45	GAIN	3.88	.17	.03	.00	2.21	.01	.08	.93
	-.28	LOSS		-2.14	-2.18	.00	-1.99	-.78	-6.62	.00
JUN	12.57	GAIN	3.89	.34	.11	.00	3.03	.04	.32	3.93
	.00	LOSS		-1.57	-1.68	.00	-1.35	-.60	-4.96	.00
JUL	17.88	GAIN	4.01	.59	.30	.00	3.79	.11	.90	5.36
	.00	LOSS		-1.34	-1.44	.00	-1.06	-.52	-4.31	.00
AUG	15.25	GAIN	3.52	.42	.22	.00	3.07	.08	.64	4.48
	.00	LOSS		-1.40	-1.46	.00	-1.19	-.52	-4.24	.00
SEP	8.22	GAIN	3.01	.14	.10	.00	1.76	.04	.30	2.81
	-.23	LOSS		-1.88	-1.72	.00	-1.77	-.63	-5.48	.00
OCT	1.80	GAIN	2.50	.03	.04	.00	.68	.01	.11	.36
	-2.20	LOSS		-2.74	-2.23	.00	-2.91	-.81	-7.04	.00
NOV	.35	GAIN	1.95	.00	.00	.00	.14	.00	.00	.08
	-7.58	LOSS		-3.42	-2.73	.00	-4.43	-.99	-9.12	.00
DEC	.00	GAIN	1.78	.00	.01	.00	.07	.00	.02	.00
	-18.69	LOSS		-4.81	-3.91	.00	-7.46	-1.43	-14.37	.00
TOT	63.89	GAIN	36.17	1.80	.83	.00	17.03	.31	2.43	18.20
	-75.20	LOSS		-34.56	-30.73	.00	-41.56	-11.24	-105.65	.00

MAX HEATING LOAD= -120000. BTUH ON DEC 31 HOUR 8 AMBIENT TEMP 38.
MAX COOLING LOAD= 140225. BTUH ON JUL 16 HOUR 8 AMBIENT TEMP 82.

ZONE UA BTU/HR-F 860.9

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 DDC (FT LEONARD WOOD)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	78.		4	18	61.	1.49	6.04	2.07	11.57
			54.	27	6	4.				
FEB	61.	77.		13	19	60.	1.34	5.42	1.87	10.39
			54.	2	6	14.				
MAR	65.	84.		28	19	68.	1.48	5.99	2.07	11.49
			54.	4	6	15.				
APR	71.	90.		7	18	71.	1.43	5.78	2.01	11.09
			55.	9	6	30.				
MAY	79.	91.		26	16	80.	1.49	6.04	2.07	11.57
			55.	9	6	44.				
JUN	83.	91.		2	16	83.	1.43	5.78	2.01	11.09
			73.	17	6	57.				
JUL	85.	91.		28	15	93.	1.48	5.99	2.07	11.49
			73.	24	6	66.				
AUG	84.	91.		12	14	90.	1.49	6.04	2.07	11.57
			71.	25	7	55.				
SEP	79.	91.		2	16	91.	1.42	5.73	2.01	11.01
			57.	15	7	44.				
OCT	71.	85.		4	21	69.	1.49	6.04	2.07	11.57
			55.	28	6	33.				
NOV	65.	82.		8	19	67.	1.44	5.83	2.01	11.18
			54.	3	6	18.				
DEC	60.	73.		12	16	59.	1.47	5.94	2.07	11.41
			54.	18	6	0.				
YEAR							17.44	70.63	24.43	135.44

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 DDC (FT LEONARD WOOD)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	NUMBER OF HOURS WHEN LOADS WERE NOT MET: COOLING	MAXIMUM LOADS BTU: HEATING	MAXIMUM LOADS BTU: COOLING
JAN	519	0	20	0	-.1200E+06	.0000
FEB	382	0	17	0	-.1200E+06	.0000
MAR	295	10	13	0	-.1200E+06	.3891E+05
APR	96	63	3	0	-.1200E+06	.5168E+05
MAY	8	151	0	0	-.9571E+05	.6535E+05
JUN	0	248	0	0	.0000	.1204E+06
JUL	0	327	0	0	.0000	.1402E+06
AUG	0	277	0	0	.0000	.1314E+06
SEP	8	173	0	0	-.7668E+05	.1192E+06
OCT	80	52	2	0	-.1200E+06	.5648E+05
NOV	253	14	13	0	-.1200E+06	.3646E+05
DEC	488	0	23	0	-.1200E+06	.0000
YEAR	2129	1315	91	0	-.1200E+06	.1402E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	13.20	.00	1.49	6.04	.61	11.57	4.7
FEB	10.44	.00	1.34	5.42	.55	10.39	4.7
MAR	8.02	.03	1.48	5.99	.61	11.49	8.9
APR	2.74	.23	1.43	5.78	.59	11.09	10.1
MAY	.37	.60	1.49	6.04	.61	11.57	11.2
JUN	.00	1.29	1.43	5.78	.59	11.09	14.8
JUL	.00	1.80	1.48	5.99	.61	11.49	16.0
AUG	.00	1.55	1.49	6.04	.61	11.57	15.5
SEP	.16	.86	1.42	5.73	.59	11.01	14.8
OCT	2.53	.20	1.49	6.04	.61	11.57	10.5
NOV	6.68	.04	1.44	5.83	.59	11.18	8.7
DEC	14.16	.00	1.47	5.94	.61	11.41	4.7
YEAR	58.29	6.60	17.44	70.63	7.16	135.44	16.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 73814. BTU/(SQFT-YEAR)

BLDG 637 - CHAPEL OFFICE AREA - ZONE 2 DDC (FT LEONARD WOOD)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1074.	696.	1.000	35.	0.	0.	0	20	.0000	-.1200E+06
FEB	1494.	948.	1.000	37.	0.	0.	0	17	.0000	-.1200E+06
MAR	1944.	1269.	1.000	43.	0.	0.	0	13	.3891E+05	-.1200E+06
APR	2323.	1608.	1.000	55.	0.	0.	0	3	.5168E+05	-.1200E+06
MAY	2570.	1829.	1.000	65.	0.	0.	0	0	.6535E+05	-.9571E+05
JUN	2646.	1993.	1.000	72.	0.	0.	0	0	.1204E+06	.0000
JUL	2549.	2018.	1.000	77.	0.	0.	0	0	.1402E+06	.0000
AUG	2291.	1849.	1.000	76.	0.	0.	0	0	.1314E+06	.0000
SEP	1878.	1388.	1.000	68.	0.	0.	0	0	.1192E+06	-.7668E+05
OCT	1467.	972.	1.000	57.	0.	0.	0	2	.5648E+05	-.1200E+06
NOV	1071.	754.	1.000	47.	0.	0.	0	13	.3646E+05	-.1200E+06
DEC	916.	627.	1.000	35.	0.	0.	0	23	.0000	-.1200E+06

COMPUTER SIMULATIONS

BUILDING 639

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 639Z1
BLDG. TYPE: PX (STORE)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	538.3	320.2	316.7	316.7	503.3	527.3
COOLING (kWH)	16700	8900	8700	8580	16360	15900

SUPPLY AIR FAN	6000 CFM
FLOOR AREA	3706 FT^2
CFMI	358 CFM
UA	1712 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY				ANNUAL HEATING & COOLING HOURS	
M-F	1700	2000	15 HR	HR. ON HEATING	650 HR/YR
SAT.	1700	2000	3 HR	HR. ON COOLING	436 HR/YR
SUN.	1300	2000	7 HR	HR. OFF HEATING	3718 HR/YR
	TOTAL OCCUPY HR.		25 HR/WK	HR. OFF COOLING	2492 HR/YR
	TOTAL UNOCC. HR.		143 HR/WK		
	ANNUAL OCCUPY HR.		1304 HR/YR		
	ANNUAL UNOCC. HR.		7456 HR/YR		

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 650 = 3718 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 436 = 2492 HR/YR

HOAUHC	538.3 MBtu –	503.3 MBtu	=	1.31E+01 Btu/CFM-HR
	358 CFM *	7456 HR/YR		
HOAUH	538.3 MBtu –	503.3 MBtu	=	2.63E+01 Btu/CFM-HR
	358 CFM *	3718 HR/YR		
COAUHC	16700 kWH –	16360 kWH	=	1.27E-04 kWH/CFM-HR
	358 CFM *	7456 HR/YR		
COAUC	16700 kWH –	16360 kWH	=	3.81E-04 kWH/CFM-HR
	358 CFM *	2492 HR/YR		
HOAOHC	538.3 MBtu –	527.3 MBtu	=	2.36E+01 Btu/CFM-HR
	358 CFM *	1304 HR/YR		
HOAOH	538.3 MBtu –	527.3 MBtu	=	4.73E+01 Btu/CFM-HR
	358 CFM *	650 HR/YR		
COAOHC	16700 kWH	15900 kWH	=	1.71E-03 kWH/CFM-HR
	358 CFM *	1304 HR/YR		
COAOC	16700 kWH	15900 kWH	=	5.13E-03 kWH/CFM-HR
	358 CFM *	436 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 639Z1
BLDG. TYPE: PX (STORE)

ENERGY CONSTANT CALCULATIONS

ECC	8700 kWH –	8580 kWH	=	4.59E-05 kWH/CFM-HR
	6000 CFM *	436 HR/YR		
ECHC	8700 kWH –	8580 kWH	=	1.53E-05 kWH/CFM-HR
	6000 CFM *	1304 HR/YR		
NSUCHC	16700 kWH –	8900 kWH	=	1.74E-04 kWH/CFM-HR
	6000 CFM *	7456 HR/YR		
NSUCC	16700 kWH –	8900 kWH	=	5.22E-04 kWH/CFM-HR
	6000 CFM *	2492 HR/YR		
DDCCHC	8900 kWH –	8700 kWH	=	2.56E-05 kWH/CFM-HR
	6000 CFM *	1304 HR/YR		
DDCCC	8900 kWH –	8700 kWH	=	7.65E-05 kWH/CFM-HR
	6000 CFM *	436 HR/YR		
NSC	538.3 MBtu –	320.21 MBtu	=	1.27E+05 Btu/UA
	1712 UA			
DSC	320.21 MBtu –	316.72 MBtu	=	2.04E+03 Btu/UA
	1712 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR		
			=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			
			=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	03-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	639ABHL

BUILDING HEATING LOAD CALCULATION SHEET

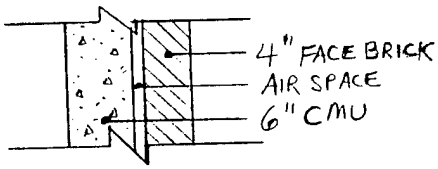
BLDG NO: 639 BLDG NAME: POST EXCHANGE - ZONE 1
BLDG FUNCTION: STORE AND SNACK BAR
FLOOR AREA: (SQ. FT) 3,706 # FLOORS 1
SLAB PERIMETER: (FT) 192

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		.NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	851	207	1,150	665	2,873
GLASS	(SQ. FT)	0	0	107	0	107
PERSONNEL DOOR	(SQ. FT)	0	0	49	123	172
INSULATED PANEL	(SQ. FT)	0	0	53	0	53
WALLS, NET	(SQ. FT)	851	207	941	542	2,541
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	3,706
INSULATED PANEL	(SQ. FT)	53	PERSONNEL DOOR		(SQ. FT)	172
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

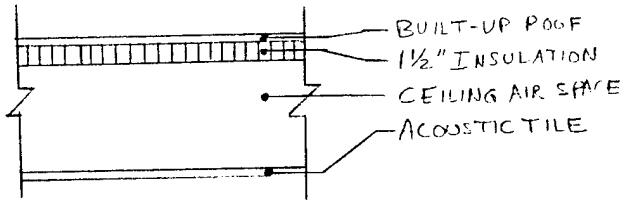
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	1.5" INSULATION	4.98
4.	CEILING AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	8.95
	U=1/R	0.112

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	2873	X CFM / SQ.FT.	0.115	=	330
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	28
DOOR OPENINGS / HR - DOUBLE DOORS		20	X CFM /OPENING /HR	1.385	=	358
			TOTAL INFILTRATION (CFM)		=	

UA PANEL	= PANEL AREA	53	X PANEL "U"	0.238	=	13
UA PDOOR	= PDOOR AREA	172	X DOOR "U"	0.391	=	67
UA WALL	= WALL AREA	2,488	X WALL "U"	0.245	=	622
UA ROOF	= ROOF AREA	3,706	X ROOF "U"	0.112	=	414
UA GLASS	= GLASS AREA	107	X GLASS "U"	0.621	=	66
UA SLAB	= SLAB PERIM.	192	X SLF	0.830	=	159
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	358	X A. T. F.	1.035	=	371
			TOTAL UA (BTU/HR°F)			1,712

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 639AZ1
BLDG: 639A ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	10	4	Seated, light work, typing	Offices, hotels, apts	250	200	2,500	2,000
	6	5	Standing, light work, or walking slowly	Retail store, bank	270	220	1,620	1,320
	20	3	Seated Eating	Restaurant	225	325	4,500	6,500
TOTAL	36					TOTAL	8,620	9,820

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	39	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	6,552
	3	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	252
	27	18	Incandescent – 60w	60	1,620
TOTAL	69			TOTAL	8,424

Peak Value for Internal Gains

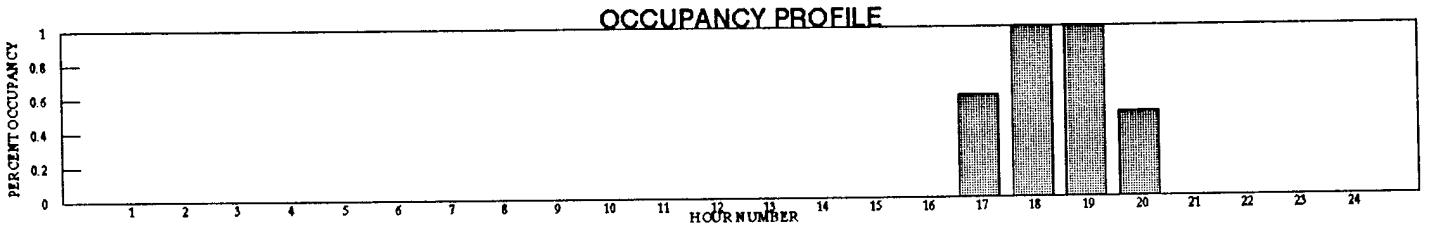
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	2	84	Griddle/grill (large) per sq.ft. of cooking surface (4.6 to 11.8	2,696	10%	5,392	18,403
	1	26	Deep Fryer	1,448	80%	1,448	4,942
	1	46	Microwave Oven	600	65%	600	2,048
	2	91	Serving Cart (hot), per cu.ft. of well	601	50%	1,202	4,102
	1	51	Range with Oven	10,262	80%	10,262	35,024
	1	76	Coffee Brewer	1,658	100%	1,658	5,659
	1	21	Cash Register	60	20%	60	205
	1	53	Refrigerator (12 cu. ft.)	241	20%	241	823
				TOTAL	61%	20,863	71,205

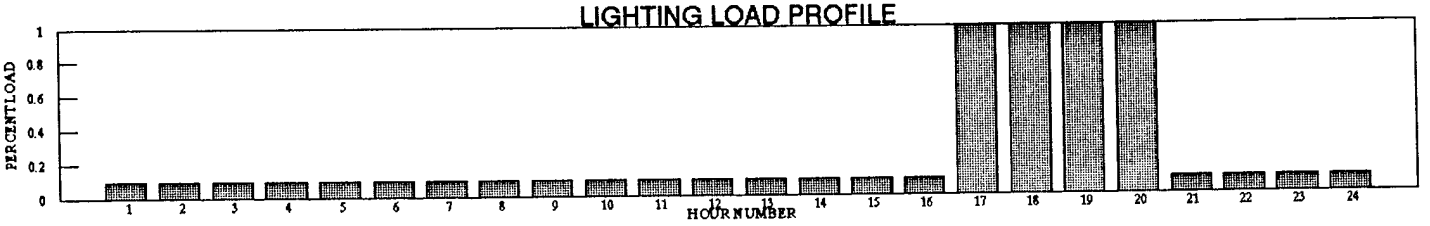
E M C Engineers, Inc.

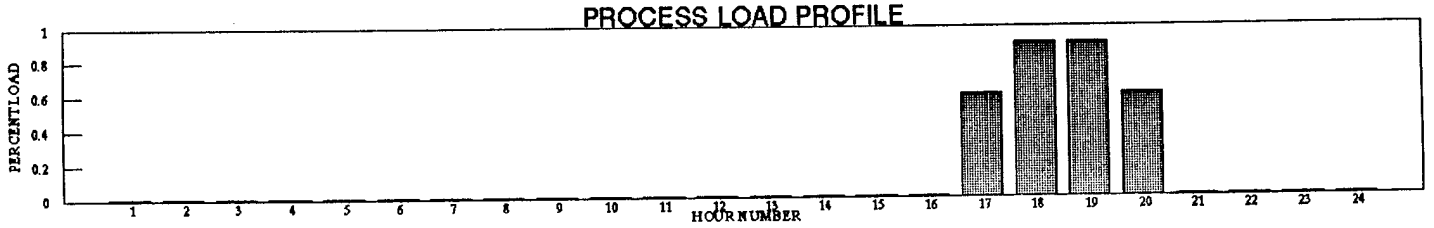
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 639AZ1
BLDG: 639A
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	Post Exchange	OCCUPANCY																	0.6	1	1	0.5				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.1	0.1	0.1	0.1
		PROCESS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	0.9	0.6	0.0	0.0	0.0	0.0







BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 BASERUN (FT L. WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	34650.820000
FLOOR AREA (SQFT)	3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	358.000000

INFILTRATION PROFILE

.930	.930	.930	.930	.930	.930	.930	.930
.930	.930	.930	.930	.930	.930	.930	.930
1.00	1.00	1.00	1.00	.930	.930	.930	.930

A FACTOR IN INFILTRATION EQUATION (CINA)	6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	158.900000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	67.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	43435.	8620.	9820.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	70.0	76.0
2	.100	.012	.000	.000	70.0	76.0
3	.100	.012	.000	.000	70.0	76.0
4	.100	.012	.000	.000	70.0	76.0
5	.100	.012	.000	.000	70.0	76.0
6	.100	.012	.000	.000	70.0	76.0
7	.100	.012	.000	.000	70.0	76.0
8	.100	.012	.000	.000	70.0	76.0
9	.100	.012	.000	.000	70.0	76.0
10	.100	.012	.000	.000	70.0	76.0
11	.100	.012	.000	.000	70.0	76.0
12	.100	.012	.000	.000	70.0	76.0
13	.100	.012	.000	.000	70.0	76.0

14	.100	.012	.000	.000	70.0	76.0
15	.100	.012	.000	.000	70.0	76.0
16	.100	.012	.000	.000	70.0	76.0
17	1.000	.600	.600	.600	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.900	1.000	1.000	70.0	76.0
20	1.000	.600	.500	.500	70.0	76.0
21	.100	.012	.000	.000	70.0	76.0
22	.100	.012	.000	.000	70.0	76.0
23	.100	.012	.000	.000	70.0	76.0
24	.100	.012	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 BASERUN (FT L. WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.00	.00	.00	.01	.00	.00	.00
	-69.01	LOSS		-13.18	-5.95	.00	-13.88	-1.48	-49.34	.00
FEB	.00	GAIN	1.78	.00	.00	.00	.02	.00	.00	.00
	-55.79	LOSS		-10.90	-5.06	.00	-10.48	-1.26	-42.19	.00
MAR	1.10	GAIN	2.27	.17	.00	.00	.49	.00	.02	.19
	-47.24	LOSS		-9.86	-4.67	.00	-8.30	-1.16	-38.94	.00
APR	6.48	GAIN	2.40	.73	.04	.00	1.82	.01	.25	.96
	-22.41	LOSS		-5.88	-2.69	.00	-3.88	-.67	-22.22	.00
MAY	15.90	GAIN	2.64	1.46	.12	.00	3.71	.03	.78	3.78
	-7.39	LOSS		-3.52	-1.42	.00	-1.26	-.34	-10.95	.00
JUN	35.33	GAIN	2.76	2.21	.30	.00	5.51	.07	2.02	15.47
	-1.02	LOSS		-2.06	-.61	.00	-.21	-.15	-4.24	.00
JUL	49.29	GAIN	2.78	3.07	.71	.00	7.15	.18	4.83	21.45
	-.39	LOSS		-1.59	-.38	.00	-.09	-.09	-2.75	.00
AUG	44.47	GAIN	2.48	2.55	.54	.00	5.83	.13	3.58	20.50
	-.71	LOSS		-1.77	-.44	.00	-.14	-.11	-2.91	.00
SEP	24.34	GAIN	2.06	1.35	.29	.00	3.27	.07	2.03	10.86
	-6.64	LOSS		-3.25	-1.16	.00	-1.30	-.28	-9.65	.00
OCT	5.31	GAIN	1.65	.37	.06	.00	.87	.01	.38	1.51
	-20.90	LOSS		-6.16	-2.53	.00	-4.35	-.62	-20.31	.00
NOV	.76	GAIN	1.20	.06	.00	.00	.17	.00	.03	.18
	-37.97	LOSS		-8.76	-3.79	.00	-8.11	-.92	-30.39	.00
DEC	.00	GAIN	1.07	.00	.00	.00	.00	.00	.00	.00
	-67.83	LOSS		-13.13	-5.86	.00	-14.10	-1.44	-48.13	.00
TOT	183.	GAIN	24.	12.	2.	0.	29.	1.	14.	75.
	-337.	LOSS		-80.	-35.	0.	-66.	-9.	-282.	0.

MAX HEATING LOAD= -233058. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 241835. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 1218.1

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639A.I

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 BASERUN (FT L. WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.		4	19	58.	1.72	7.84	1.95	13.51
			68.	27	7	4.				
FEB	70.	77.		25	19	47.	1.57	7.15	1.76	12.30
			69.	2	7	14.				
MAR	70.	78.		10	19	63.	1.74	7.93	1.95	13.64
			69.	4	6	15.				
APR	72.	78.		29	19	69.	1.69	7.70	1.89	13.23
			69.	9	6	30.				
MAY	73.	78.		26	19	75.	1.72	7.84	1.95	13.51
			69.	3	8	66.				
JUN	75.	78.		30	19	82.	1.69	7.70	1.89	13.23
			69.	10	6	66.				
JUL	76.	79.		15	18	92.	1.74	7.93	1.95	13.64
			69.	24	7	67.				
AUG	76.	78.		11	19	84.	1.72	7.84	1.95	13.51
			70.	25	6	51.				
SEP	74.	78.		2	19	83.	1.71	7.79	1.89	13.36
			68.	5	7	66.				
OCT	72.	78.		14	19	71.	1.72	7.84	1.95	13.51
			68.	24	7	67.				
NOV	70.	78.		17	19	59.	1.67	7.61	1.89	13.11
			67.	8	7	66.				
DEC	70.	78.		23	19	54.	1.76	8.02	1.95	13.76
			68.	18	7	-1.				
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 BASERUN (FT L. WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	705	6	0	0	-.2159E+06	.0000
FEB	612	21	0	0	-.1829E+06	.0000
MAR	614	58	0	0	-.1812E+06	.1274E+06
APR	432	143	0	0	-.1182E+06	.1378E+06
MAY	282	255	0	0	-.8522E+05	.1703E+06
JUN	74	383	0	0	-.3120E+05	.2227E+06
JUL	36	517	0	0	-.2731E+05	.2418E+06
AUG	44	477	0	0	-.4116E+05	.2261E+06
SEP	180	312	0	0	-.8061E+05	.2174E+06
OCT	438	136	0	0	-.1103E+06	.1345E+06
NOV	564	57	0	0	-.1575E+06	.8933E+05
DEC	698	18	0	0	-.2331E+06	.0000
YEAR	4679	2383	0	0	-.2331E+06	.2418E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	106.87	.00	1.72	7.84	.57	13.51	12.4
FEB	88.49	.00	1.57	7.15	.52	12.30	12.4
MAR	79.97	.12	1.74	7.93	.57	13.64	24.3
APR	45.56	.69	1.69	7.70	.55	13.23	25.0
MAY	23.78	1.64	1.72	7.84	.57	13.51	27.0
JUN	5.82	3.48	1.69	7.70	.55	13.23	30.1
JUL	2.83	4.79	1.74	7.93	.57	13.64	31.1
AUG	3.47	4.37	1.72	7.84	.57	13.51	30.2
SEP	16.30	2.42	1.71	7.79	.55	13.36	29.8
OCT	44.14	.56	1.72	7.84	.57	13.51	24.4
NOV	68.01	.08	1.67	7.61	.55	13.11	18.3
DEC	105.29	.00	1.76	8.02	.57	13.76	12.4
YEAR	590.53	18.15	20.42	93.20	6.73	160.31	31.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 226210. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 BASERUN (FT L. WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2159E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1829E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1274E+06	-.1812E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1378E+06	-.1182E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1703E+06	-.8522E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2227E+06	-.3120E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2418E+06	-.2731E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2261E+06	-.4116E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2174E+06	-.8061E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1345E+06	-.1103E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.8933E+05	-.1575E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2331E+06

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 NIGHT SETBACK (FT L. WOOD

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 34650.820000
FLOOR AREA (SQFT) 3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 358.000000
INFILTRATION PROFILE

.930	.930	.930	.930	.930	.930	.930	.930
.930	.930	.930	.930	.930	.930	.930	.930
1.00	1.00	1.00	1.00	.930	.930	.930	.930

A FACTOR IN INFILTRATION EQUATION (CINA) 6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 158.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 67.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	76.0	76.0	76.0
76.0	76.0	76.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	70.0	70.0	70.0
70.0	70.0	70.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -		THERMOSTAT SET POINT DEG F	
		PEOPLE	PEOPLE		
	LIGHTS	PROCESS SENSIBLE	LATENT	HEATING	COOLING
PEAK VAL	8.	43435. 8620.	9820.		

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	55.0	90.0
2	.100	.012	.000	.000	55.0	90.0
3	.100	.012	.000	.000	55.0	90.0
4	.100	.012	.000	.000	55.0	90.0
5	.100	.012	.000	.000	55.0	90.0
6	.100	.012	.000	.000	55.0	90.0
7	.100	.012	.000	.000	55.0	90.0
8	.100	.012	.000	.000	55.0	90.0
9	.100	.012	.000	.000	55.0	90.0
10	.100	.012	.000	.000	55.0	90.0
11	.100	.012	.000	.000	55.0	90.0
12	.100	.012	.000	.000	55.0	90.0
13	.100	.012	.000	.000	55.0	90.0
14	.100	.012	.000	.000	55.0	90.0
15	.100	.012	.000	.000	55.0	90.0
16	.100	.012	.000	.000	55.0	90.0
17	1.000	.600	.600	.600	55.0	90.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.900	1.000	1.000	70.0	76.0
20	1.000	.600	.500	.500	70.0	76.0
21	.100	.012	.000	.000	55.0	90.0
22	.100	.012	.000	.000	55.0	90.0
23	.100	.012	.000	.000	55.0	90.0
24	.100	.012	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 NIGHT SETBACK (FT L. WOOD

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.03	.01	.00	.13	.00	.07	.00
	-39.83	LOSS		-9.27	-3.99	.00	-8.50	-.99	-32.27	.00
FEB	.00	GAIN	1.78	.08	.01	.00	.35	.00	.04	.00
	-30.20	LOSS		-7.50	-3.32	.00	-5.92	-.83	-27.19	.00
MAR	.86	GAIN	2.27	.35	.04	.00	1.22	.01	.27	.15
	-22.24	LOSS		-6.62	-2.99	.00	-4.23	-.75	-24.73	.00
APR	4.94	GAIN	2.40	.91	.09	.00	2.54	.02	.66	.53
	-6.91	LOSS		-3.99	-1.71	.00	-1.68	-.43	-14.38	.00
MAY	11.12	GAIN	2.64	1.35	.15	.00	3.81	.04	1.01	1.97
	-.66	LOSS		-2.85	-1.17	.00	-.57	-.28	-9.11	.00
JUN	20.84	GAIN	2.76	1.56	.14	.00	4.42	.04	.95	7.03
	.00	LOSS		-2.20	-.85	.00	-.23	-.21	-5.74	.00
JUL	27.45	GAIN	2.78	2.05	.26	.00	5.11	.06	1.73	9.71
	.00	LOSS		-2.07	-.69	.00	-.17	-.17	-4.82	.00
AUG	24.01	GAIN	2.48	1.71	.22	.00	4.22	.05	1.45	8.18
	.00	LOSS		-2.12	-.71	.00	-.21	-.17	-4.70	.00
SEP	13.73	GAIN	2.06	1.12	.21	.00	2.87	.05	1.47	4.63
	-.86	LOSS		-2.83	-.99	.00	-.65	-.24	-8.36	.00
OCT	3.68	GAIN	1.65	.50	.12	.00	1.39	.03	.85	.78
	-5.09	LOSS		-4.12	-1.51	.00	-1.83	-.37	-12.43	.00
NOV	.60	GAIN	1.20	.18	.06	.00	.49	.02	.45	.09
	-16.73	LOSS		-5.86	-2.34	.00	-4.21	-.57	-18.76	.00
DEC	.00	GAIN	1.07	.03	.02	.00	.07	.00	.11	.00
	-38.88	LOSS		-9.20	-3.90	.00	-8.61	-.96	-31.28	.00
TOT	107.	GAIN	24.	10.	1.	0.	27.	0.	9.	33.
	-161.	LOSS		-59.	-24.	0.	-37.	-6.	-194.	0.

MAX HEATING LOAD= -210137. BTUH ON JAN 28 HOUR 14 AMBIENT TEMP 18.
MAX COOLING LOAD= 245500. BTUH ON AUG 28 HOUR 18 AMBIENT TEMP 91.

ZONE UA BTU/HR-F 1218.1

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639A-2.I

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 NIGHT SETBACK (FT L. WOOD

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COINCIDENT DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	77.	54.	4 27	19 7	58. 4.	1.72	7.84	1.95	13.51
FEB	59.	79.	54.	25 2	20 7	47. 14.	1.57	7.15	1.76	12.30
MAR	60.	90.	54.	28 4	17 6	75. 15.	1.74	7.93	1.95	13.64
APR	66.	91.	54.	30 9	17 6	83. 30.	1.69	7.70	1.89	13.23
MAY	72.	91.	55.	29 11	17 5	85. 39.	1.72	7.84	1.95	13.51
JUN	77.	91.	60.	29 17	17 6	86. 57.	1.69	7.70	1.89	13.23
JUL	80.	91.	62.	26 10	17 6	93. 60.	1.74	7.93	1.95	13.64
AUG	79.	91.	58.	29 25	17 7	94. 55.	1.72	7.84	1.95	13.51
SEP	73.	91.	55.	10 15	17 6	86. 39.	1.71	7.79	1.89	13.36
OCT	65.	91.	54.	4 28	17 6	79. 33.	1.72	7.84	1.95	13.51
NOV	61.	85.	54.	8 3	17 7	72. 18.	1.67	7.61	1.89	13.11
DEC	58.	81.	54.	23 18	20 7	55. -1.	1.76	8.02	1.95	13.76
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 NIGHT SETBACK (FT L. WOOD

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	602	5	0	0	-.2101E+06	.0000
FEB	510	19	0	0	-.1730E+06	.0000
MAR	454	33	0	0	-.1850E+06	.1440E+06
APR	213	80	0	0	-.1234E+06	.1865E+06
MAY	32	132	0	0	-.4238E+05	.2119E+06
JUN	0	167	0	2	.0000	.2455E+06
JUL	0	224	0	11	.0000	.2455E+06
AUG	0	192	0	4	.0000	.2455E+06
SEP	50	141	0	0	-.3762E+05	.2316E+06
OCT	203	78	0	0	-.9190E+05	.2013E+06
NOV	374	45	0	0	-.1343E+06	.1286E+06
DEC	623	15	0	0	-.1781E+06	.0000
YEAR	3061	1131	0	17	-.2101E+06	.2455E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	71.62	.00	1.72	7.84	.57	13.51	12.4
FEB	57.56	.00	1.57	7.15	.52	12.30	12.4
MAR	46.65	.09	1.74	7.93	.57	13.64	24.6
APR	19.00	.48	1.69	7.70	.55	13.23	25.0
MAY	2.56	1.06	1.72	7.84	.57	13.51	27.0
JUN	.00	1.91	1.69	7.70	.55	13.23	30.0
JUL	.00	2.49	1.74	7.93	.57	13.64	30.9
AUG	.00	2.18	1.72	7.84	.57	13.51	30.1
SEP	3.94	1.26	1.71	7.79	.55	13.36	29.6
OCT	16.84	.36	1.72	7.84	.57	13.51	25.7
NOV	36.64	.06	1.67	7.61	.55	13.11	21.2
DEC	71.89	.00	1.76	8.02	.57	13.76	12.4
YEAR	326.71	9.89	20.42	93.20	6.73	160.31	30.9

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 147414. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 NIGHT SETBACK (FT L. WOOD

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2101E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1730E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1440E+06	-.1850E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1865E+06	-.1234E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.2119E+06	-.4238E+05
JUN	2567.	1933.	1.000	72.	0.	0.	2	0	.2455E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	11	0	.2455E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	4	0	.2455E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2316E+06	-.3762E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.2013E+06	-.9190E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1286E+06	-.1343E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1781E+06

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 DDC (FT L. WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	34650.820000
FLOOR AREA (SQFT)	3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	358.000000

INFILTRATION PROFILE

.930	.930	.930	.930	.930	.930	.930	.930
.930	.930	.930	.930	.930	.930	.930	.930
1.00	1.00	1.00	1.00	.930	.930	.930	.930

A FACTOR IN INFILTRATION EQUATION (CINA)	6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	158.900000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	67.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	78.0	78.0	78.0
78.0	78.0	78.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 8. 43435. 8620. 9820.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	55.0	90.0
2	.100	.012	.000	.000	55.0	90.0
3	.100	.012	.000	.000	55.0	90.0
4	.100	.012	.000	.000	55.0	90.0
5	.100	.012	.000	.000	55.0	90.0
6	.100	.012	.000	.000	55.0	90.0
7	.100	.012	.000	.000	55.0	90.0
8	.100	.012	.000	.000	55.0	90.0
9	.100	.012	.000	.000	55.0	90.0
10	.100	.012	.000	.000	55.0	90.0
11	.100	.012	.000	.000	55.0	90.0
12	.100	.012	.000	.000	55.0	90.0
13	.100	.012	.000	.000	55.0	90.0
14	.100	.012	.000	.000	55.0	90.0
15	.100	.012	.000	.000	55.0	90.0
16	.100	.012	.000	.000	55.0	90.0
17	1.000	.600	.600	.600	55.0	90.0
18	1.000	.900	1.000	1.000	68.0	78.0
19	1.000	.900	1.000	1.000	68.0	78.0
20	1.000	.600	.500	.500	68.0	78.0
21	.100	.012	.000	.000	55.0	90.0
22	.100	.012	.000	.000	55.0	90.0
23	.100	.012	.000	.000	55.0	90.0
24	.100	.012	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639A-1.I

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 DDC (FT L. WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.03	.01	.00	.13	.00	.07	.00
	-39.14	LOSS		-9.19	-3.95	.00	-8.38	-.98	-31.83	.00
FEB	.00	GAIN	1.78	.08	.01	.00	.35	.00	.04	.00
	-29.63	LOSS		-7.45	-3.30	.00	-5.85	-.82	-26.77	.00
MAR	.70	GAIN	2.27	.36	.04	.00	1.21	.01	.28	.09
	-21.79	LOSS		-6.61	-2.99	.00	-4.20	-.74	-24.43	.00
APR	4.49	GAIN	2.40	.90	.09	.00	2.48	.02	.66	.53
	-6.74	LOSS		-4.06	-1.75	.00	-1.72	-.44	-14.42	.00
MAY	10.40	GAIN	2.64	1.32	.14	.00	3.68	.04	.96	1.97
	-.66	LOSS		-2.96	-1.23	.00	-.64	-.30	-9.35	.00
JUN	20.07	GAIN	2.76	1.52	.13	.00	4.27	.03	.87	7.16
	.00	LOSS		-2.30	-.91	.00	-.27	-.22	-6.13	.00
JUL	26.67	GAIN	2.78	1.99	.23	.00	4.96	.06	1.53	9.75
	.00	LOSS		-2.15	-.72	.00	-.20	-.18	-5.03	.00
AUG	23.26	GAIN	2.48	1.67	.19	.00	4.07	.05	1.28	8.29
	.00	LOSS		-2.21	-.75	.00	-.24	-.18	-4.98	.00
SEP	13.14	GAIN	2.06	1.09	.20	.00	2.76	.05	1.38	4.71
	-.84	LOSS		-2.93	-1.04	.00	-.72	-.26	-8.51	.00
OCT	3.28	GAIN	1.65	.50	.12	.00	1.35	.03	.85	.70
	-4.99	LOSS		-4.21	-1.56	.00	-1.92	-.38	-12.39	.00
NOV	.53	GAIN	1.20	.18	.06	.00	.48	.02	.45	.09
	-16.31	LOSS		-5.87	-2.34	.00	-4.20	-.57	-18.41	.00
DEC	.00	GAIN	1.07	.03	.02	.00	.07	.00	.11	.00
	-38.17	LOSS		-9.12	-3.86	.00	-8.51	-.95	-30.78	.00
TOT	103.	GAIN	24.	10.	1.	0.	26.	0.	8.	33.
	-158.	LOSS		-59.	-24.	0.	-37.	-6.	-193.	0.

MAX HEATING LOAD= -195567. BTUH ON JAN 28 HOUR 14 AMBIENT TEMP 18.
MAX COOLING LOAD= 245500. BTUH ON JUL 31 HOUR 18 AMBIENT TEMP 88.

ZONE UA BTU/HR-F 1218.1

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639A-1.I

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 DDC (FT L. WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	79.		4	19	58.	1.72	7.84	1.95	13.51
			54.	27	7	4.				
FEB	59.	80.		25	20	47.	1.57	7.15	1.76	12.30
			54.	2	7	14.				
MAR	60.	90.		28	17	75.	1.74	7.93	1.95	13.64
			54.	4	6	15.				
APR	66.	91.		30	17	83.	1.69	7.70	1.89	13.23
			54.	9	6	30.				
MAY	72.	91.		29	17	85.	1.72	7.84	1.95	13.51
			55.	11	5	39.				
JUN	78.	91.		29	17	86.	1.69	7.70	1.89	13.23
			60.	17	6	57.				
JUL	80.	91.		26	17	93.	1.74	7.93	1.95	13.64
			62.	10	6	60.				
AUG	79.	91.		29	17	94.	1.72	7.84	1.95	13.51
			58.	25	7	55.				
SEP	74.	91.		10	17	86.	1.71	7.79	1.89	13.36
			55.	15	6	39.				
OCT	66.	91.		4	17	79.	1.72	7.84	1.95	13.51
			54.	28	6	33.				
NOV	61.	85.		8	17	72.	1.67	7.61	1.89	13.11
			54.	3	7	18.				
DEC	58.	83.		23	20	55.	1.76	8.02	1.95	13.76
			54.	18	7	-1.				
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 DDC (FT L. WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	605	5	0	0	-.1956E+06	.0000
FEB	510	13	0	0	-.1585E+06	.0000
MAR	451	30	0	0	-.1705E+06	.1293E+06
APR	210	76	0	0	-.1089E+06	.1719E+06
MAY	32	131	0	0	-.4271E+05	.1974E+06
JUN	0	170	0	0	.0000	.2390E+06
JUL	0	226	0	6	.0000	.2455E+06
AUG	0	194	0	0	.0000	.2425E+06
SEP	49	140	0	0	-.3787E+05	.2171E+06
OCT	201	69	0	0	-.7742E+05	.1868E+06
NOV	369	34	0	0	-.1197E+06	.1140E+06
DEC	623	10	0	0	-.1780E+06	.0000
YEAR	3050	1098	0	6	-.1956E+06	.2455E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	71.10	.00	1.72	7.84	.57	13.51	12.4
FEB	57.10	.00	1.57	7.15	.52	12.30	12.4
MAR	46.08	.07	1.74	7.93	.57	13.64	24.2
APR	18.64	.44	1.69	7.70	.55	13.23	24.7
MAY	2.56	1.01	1.72	7.84	.57	13.51	26.7
JUN	.00	1.87	1.69	7.70	.55	13.23	29.6
JUL	.00	2.45	1.74	7.93	.57	13.64	30.6
AUG	.00	2.14	1.72	7.84	.57	13.51	29.8
SEP	3.86	1.23	1.71	7.79	.55	13.36	29.2
OCT	16.66	.33	1.72	7.84	.57	13.51	24.9
NOV	35.95	.06	1.67	7.61	.55	13.11	20.2
DEC	71.19	.00	1.76	8.02	.57	13.76	12.4
YEAR	323.14	9.58	20.42	93.20	6.73	160.31	30.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 146166. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 DDC (FT L. WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1956E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1585E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1293E+06	-.1705E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1719E+06	-.1089E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1974E+06	-.4271E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2390E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	6	0	.2455E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2425E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2171E+06	-.3787E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1868E+06	-.7742E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.1140E+06	-.1197E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1780E+06

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 ECONOMIZER (FT L. WOOD, M

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	34650.820000
FLOOR AREA (SQFT)	3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	358.000000

INFILTRATION PROFILE

.930	.930	.930	.930	.930	.930	.930	.930
.930	.930	.930	.930	.930	.930	.930	.930
1.00	1.00	1.00	1.00	.930	.930	.930	.930

A FACTOR IN INFILTRATION EQUATION (CINA)	6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	158.900000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	67.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	78.0	78.0	78.0
78.0	78.0	78.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL 8. 43435. 8620. 9820.

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	55.0	90.0
2	.100	.012	.000	.000	55.0	90.0
3	.100	.012	.000	.000	55.0	90.0
4	.100	.012	.000	.000	55.0	90.0
5	.100	.012	.000	.000	55.0	90.0
6	.100	.012	.000	.000	55.0	90.0
7	.100	.012	.000	.000	55.0	90.0
8	.100	.012	.000	.000	55.0	90.0
9	.100	.012	.000	.000	55.0	90.0
10	.100	.012	.000	.000	55.0	90.0
11	.100	.012	.000	.000	55.0	90.0
12	.100	.012	.000	.000	55.0	90.0
13	.100	.012	.000	.000	55.0	90.0
14	.100	.012	.000	.000	55.0	90.0
15	.100	.012	.000	.000	55.0	90.0
16	.100	.012	.000	.000	55.0	90.0
17	1.000	.600	.600	.600	55.0	90.0
18	1.000	.900	1.000	1.000	68.0	78.0
19	1.000	.900	1.000	1.000	68.0	78.0
20	1.000	.600	.500	.500	68.0	78.0
21	.100	.012	.000	.000	55.0	90.0
22	.100	.012	.000	.000	55.0	90.0
23	.100	.012	.000	.000	55.0	90.0
24	.100	.012	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 75.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 ECONOMIZER (FT L. WOOD, M

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.03	.01	.00	.13	.00	.07	.00
	-39.14	LOSS		-9.19	-3.95	.00	-8.38	-.98	-31.83	.00
FEB	.00	GAIN	1.78	.08	.01	.00	.35	.00	.04	.00
	-29.63	LOSS		-7.45	-3.30	.00	-5.85	-.82	-26.77	.00
MAR	.54	GAIN	2.27	.36	.04	.00	1.21	.01	.28	.28
	-21.79	LOSS		-6.61	-2.99	.00	-4.20	-.74	-24.79	.00
APR	3.26	GAIN	2.40	.90	.09	.00	2.48	.02	.66	1.24
	-6.74	LOSS		-4.06	-1.75	.00	-1.72	-.44	-16.36	.00
MAY	9.03	GAIN	2.64	1.32	.14	.00	3.68	.04	.96	3.18
	-.66	LOSS		-2.96	-1.23	.00	-.64	-.30	-11.93	.00
JUN	21.45	GAIN	2.76	1.52	.13	.00	4.26	.03	.87	11.48
	.00	LOSS		-2.31	-.92	.00	-.28	-.22	-9.05	.00
JUL	26.99	GAIN	2.78	1.99	.23	.00	4.94	.06	1.53	10.94
	.00	LOSS		-2.16	-.73	.00	-.21	-.18	-5.87	.00
AUG	23.61	GAIN	2.48	1.67	.19	.00	4.06	.05	1.28	9.40
	.00	LOSS		-2.21	-.75	.00	-.24	-.18	-5.71	.00
SEP	13.62	GAIN	2.06	1.09	.20	.00	2.75	.05	1.38	6.75
	-.84	LOSS		-2.94	-1.04	.00	-.72	-.26	-10.06	.00
OCT	2.78	GAIN	1.65	.50	.12	.00	1.35	.03	.85	1.74
	-4.99	LOSS		-4.21	-1.56	.00	-1.92	-.38	-13.93	.00
NOV	.13	GAIN	1.20	.18	.06	.00	.48	.02	.45	.11
	-16.31	LOSS		-5.87	-2.34	.00	-4.20	-.57	-18.83	.00
DEC	.00	GAIN	1.07	.03	.02	.00	.07	.00	.11	.00
	-38.17	LOSS		-9.12	-3.86	.00	-8.51	-.95	-30.78	.00
TOT	101.	GAIN	24.	10.	1.	0.	26.	0.	8.	45.
	-158.	LOSS		-59.	-24.	0.	-37.	-6.	-206.	0.

MAX HEATING LOAD= -195567. BTUH ON JAN 28 HOUR 14 AMBIENT TEMP 18.
MAX COOLING LOAD= 245500. BTUH ON SEP 23 HOUR 19 AMBIENT TEMP 75.

ZONE UA BTU/HR-F 1218.1

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 ECONOMIZER (FT L. WOOD, M

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	79.	54.	4 27	19 7	58. 4.	1.72	7.84	1.95	13.51
FEB	59.	80.	54.	25 2	20 7	47. 14.	1.57	7.15	1.76	12.30
MAR	60.	90.	54.	28 4	17 6	75. 15.	1.74	7.93	1.95	13.64
APR	66.	91.	54.	30 9	17 6	83. 30.	1.69	7.70	1.89	13.23
MAY	72.	91.	55.	29 11	17 5	85. 39.	1.72	7.84	1.95	13.51
JUN	78.	91.	60.	29 17	17 6	86. 57.	1.69	7.70	1.89	13.23
JUL	81.	91.	62.	26 10	17 6	93. 60.	1.74	7.93	1.95	13.64
AUG	79.	91.	58.	29 25	17 7	94. 55.	1.72	7.84	1.95	13.51
SEP	74.	91.	55.	10 15	17 6	86. 39.	1.71	7.79	1.89	13.36
OCT	66.	91.	54.	4 28	17 6	79. 33.	1.72	7.84	1.95	13.51
NOV	61.	85.	54.	8 3	17 7	72. 18.	1.67	7.61	1.89	13.11
DEC	58.	83.	54.	23 18	20 7	55. -1.	1.76	8.02	1.95	13.76
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 ECONOMIZER (FT L. WOOD, M

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	605	5	0	0	-.1956E+06	.0000
FEB	510	13	0	0	-.1585E+06	.0000
MAR	451	30	0	0	-.1705E+06	.1540E+06
APR	210	76	0	0	-.1089E+06	.1719E+06
MAY	32	131	0	0	-.4271E+05	.2173E+06
JUN	0	170	0	5	.0000	.2455E+06
JUL	0	226	0	11	.0000	.2455E+06
AUG	0	194	0	1	.0000	.2455E+06
SEP	49	141	0	5	-.3787E+05	.2455E+06
OCT	201	69	0	0	-.7742E+05	.2041E+06
NOV	369	34	0	0	-.1197E+06	.5148E+05
DEC	623	10	0	0	-.1780E+06	.0000
YEAR	3050	1099	0	22	-.1956E+06	.2455E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	71.10	.00	1.72	7.84	.57	13.51	12.4
FEB	57.10	.00	1.57	7.15	.52	12.30	12.4
MAR	46.08	.05	1.74	7.93	.57	13.64	26.0
APR	18.64	.33	1.69	7.70	.55	13.23	25.6
MAY	2.56	.86	1.72	7.84	.57	13.51	29.8
JUN	.00	1.91	1.69	7.70	.55	13.23	31.3
JUL	.00	2.45	1.74	7.93	.57	13.64	31.3
AUG	.00	2.14	1.72	7.84	.57	13.51	29.8
SEP	3.86	1.22	1.71	7.79	.55	13.36	31.3
OCT	16.66	.26	1.72	7.84	.57	13.51	25.9
NOV	35.95	.01	1.67	7.61	.55	13.11	15.1
DEC	71.19	.00	1.76	8.02	.57	13.76	12.4
YEAR	323.14	9.24	20.42	93.20	6.73	160.31	31.3

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 145854. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 ECONOMIZER (FT L. WOOD, M

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1956E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1585E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1540E+06	-.1705E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1719E+06	-.1089E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.2173E+06	-.4271E+05
JUN	2567.	1933.	1.000	72.	0.	0.	5	0	.2455E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	11	0	.2455E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	1	0	.2455E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	5	0	.2455E+06	-.3787E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.2041E+06	-.7742E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.5148E+05	-.1197E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1780E+06

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (NIGHTIME)
(F

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 34650.820000
FLOOR AREA (SQFT) 3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 358.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 158.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 67.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	43435.	8620.	9820.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	70.0	76.0
2	.100	.012	.000	.000	70.0	76.0
3	.100	.012	.000	.000	70.0	76.0
4	.100	.012	.000	.000	70.0	76.0
5	.100	.012	.000	.000	70.0	76.0
6	.100	.012	.000	.000	70.0	76.0
7	.100	.012	.000	.000	70.0	76.0
8	.100	.012	.000	.000	70.0	76.0
9	.100	.012	.000	.000	70.0	76.0
10	.100	.012	.000	.000	70.0	76.0
11	.100	.012	.000	.000	70.0	76.0
12	.100	.012	.000	.000	70.0	76.0

13	.100	.012	.000	.000	70.0	76.0
14	.100	.012	.000	.000	70.0	76.0
15	.100	.012	.000	.000	70.0	76.0
16	.100	.012	.000	.000	70.0	76.0
17	1.000	.600	.600	.600	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.900	1.000	1.000	70.0	76.0
20	1.000	.600	.500	.500	70.0	76.0
21	.100	.012	.000	.000	70.0	76.0
22	.100	.012	.000	.000	70.0	76.0
23	.100	.012	.000	.000	70.0	76.0
24	.100	.012	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (NIGHTIME)
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ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.00	.00	.00	.01	.00	.00	.00
	-62.98	LOSS		-13.22	-5.97	.00	-13.93	-1.49	-43.21	.00
FEB	.00	GAIN	1.78	.00	.00	.00	.02	.00	.00	.00
	-50.92	LOSS		-10.94	-5.07	.00	-10.52	-1.27	-37.23	.00
MAR	1.11	GAIN	2.27	.17	.00	.00	.49	.00	.03	.17
	-42.80	LOSS		-9.90	-4.69	.00	-8.36	-1.17	-34.35	.00
APR	6.53	GAIN	2.40	.73	.04	.00	1.81	.01	.25	.89
	-20.01	LOSS		-5.93	-2.71	.00	-3.94	-.68	-19.55	.00
MAY	15.86	GAIN	2.64	1.46	.12	.00	3.68	.03	.76	3.59
	-6.16	LOSS		-3.57	-1.44	.00	-1.30	-.35	-9.42	.00
JUN	34.46	GAIN	2.76	2.21	.30	.00	5.46	.07	1.95	14.42
	-.72	LOSS		-2.11	-.64	.00	-.25	-.15	-3.50	.00
JUL	47.08	GAIN	2.78	3.07	.71	.00	7.11	.18	4.56	19.30
	-.26	LOSS		-1.62	-.40	.00	-.11	-.10	-2.29	.00
AUG	42.60	GAIN	2.48	2.55	.54	.00	5.78	.13	3.37	18.61
	-.54	LOSS		-1.81	-.46	.00	-.16	-.11	-2.37	.00
SEP	23.60	GAIN	2.06	1.35	.29	.00	3.24	.07	1.96	10.01
	-5.72	LOSS		-3.29	-1.18	.00	-1.33	-.29	-8.43	.00
OCT	5.29	GAIN	1.65	.37	.06	.00	.86	.01	.38	1.40
	-18.68	LOSS		-6.20	-2.55	.00	-4.40	-.62	-17.87	.00
NOV	.77	GAIN	1.20	.06	.00	.00	.17	.00	.03	.16
	-34.38	LOSS		-8.80	-3.80	.00	-8.16	-.93	-26.65	.00
DEC	.00	GAIN	1.07	.00	.00	.00	.00	.00	.00	.00
	-61.94	LOSS		-13.16	-5.88	.00	-14.14	-1.45	-42.15	.00
TOT	177.	GAIN	24.	12.	2.	0.	29.	1.	13.	69.
	-305.	LOSS		-81.	-35.	0.	-67.	-9.	-247.	0.

MAX HEATING LOAD= -229631. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 220347. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 1218.1

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (NIGHTIME)
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MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COINCIDENT AMBT. DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.	68.	4 27	19 7	58. 4.	1.72	7.84	1.95	13.51
FEB	70.	77.	69.	25 2	19 7	47. 14.	1.57	7.15	1.76	12.30
MAR	71.	78.	69.	10 4	19 6	63. 15.	1.74	7.93	1.95	13.64
APR	72.	78.	69.	29 9	19 6	69. 30.	1.69	7.70	1.89	13.23
MAY	73.	78.	69.	26 3	19 8	75. 66.	1.72	7.84	1.95	13.51
JUN	75.	78.	69.	30 10	19 6	82. 66.	1.69	7.70	1.89	13.23
JUL	76.	79.	69.	15 24	18 7	92. 67.	1.74	7.93	1.95	13.64
AUG	76.	78.	70.	11 25	19 6	84. 51.	1.72	7.84	1.95	13.51
SEP	74.	78.	69.	2 18	19 9	83. 66.	1.71	7.79	1.89	13.36
OCT	72.	78.	68.	14 24	19 7	71. 67.	1.72	7.84	1.95	13.51
NOV	71.	78.	67.	17 8	19 7	59. 66.	1.67	7.61	1.89	13.11
DEC	70.	78.	68.	23 18	19 8	54. 1.	1.76	8.02	1.95	13.76
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (NIGHTIME)
(F

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	693	12	0	0	-.1988E+06	.0000
FEB	596	28	0	0	-.1770E+06	.0000
MAR	598	65	0	0	-.1768E+06	.1252E+06
APR	417	152	0	0	-.1125E+06	.1355E+06
MAY	265	266	0	0	-.7399E+05	.1627E+06
JUN	58	400	0	0	-.2645E+05	.2039E+06
JUL	28	530	0	0	-.2293E+05	.2203E+06
AUG	38	494	0	0	-.3456E+05	.2066E+06
SEP	173	320	0	0	-.6938E+05	.2021E+06
OCT	427	143	0	0	-.9669E+05	.1274E+06
NOV	553	66	0	0	-.1454E+06	.8926E+05
DEC	684	23	0	0	-.2296E+06	.0000
YEAR	4530	2499	0	0	-.2296E+06	.2203E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	100.11	.00	1.72	7.84	.57	13.51	12.4
FEB	82.60	.00	1.57	7.15	.52	12.30	12.4
MAR	74.56	.12	1.74	7.93	.57	13.64	24.1
APR	42.35	.69	1.69	7.70	.55	13.23	24.8
MAY	21.91	1.65	1.72	7.84	.57	13.51	26.6
JUN	4.56	3.44	1.69	7.70	.55	13.23	29.0
JUL	2.20	4.64	1.74	7.93	.57	13.64	29.9
AUG	2.99	4.26	1.72	7.84	.57	13.51	29.2
SEP	14.99	2.37	1.71	7.79	.55	13.36	28.9
OCT	41.30	.56	1.72	7.84	.57	13.51	24.3
NOV	63.91	.09	1.67	7.61	.55	13.11	18.3
DEC	98.50	.00	1.76	8.02	.57	13.76	12.4
YEAR	549.97	17.80	20.42	93.20	6.73	160.31	29.9

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 214949. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (NIGHTIME)
(F

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1988E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1770E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1252E+06	-.1768E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1355E+06	-.1125E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1627E+06	-.7399E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2039E+06	-.2645E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2203E+06	-.2293E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2066E+06	-.3456E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2021E+06	-.6938E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1274E+06	-.9669E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.8926E+05	-.1454E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2296E+06

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (DAYTIME) (FT

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 34650.820000
FLOOR AREA (SQFT) 3706.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 325000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -245500.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 37060.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 358.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 6.200000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 9170.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 158.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 67.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	207.0	542.0	851.0	994.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	107.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.7
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4011.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 6.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

					THERMOSTAT SET POINT DEG F	
	KW	- - - - - - BTU/HR - - - - - -				
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	43435.	8620.	9820.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.012	.000	.000	70.0	76.0
2	.100	.012	.000	.000	70.0	76.0
3	.100	.012	.000	.000	70.0	76.0
4	.100	.012	.000	.000	70.0	76.0
5	.100	.012	.000	.000	70.0	76.0
6	.100	.012	.000	.000	70.0	76.0
7	.100	.012	.000	.000	70.0	76.0
8	.100	.012	.000	.000	70.0	76.0
9	.100	.012	.000	.000	70.0	76.0
10	.100	.012	.000	.000	70.0	76.0
11	.100	.012	.000	.000	70.0	76.0
12	.100	.012	.000	.000	70.0	76.0
13	.100	.012	.000	.000	70.0	76.0

14	.100	.012	.000	.000	70.0	76.0
15	.100	.012	.000	.000	70.0	76.0
16	.100	.012	.000	.000	70.0	76.0
17	1.000	.600	.600	.600	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.900	1.000	1.000	70.0	76.0
20	1.000	.600	.500	.500	70.0	76.0
21	.100	.012	.000	.000	70.0	76.0
22	.100	.012	.000	.000	70.0	76.0
23	.100	.012	.000	.000	70.0	76.0
24	.100	.012	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 6000.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 58.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 330000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 412500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 245500.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 64704.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (DAYTIME)
(FT

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	1.31	.00	.00	.00	.01	.00	.00	.00
	-66.05	LOSS		-13.18	-5.95	.00	-13.89	-1.48	-46.37	.00
FEB	.00	GAIN	1.78	.00	.00	.00	.02	.00	.00	.00
	-53.28	LOSS		-10.91	-5.06	.00	-10.48	-1.26	-39.68	.00
MAR	1.11	GAIN	2.27	.17	.00	.00	.49	.00	.02	.19
	-45.14	LOSS		-9.86	-4.67	.00	-8.31	-1.17	-36.81	.00
APR	6.41	GAIN	2.40	.73	.04	.00	1.82	.01	.21	.89
	-21.54	LOSS		-5.88	-2.69	.00	-3.88	-.67	-21.30	.00
MAY	15.37	GAIN	2.64	1.46	.12	.00	3.71	.03	.63	3.35
	-7.23	LOSS		-3.52	-1.42	.00	-1.26	-.34	-10.75	.00
JUN	33.20	GAIN	2.76	2.21	.31	.00	5.52	.08	1.65	13.69
	-1.05	LOSS		-2.06	-.61	.00	-.21	-.15	-4.25	.00
JUL	46.59	GAIN	2.78	3.07	.71	.00	7.15	.18	4.09	19.49
	-.40	LOSS		-1.59	-.38	.00	-.09	-.09	-2.76	.00
AUG	41.90	GAIN	2.48	2.55	.54	.00	5.83	.13	2.99	18.52
	-.71	LOSS		-1.77	-.44	.00	-.14	-.11	-2.92	.00
SEP	22.73	GAIN	2.06	1.35	.29	.00	3.27	.07	1.68	9.57
	-6.52	LOSS		-3.25	-1.16	.00	-1.30	-.28	-9.51	.00
OCT	5.09	GAIN	1.65	.37	.06	.00	.87	.01	.30	1.35
	-20.15	LOSS		-6.16	-2.53	.00	-4.35	-.62	-19.52	.00
NOV	.75	GAIN	1.20	.06	.00	.00	.17	.00	.03	.16
	-36.43	LOSS		-8.76	-3.79	.00	-8.11	-.92	-28.84	.00
DEC	.00	GAIN	1.07	.00	.00	.00	.00	.00	.00	.00
	-64.99	LOSS		-13.13	-5.86	.00	-14.10	-1.44	-45.29	.00
TOT	173.	GAIN	24.	12.	2.	0.	29.	1.	12.	67.
	-323.	LOSS		-80.	-35.	0.	-66.	-9.	-268.	0.

MAX HEATING LOAD= -235161. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 241825. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 1218.1

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639A-5.I

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (DAYTIME)
(FT

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.		4	19	58.	1.72	7.84	1.95	13.51
			68.	27	7	4.				
FEB	70.	77.		25	19	47.	1.57	7.15	1.76	12.30
			69.	2	7	14.				
MAR	70.	78.		10	19	63.	1.74	7.93	1.95	13.64
			69.	4	6	15.				
APR	72.	78.		29	19	69.	1.69	7.70	1.89	13.23
			69.	9	6	30.				
MAY	73.	78.		26	19	75.	1.72	7.84	1.95	13.51
			69.	11	6	39.				
JUN	75.	78.		30	19	82.	1.69	7.70	1.89	13.23
			69.	10	6	66.				
JUL	76.	79.		15	18	92.	1.74	7.93	1.95	13.64
			69.	24	7	67.				
AUG	76.	78.		11	19	84.	1.72	7.84	1.95	13.51
			70.	25	6	51.				
SEP	74.	78.		2	19	83.	1.71	7.79	1.89	13.36
			68.	5	7	66.				
OCT	72.	78.		14	19	71.	1.72	7.84	1.95	13.51
			68.	24	7	67.				
NOV	70.	78.		17	19	59.	1.67	7.61	1.89	13.11
			67.	8	7	66.				
DEC	70.	78.		23	19	54.	1.76	8.02	1.95	13.76
			68.	18	7	-1.				
YEAR							20.42	93.20	22.97	160.31

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (DAYTIME)
(FT

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	705	6	0	0	-.2178E+06	.0000
FEB	612	21	0	0	-.1845E+06	.0000
MAR	610	58	0	0	-.1828E+06	.1274E+06
APR	429	143	0	0	-.1193E+06	.1378E+06
MAY	283	255	0	0	-.8607E+05	.1703E+06
JUN	74	382	0	0	-.3155E+05	.2227E+06
JUL	36	514	0	0	-.2764E+05	.2418E+06
AUG	43	475	0	0	-.4166E+05	.2261E+06
SEP	176	307	0	0	-.8147E+05	.2174E+06
OCT	437	136	0	0	-.1114E+06	.1345E+06
NOV	564	58	0	0	-.1590E+06	.8939E+05
DEC	698	18	0	0	-.2352E+06	.0000
YEAR	4667	2373	0	0	-.2352E+06	.2418E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	103.86	.00	1.72	7.84	.57	13.51	12.4
FEB	85.97	.00	1.57	7.15	.52	12.30	12.4
MAR	77.63	.12	1.74	7.93	.57	13.64	24.3
APR	44.51	.68	1.69	7.70	.55	13.23	25.0
MAY	23.87	1.59	1.72	7.84	.57	13.51	27.0
JUN	5.82	3.30	1.69	7.70	.55	13.23	30.1
JUL	2.83	4.57	1.74	7.93	.57	13.64	31.1
AUG	3.40	4.16	1.72	7.84	.57	13.51	30.2
SEP	15.99	2.28	1.71	7.79	.55	13.36	29.8
OCT	43.47	.54	1.72	7.84	.57	13.51	24.4
NOV	66.54	.08	1.67	7.61	.55	13.11	18.3
DEC	102.31	.00	1.76	8.02	.57	13.76	12.4
YEAR	576.17	17.31	20.42	93.20	6.73	160.31	31.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 221568. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange - Store/ Snack Bar - Zone 1 OUTSIDE AIR (DAYTIME)
(FT

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.2178E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1845E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.1274E+06	-.1828E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.1378E+06	-.1193E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.1703E+06	-.8607E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.2227E+06	-.3155E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.2418E+06	-.2764E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.2261E+06	-.4166E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.2174E+06	-.8147E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.1345E+06	-.1114E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.8939E+05	-.1590E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.2352E+06

E M C ENGINEERS, INC
DENVER ● ATLANTA ● GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04–Mar–93
BUILDING NO.: 639Z2
BLDG. TYPE: PX (GAME ROOM)

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	85.0	44.8	43.4			
COOLING (kWH)	3370	1510	1430			

SUPPLY AIR FAN	1000 CFM
FLOOR AREA	1046 FT²
CFMI	93 CFM
UA	446 BTU/HR ● °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M–F	1700	2000	15 HR
SAT.	1700	2000	3 HR
SUN.	1300	2000	7 HR
	TOTAL OCCUPY HR.		25 HR/WK
	TOTAL UNOCC. HR.		143 HR/WK
	ANNUAL OCCUPY HR.		1304 HR/YR
	ANNUAL UNOCC. HR.		7456 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	650 HR/YR
HR. ON COOLING	436 HR/YR
HR. OFF HEATING	3718 HR/YR
HR. OFF COOLING	2492 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 650 = 3718 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 436 = 2492 HR/YR

HOAUHC	85 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM–HR
	93 CFM *	7456 HR/YR		
HOAUH	85 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM–HR
	93 CFM *	3718 HR/YR		
COAUHC	3370 kWH –	0 kWH	=	0.00E+00 kWH/CFM–HR
	93 CFM *	7456 HR/YR		
COAUC	3370 kWH –	0 kWH	=	0.00E+00 kWH/CFM–HR
	93 CFM *	2492 HR/YR		
HOAOHC	85 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM–HR
	93 CFM *	1304 HR/YR		
HOAOH	85 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM–HR
	93 CFM *	650 HR/YR		
COAOHC	3370 kWH	0 kWH	=	0.00E+00 kWH/CFM–HR
	93 CFM *	1304 HR/YR		
COAOC	3370 kWH	0 kWH	=	0.00E+00 kWH/CFM–HR
	93 CFM *	436 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 639Z2
BLDG. TYPE: PX (GAME ROOM)

ENERGY CONSTANT CALCULATIONS

ECC	1430 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	1000 CFM	* 436 HR/YR		
ECHC	1430 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	1000 CFM	* 1304 HR/YR		
NSUCHC	3370 kWH	– 1510 kWH	=	2.49E-04 kWH/CFM-HR
	1000 CFM	* 7456 HR/YR		
NSUCC	3370 kWH	– 1510 kWH	=	7.46E-04 kWH/CFM-HR
	1000 CFM	* 2492 HR/YR		
DDCCHC	1510 kWH	– 1430 kWH	=	6.14E-05 kWH/CFM-HR
	1000 CFM	* 1304 HR/YR		
DDCCC	1510 kWH	– 1430 kWH	=	1.84E-04 kWH/CFM-HR
	1000 CFM	* 436 HR/YR		
NSC	85 MBtu	– 44.78 MBtu	=	9.02E+04 Btu/UA
		446 UA		
DSC	44.78 MBtu	– 43.35 MBtu	=	3.21E+03 Btu/UA
		446 UA		
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	
			=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			
			=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	03-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	639BZ1

BUILDING HEATING LOAD CALCULATION SHEET

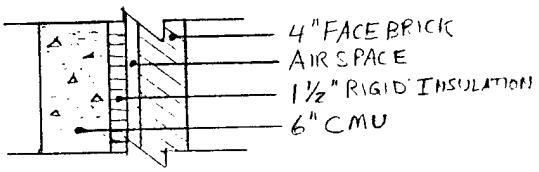
BLDG NO: 639B BLDG NAME: POST EXCHANGE - ZONE 2
BLDG FUNCTION: GAME ROOM
FLOOR AREA: (SQ. FT) 1,046 # FLOORS 1
SLAB PERIMETER: (FT) 92

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	581	315	248	1,144
GLASS	(SQ. FT)	0	0	27	0	27
PERSONNEL DOOR	(SQ. FT)	0	0	49	0	49
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	581	239	248	1,068
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	1,046
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	49
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

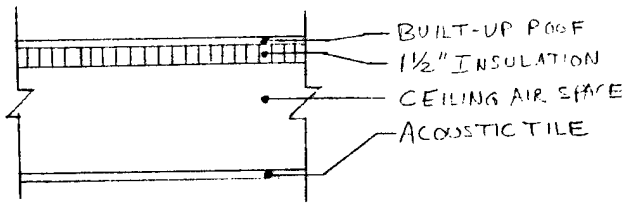
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4"BRICK/METAL PANAL	0.19
3.	AIR SPACE	0.91
4.	1.5" INSULATION	4.98
5.	6" CMU	1.89
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	8.82
	U=1/R	0.113

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	1.5" INSULATION	4.98
4.	CEILING AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	8.95
	U=1/R	0.112

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)	M	1144	X CFM / SQ.FT.	0.069	=	79
AVG. WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		10	X CFM /OPENING /HR	1.385	=	14
			TOTAL INFILTRATION (CFM)		=	93

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	49	X DOOR "U"	0.391	=	19
UA WALL	= WALL AREA	1,068	X WALL "U"	0.113	=	121
UA ROOF	= ROOF AREA	1,046	X ROOF "U"	0.112	=	117
UA GLASS	= GLASS AREA	27	X GLASS "U"	0.621	=	17
UA SLAB	= SLAB PERIM.	92	X SLF	0.830	=	76
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	93	X A. T. F.	1.035	=	96
			TOTAL UA (BTU/HR°F)			446

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 639BZ1
BLDG: 639B ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	10	5	Standing, light work, or walking slowly	Retail store, bank	270	220	2,700	2,200
TOTAL	10					TOTAL	2,700	2,200

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	2	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	336
	32	18	Incandescent – 60w	60	1,920
TOTAL	34			TOTAL	2,256

Peak Value for Internal Gains

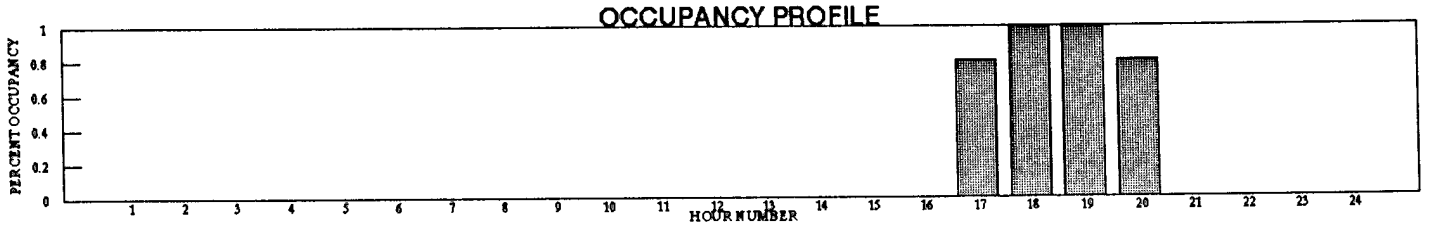
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	10	62	Video Games	300	15%	3,000	10,239
				TOTAL	15%	3,000	10,239

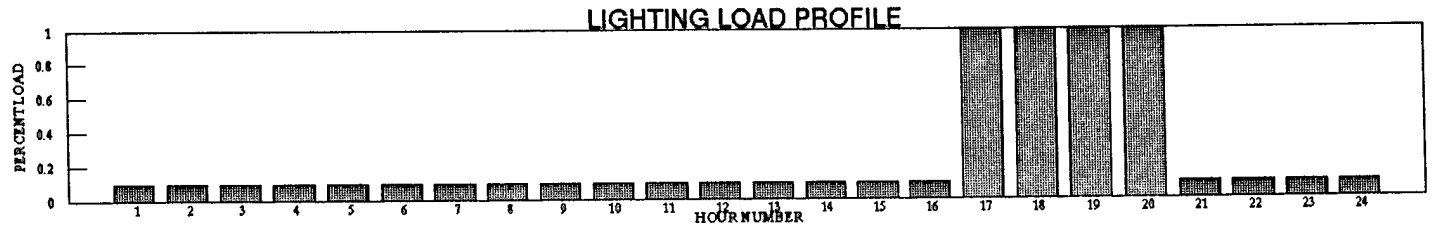
E M C Engineers, Inc.

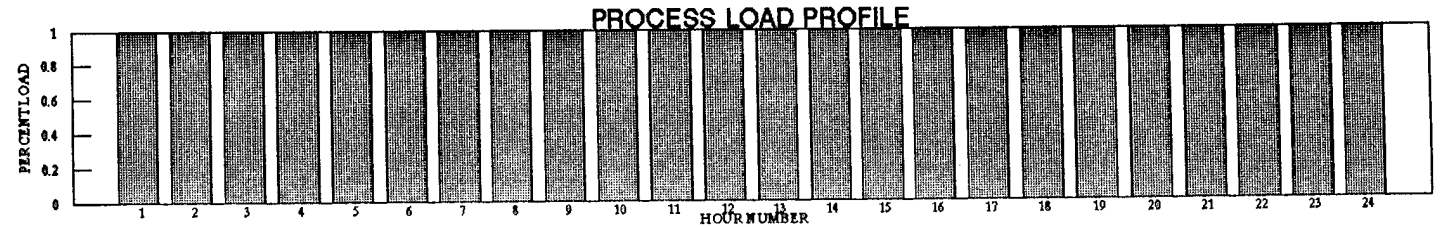
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 639BZ1
BLDG: 639B
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
4	Post Exchange	OCCUPANCY																	0.8	1	1	0.8				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.1	0.1	0.1	0.1
		PROCESS	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1







BLDG 639 - Post Exchange Game room - Zone 2 BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 9415.590000
FLOOR AREA (SQFT) 1046.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 44000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -42000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 44000.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 93.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	.850
.850	.850	.850	.850	.850	.850	.850	.850
1.00	1.00	1.00	1.00	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 5.930000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 5230.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 75.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 19.100000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	581.0	248.0	.0	239.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	27.0
WINDOW HEIGHT FT (WNDH)	.0	.0	.0	2.7
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.113	.113	.113	.113
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00416	.00416	.00416	.00416
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00058	.00058	.00058	.00058
N=3	.00229	.00229	.00229	.00229
N=4	.00119	.00119	.00119	.00119
N=5	.00009	.00009	.00009	.00009
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 1046.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	2.	1536.	2700.	2200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	1.000	.000	.000	70.0	76.0
2	.100	1.000	.000	.000	70.0	76.0
3	.100	1.000	.000	.000	70.0	76.0
4	.100	1.000	.000	.000	70.0	76.0
5	.100	1.000	.000	.000	70.0	76.0
6	.100	1.000	.000	.000	70.0	76.0
7	.100	1.000	.000	.000	70.0	76.0
8	.100	1.000	.000	.000	70.0	76.0
9	.100	1.000	.000	.000	70.0	76.0
10	.100	1.000	.000	.000	70.0	76.0
11	.100	1.000	.000	.000	70.0	76.0
12	.100	1.000	.000	.000	70.0	76.0

13	.100	1.000	.000	.000	70.0	76.0
14	.100	1.000	.000	.000	70.0	76.0
15	.100	1.000	.000	.000	70.0	76.0
16	.100	1.000	.000	.000	70.0	76.0
17	1.000	1.000	.800	.800	70.0	76.0
18	1.000	1.000	1.000	1.000	70.0	76.0
19	1.000	1.000	1.000	1.000	70.0	76.0
20	1.000	1.000	.800	.800	70.0	76.0
21	.100	1.000	.000	.000	70.0	76.0
22	.100	1.000	.000	.000	70.0	76.0
23	.100	1.000	.000	.000	70.0	76.0
24	.100	1.000	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 1000.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 44000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 55000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 42000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 10750.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange Game room - Zone 2 BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	.34	.00	.00	.00	.00	.00	.00	.00
	-12.95	LOSS		-3.41	-2.49	.00	-2.40	-.37	-8.10	.00
FEB	.00	GAIN	.46	.00	.00	.00	.01	.00	.00	.00
	-10.25	LOSS		-2.82	-2.11	.00	-1.78	-.32	-6.86	.00
MAR	.25	GAIN	.57	.05	.00	.00	.11	.00	.01	.04
	-8.31	LOSS		-2.56	-1.96	.00	-1.39	-.29	-6.15	.00
APR	1.24	GAIN	.60	.21	.02	.00	.34	.00	.05	.19
	-3.36	LOSS		-1.56	-1.15	.00	-.64	-.17	-3.38	.00
MAY	3.12	GAIN	.67	.40	.05	.00	.65	.01	.11	.71
	-.65	LOSS		-.99	-.66	.00	-.19	-.10	-1.66	.00
JUN	7.20	GAIN	.68	.59	.12	.00	.99	.02	.29	2.91
	.00	LOSS		-.62	-.33	.00	-.03	-.05	-.78	.00
JUL	10.26	GAIN	.70	.82	.29	.00	1.38	.04	.74	3.97
	.00	LOSS		-.46	-.20	.00	-.01	-.03	-.48	.00
AUG	9.42	GAIN	.61	.68	.22	.00	1.20	.03	.53	3.98
	-.01	LOSS		-.51	-.22	.00	-.02	-.03	-.53	.00
SEP	5.29	GAIN	.52	.36	.12	.00	.72	.02	.31	2.22
	-.71	LOSS		-.92	-.54	.00	-.19	-.08	-1.44	.00
OCT	1.05	GAIN	.42	.10	.02	.00	.23	.00	.06	.29
	-3.01	LOSS		-1.64	-1.10	.00	-.68	-.16	-2.98	.00
NOV	.19	GAIN	.31	.02	.00	.00	.06	.00	.00	.06
	-6.42	LOSS		-2.28	-1.60	.00	-1.31	-.23	-4.64	.00
DEC	.00	GAIN	.28	.00	.00	.00	.00	.00	.00	.00
	-12.58	LOSS		-3.40	-2.46	.00	-2.41	-.36	-7.78	.00
TOT	38.03	GAIN	6.17	3.23	.84	.00	5.69	.12	2.09	14.35
	-58.24	LOSS		-21.18	-14.82	.00	-11.04	-2.20	-44.77	.00

MAX HEATING LOAD= -44000. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 41398. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 273.7

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639B.I

BLDG 639 - Post Exchange Game room - Zone 2 BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	75.		4	20	58.	.46	8.36	.33	3.48
			69.	27	6	4.				
FEB	70.	75.		13	20	59.	.42	7.62	.29	3.17
			69.	2	7	14.				
MAR	71.	78.		12	20	56.	.47	8.45	.33	3.51
			69.	3	7	15.				
APR	72.	79.		14	20	54.	.45	8.20	.31	3.41
			70.	9	6	30.				
MAY	74.	78.		9	20	54.	.46	8.36	.33	3.48
			70.	11	6	39.				
JUN	76.	77.		30	18	85.	.45	8.20	.31	3.41
			70.	18	6	59.				
JUL	76.	77.		15	18	92.	.47	8.45	.33	3.51
			71.	10	6	60.				
AUG	76.	77.		11	18	87.	.46	8.36	.33	3.48
			70.	25	6	51.				
SEP	74.	80.		16	20	55.	.46	8.29	.31	3.45
			70.	15	6	39.				
OCT	72.	80.		20	20	50.	.46	8.36	.33	3.48
			70.	28	5	31.				
NOV	71.	80.		17	20	56.	.45	8.11	.31	3.38
			69.	3	7	18.				
DEC	70.	78.		23	20	55.	.47	8.54	.33	3.55
			69.	18	7	-1.				
YEAR							5.47	99.28	3.83	41.31

BLDG 639 - Post Exchange Game room - Zone 2 BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	714	0	0	0	-.4132E+05	.0000
FEB	610	0	0	0	-.3528E+05	.0000
MAR	586	24	0	0	-.3485E+05	.1985E+05
APR	336	111	0	0	-.2196E+05	.2275E+05
MAY	115	246	0	0	-.1475E+05	.2887E+05
JUN	5	465	0	0	-1888.	.3788E+05
JUL	0	604	0	0	.0000	.4140E+05
AUG	3	607	0	0	-4598.	.3861E+05
SEP	108	348	0	0	-.1320E+05	.3889E+05
OCT	352	91	0	0	-.1928E+05	.2312E+05
NOV	510	23	0	0	-.2872E+05	.1494E+05
DEC	698	0	5	0	-.4400E+05	.0000
YEAR	4037	2519	5	0	-.4400E+05	.4140E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	18.32	.00	.46	8.36	.10	3.48	3.2
FEB	14.79	.00	.42	7.62	.09	3.17	3.2
MAR	12.62	.03	.47	8.45	.10	3.51	5.1
APR	5.76	.13	.45	8.20	.09	3.41	5.3
MAY	1.49	.31	.46	8.36	.10	3.48	5.7
JUN	.05	.69	.45	8.20	.09	3.41	6.2
JUL	.00	.96	.47	8.45	.10	3.51	6.3
AUG	.03	.90	.46	8.36	.10	3.48	6.2
SEP	1.48	.51	.46	8.29	.09	3.45	6.2
OCT	5.53	.11	.46	8.36	.10	3.48	5.2
NOV	10.11	.02	.45	8.11	.09	3.38	4.3
DEC	17.82	.00	.47	8.54	.10	3.55	3.2
YEAR	88.03	3.65	5.47	99.28	1.12	41.31	6.3

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 212481. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange Game room - Zone 2 BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.4132E+05
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.3528E+05
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.1985E+05	-.3485E+05
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.2275E+05	-.2196E+05
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.2887E+05	-.1475E+05
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.3788E+05	-1888.
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.4140E+05	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.3861E+05	-4598.
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.3889E+05	-.1320E+05
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.2312E+05	-.1928E+05
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.1494E+05	-.2872E+05
DEC	883.	604.	1.000	35.	0.	0.	0	5	.0000	-.4400E+05

BLDG 639 - Post Exchange Game room - Zone 2 NIGHT SETBACK (FT LEONARD WOOD, MO

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 9415.590000
FLOOR AREA (SQFT) 1046.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 44000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -42000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 44000.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 93.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	.850
.850	.850	.850	.850	.850	.850	.850	.850
1.00	1.00	1.00	1.00	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 5.930000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 5230.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 75.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 19.100000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	581.0	248.0	.0	239.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	27.0
WINDOW HEIGHT FT (WNDH)	.0	.0	.0	2.7
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.113	.113	.113	.113
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00416	.00416	.00416	.00416
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00058	.00058	.00058	.00058
N=3	.00229	.00229	.00229	.00229
N=4	.00119	.00119	.00119	.00119
N=5	.00009	.00009	.00009	.00009
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 1046.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	76.0	76.0	76.0
76.0	76.0	76.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	70.0	70.0	70.0
70.0	70.0	70.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	2.	1536.	2700.	2200.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	1.000	.000	.000	55.0	90.0
2	.100	1.000	.000	.000	55.0	90.0
3	.100	1.000	.000	.000	55.0	90.0
4	.100	1.000	.000	.000	55.0	90.0
5	.100	1.000	.000	.000	55.0	90.0
6	.100	1.000	.000	.000	55.0	90.0
7	.100	1.000	.000	.000	55.0	90.0
8	.100	1.000	.000	.000	55.0	90.0
9	.100	1.000	.000	.000	55.0	90.0
10	.100	1.000	.000	.000	55.0	90.0
11	.100	1.000	.000	.000	55.0	90.0
12	.100	1.000	.000	.000	55.0	90.0
13	.100	1.000	.000	.000	55.0	90.0
14	.100	1.000	.000	.000	55.0	90.0
15	.100	1.000	.000	.000	55.0	90.0
16	.100	1.000	.000	.000	55.0	90.0
17	1.000	1.000	.800	.800	55.0	90.0
18	1.000	1.000	1.000	1.000	70.0	76.0
19	1.000	1.000	1.000	1.000	70.0	76.0
20	1.000	1.000	.800	.800	70.0	76.0
21	.100	1.000	.000	.000	55.0	90.0
22	.100	1.000	.000	.000	55.0	90.0
23	.100	1.000	.000	.000	55.0	90.0
24	.100	1.000	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 1000.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 44000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 55000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 42000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 10750.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange Game room - Zone 2 NIGHT SETBACK (FT LEONARD WOOD, MO

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	.34	.01	.00	.00	.02	.00	.01	.00
	-7.44	LOSS		-2.48	-1.74	.00	-1.46	-.26	-5.40	.00
FEB	.00	GAIN	.46	.03	.00	.00	.08	.00	.01	.00
	-5.53	LOSS		-2.03	-1.46	.00	-1.02	-.22	-4.55	.00
MAR	.14	GAIN	.57	.11	.02	.00	.24	.00	.05	.02
	-3.90	LOSS		-1.86	-1.37	.00	-.75	-.20	-4.13	.00
APR	.88	GAIN	.60	.28	.04	.00	.45	.01	.11	.11
	-1.08	LOSS		-1.25	-.87	.00	-.35	-.13	-2.50	.00
MAY	2.22	GAIN	.67	.39	.04	.00	.63	.01	.09	.33
	-.02	LOSS		-.96	-.64	.00	-.15	-.09	-1.59	.00
JUN	3.95	GAIN	.68	.44	.04	.00	.76	.01	.08	.93
	.00	LOSS		-.72	-.45	.00	-.05	-.06	-1.08	.00
JUL	5.24	GAIN	.70	.54	.08	.00	.91	.01	.19	1.34
	.00	LOSS		-.66	-.38	.00	-.03	-.06	-.92	.00
AUG	4.51	GAIN	.61	.46	.07	.00	.81	.01	.16	1.03
	.00	LOSS		-.70	-.40	.00	-.04	-.06	-.95	.00
SEP	2.68	GAIN	.52	.32	.07	.00	.62	.01	.19	.64
	.00	LOSS		-.94	-.55	.00	-.15	-.08	-1.46	.00
OCT	.68	GAIN	.42	.16	.05	.00	.33	.01	.13	.13
	-.66	LOSS		-1.30	-.80	.00	-.38	-.12	-2.11	.00
NOV	.12	GAIN	.31	.06	.03	.00	.14	.00	.07	.03
	-2.83	LOSS		-1.68	-1.10	.00	-.73	-.16	-3.08	.00
DEC	.00	GAIN	.28	.01	.01	.00	.03	.00	.02	.00
	-7.20	LOSS		-2.48	-1.71	.00	-1.47	-.25	-5.16	.00
TOT	20.42	GAIN	6.17	2.80	.44	.00	5.01	.07	1.11	4.56
	-28.66	LOSS		-17.07	-11.46	.00	-6.60	-1.69	-32.93	.00

MAX HEATING LOAD= -44000. BTUH ON DEC 31 HOUR 18 AMBIENT TEMP 41.
MAX COOLING LOAD= 42000. BTUH ON OCT 5 HOUR 18 AMBIENT TEMP 71.

ZONE UA BTU/HR-F 273.7

BLDG 639 - Post Exchange Game room - Zone 2 NIGHT SETBACK (FT LEONARD WOOD, MO

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	59.	73.		4	20	58.	.46	8.36	.33	3.48
			54.	27	6	4.				
FEB	60.	75.		25	20	47.	.42	7.62	.29	3.17
			55.	2	7	14.				
MAR	62.	79.		24	21	69.	.47	8.45	.33	3.51
			55.	3	7	15.				
APR	68.	87.		30	17	83.	.45	8.20	.31	3.41
			55.	9	6	30.				
MAY	74.	90.		29	17	85.	.46	8.36	.33	3.48
			55.	11	7	45.				
JUN	79.	90.		27	17	86.	.45	8.20	.31	3.41
			70.	19	7	64.				
JUL	81.	90.		26	17	93.	.47	8.45	.33	3.51
			70.	10	6	60.				
AUG	80.	90.		29	17	94.	.46	8.36	.33	3.48
			68.	25	7	55.				
SEP	75.	90.		10	17	86.	.46	8.29	.31	3.45
			57.	15	7	44.				
OCT	67.	87.		4	17	79.	.46	8.36	.33	3.48
			55.	28	7	34.				
NOV	63.	80.		8	17	72.	.45	8.11	.31	3.38
			55.	3	7	18.				
DEC	59.	77.		29	20	54.	.47	8.54	.33	3.55
			54.	18	7	-1.				
YEAR							5.47	99.28	3.83	41.31

BLDG 639 - Post Exchange Game room - Zone 2 NIGHT SETBACK (FT LEONARD WOOD, MO

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	510	0	30	0	-.4400E+05	.0000
FEB	384	0	25	0	-.4400E+05	.0000
MAR	310	10	18	0	-.4400E+05	.2129E+05
APR	109	49	7	3	-.4400E+05	.4200E+05
MAY	5	94	0	15	-.1157E+05	.4200E+05
JUN	0	129	0	46	.0000	.4200E+05
JUL	0	175	0	73	.0000	.4200E+05
AUG	0	139	0	64	.0000	.4200E+05
SEP	1	91	0	30	-282.7	.4200E+05
OCT	71	35	5	4	-.4400E+05	.4200E+05
NOV	262	11	15	0	-.4400E+05	.2817E+05
DEC	485	0	33	0	-.4400E+05	.0000
YEAR	2137	733	133	235	-.4400E+05	.4200E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	11.29	.00	.46	8.36	.10	3.48	3.2
FEB	8.43	.00	.42	7.62	.09	3.17	3.2
MAR	6.25	.01	.47	8.45	.10	3.51	5.1
APR	1.92	.08	.45	8.20	.09	3.41	5.5
MAY	.06	.19	.46	8.36	.10	3.48	5.6
JUN	.00	.32	.45	8.20	.09	3.41	6.1
JUL	.00	.42	.47	8.45	.10	3.51	6.4
AUG	.00	.36	.46	8.36	.10	3.48	6.2
SEP	.01	.22	.46	8.29	.09	3.45	6.4
OCT	1.23	.06	.46	8.36	.10	3.48	5.5
NOV	4.79	.01	.45	8.11	.09	3.38	4.8
DEC	10.87	.00	.47	8.54	.10	3.55	3.2
YEAR	44.85	1.68	5.47	99.28	1.12	41.31	6.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 164767. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange Game room - Zone 2 NIGHT SETBACK (FT LEONARD WOOD, MO

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	30	.0000	-.4400E+05
FEB	1464.	929.	1.000	37.	0.	0.	0	25	.0000	-.4400E+05
MAR	1922.	1254.	1.000	43.	0.	0.	0	18	.2129E+05	-.4400E+05
APR	2312.	1600.	1.000	55.	0.	0.	3	7	.4200E+05	-.4400E+05
MAY	2566.	1826.	1.000	65.	0.	0.	15	0	.4200E+05	-.1157E+05
JUN	2647.	1993.	1.000	72.	0.	0.	46	0	.4200E+05	.0000
JUL	2546.	2015.	1.000	77.	0.	0.	73	0	.4200E+05	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	64	0	.4200E+05	.0000
SEP	1856.	1371.	1.000	68.	0.	0.	30	0	.4200E+05	-282.7
OCT	1437.	953.	1.000	57.	0.	0.	4	5	.4200E+05	-.4400E+05
NOV	1039.	732.	1.000	47.	0.	0.	0	15	.2817E+05	-.4400E+05
DEC	883.	604.	1.000	35.	0.	0.	0	33	.0000	-.4400E+05

BLDG 639 - Post Exchange Game room - Zone 2 DDC SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.375000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 9415.590000
FLOOR AREA (SQFT) 1046.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 44000.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -42000.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 44000.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 93.000000
INFILTRATION PROFILE

.850	.850	.850	.850	.850	.850	.850	.850
.850	.850	.850	.850	.850	.850	.850	.850
1.00	1.00	1.00	1.00	.850	.850	.850	.850

A FACTOR IN INFILTRATION EQUATION (CINA) 5.930000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 5230.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 75.900000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 19.100000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	581.0	248.0	.0	239.0
WINDOW AREA SQFT (AWND)	.0	.0	.0	27.0
WINDOW HEIGHT FT (WNDH)	.0	.0	.0	2.7
WINDOW WIDTH FT (WNDW)	.0	.0	.0	10.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0
MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0

U VALUE BTU/(HR-SQFT-F) (UW)	.113	.113	.113	.113
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00416	.00416	.00416	.00416
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00058	.00058	.00058	.00058
N=3	.00229	.00229	.00229	.00229
N=4	.00119	.00119	.00119	.00119
N=5	.00009	.00009	.00009	.00009
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 1046.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.120000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.429566E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.304E-02 .314E-01 .190E-01 .852E-03 .122E+04 .122E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.500000E-01

WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	78.0	78.0	78.0
78.0	78.0	78.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PEOPLE SENSIBLE	PEOPLE LATENT		HEATING	COOLING
PEAK VAL	2.	1536.	2700.	2200.		

HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	1.000	.000	.000	55.0	90.0
2	.100	1.000	.000	.000	55.0	90.0
3	.100	1.000	.000	.000	55.0	90.0
4	.100	1.000	.000	.000	55.0	90.0
5	.100	1.000	.000	.000	55.0	90.0
6	.100	1.000	.000	.000	55.0	90.0
7	.100	1.000	.000	.000	55.0	90.0
8	.100	1.000	.000	.000	55.0	90.0
9	.100	1.000	.000	.000	55.0	90.0
10	.100	1.000	.000	.000	55.0	90.0
11	.100	1.000	.000	.000	55.0	90.0
12	.100	1.000	.000	.000	55.0	90.0
13	.100	1.000	.000	.000	55.0	90.0
14	.100	1.000	.000	.000	55.0	90.0
15	.100	1.000	.000	.000	55.0	90.0
16	.100	1.000	.000	.000	55.0	90.0
17	1.000	1.000	.800	.800	55.0	90.0
18	1.000	1.000	1.000	1.000	68.0	78.0
19	1.000	1.000	1.000	1.000	68.0	78.0
20	1.000	1.000	.800	.800	68.0	78.0
21	.100	1.000	.000	.000	55.0	90.0
22	.100	1.000	.000	.000	55.0	90.0
23	.100	1.000	.000	.000	55.0	90.0
24	.100	1.000	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 60.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 1000.000000
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 65.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 44000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 55000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 3
COOLING PLANT RATED OUTPUT BTU (CFLOT) 42000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 10750.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 639 - Post Exchange Game room - Zone 2 DDC SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	.34	.01	.00	.00	.03	.00	.01	.00
	-7.20	LOSS		-2.44	-1.70	.00	-1.42	-.25	-5.28	.00
FEB	.00	GAIN	.46	.03	.00	.00	.08	.00	.01	.00
	-5.29	LOSS		-1.99	-1.43	.00	-.98	-.21	-4.44	.00
MAR	.07	GAIN	.57	.11	.02	.00	.24	.00	.05	.01
	-3.70	LOSS		-1.84	-1.35	.00	-.72	-.20	-4.06	.00
APR	.70	GAIN	.60	.28	.04	.00	.43	.01	.11	.10
	-.98	LOSS		-1.26	-.88	.00	-.35	-.13	-2.53	.00
MAY	1.93	GAIN	.67	.38	.03	.00	.60	.01	.08	.32
	-.01	LOSS		-1.01	-.67	.00	-.17	-.10	-1.69	.00
JUN	3.66	GAIN	.68	.43	.03	.00	.72	.00	.07	.93
	.00	LOSS		-.77	-.49	.00	-.07	-.07	-1.18	.00
JUL	5.03	GAIN	.70	.53	.07	.00	.87	.01	.17	1.33
	.00	LOSS		-.69	-.40	.00	-.04	-.06	-.99	.00
AUG	4.31	GAIN	.61	.45	.06	.00	.78	.01	.14	1.04
	.00	LOSS		-.73	-.42	.00	-.05	-.06	-1.01	.00
SEP	2.43	GAIN	.52	.31	.07	.00	.58	.01	.17	.63
	.00	LOSS		-.98	-.58	.00	-.17	-.09	-1.55	.00
OCT	.54	GAIN	.42	.16	.05	.00	.33	.01	.13	.11
	-.56	LOSS		-1.31	-.81	.00	-.38	-.12	-2.12	.00
NOV	.06	GAIN	.31	.06	.03	.00	.15	.00	.07	.02
	-2.63	LOSS		-1.65	-1.08	.00	-.70	-.16	-3.01	.00
DEC	.00	GAIN	.28	.01	.01	.00	.03	.00	.02	.00
	-6.97	LOSS		-2.44	-1.67	.00	-1.43	-.25	-5.05	.00
TOT	18.73	GAIN	6.17	2.74	.41	.00	4.83	.06	1.02	4.49
	-27.32	LOSS		-17.10	-11.49	.00	-6.51	-1.70	-32.90	.00

MAX HEATING LOAD= -44000. BTUH ON DEC 31 HOUR 18 AMBIENT TEMP 41.
MAX COOLING LOAD= 42000. BTUH ON OCT 5 HOUR 18 AMBIENT TEMP 71.

ZONE UA BTU/HR-F 273.7

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639B-1.I

BLDG 639 - Post Exchange Game room - Zone 2 DDC SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	59.	73.		4	20	58.	.46	8.36	.33	3.48
			54.	27	6	4.				
FEB	59.	74.		25	20	47.	.42	7.62	.29	3.17
			55.	2	7	14.				
MAR	62.	81.		24	20	69.	.47	8.45	.33	3.51
			55.	3	7	15.				
APR	68.	87.		30	17	83.	.45	8.20	.31	3.41
			55.	9	6	30.				
MAY	74.	90.		29	17	85.	.46	8.36	.33	3.48
			55.	11	7	45.				
JUN	79.	90.		27	17	86.	.45	8.20	.31	3.41
			70.	19	7	64.				
JUL	82.	90.		26	17	93.	.47	8.45	.33	3.51
			71.	10	7	65.				
AUG	81.	90.		29	17	94.	.46	8.36	.33	3.48
			69.	25	8	60.				
SEP	76.	90.		10	17	86.	.46	8.29	.31	3.45
			57.	15	7	44.				
OCT	68.	87.		4	17	79.	.46	8.36	.33	3.48
			55.	28	7	34.				
NOV	63.	80.		8	17	72.	.45	8.11	.31	3.38
			55.	3	7	18.				
DEC	59.	76.		29	20	54.	.47	8.54	.33	3.55
			54.	18	7	-1.				
YEAR							5.47	99.28	3.83	41.31

BLDG 639 - Post Exchange Game room - Zone 2 DDC SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	514	0	27	0	-.4400E+05	.0000
FEB	389	0	18	0	-.4400E+05	.0000
MAR	310	7	13	0	-.4400E+05	.1454E+05
APR	110	41	3	2	-.4400E+05	.4200E+05
MAY	5	90	0	10	-2789.	.4200E+05
JUN	0	129	0	38	.0000	.4200E+05
JUL	0	174	0	61	.0000	.4200E+05
AUG	0	138	0	55	.0000	.4200E+05
SEP	0	88	0	19	.0000	.4200E+05
OCT	69	31	2	2	-.4400E+05	.4200E+05
NOV	258	5	11	0	-.4400E+05	.1961E+05
DEC	492	0	28	0	-.4400E+05	.0000
YEAR	2147	703	102	187	-.4400E+05	.4200E+05

BEACON Energy Analysis By Energy Systems Engineers, Inc. 639B-1.I

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	11.02	.00	.46	8.36	.10	3.48	3.2
FEB	8.21	.00	.42	7.62	.09	3.17	3.2
MAR	6.02	.01	.47	8.45	.10	3.51	4.7
APR	1.82	.07	.45	8.20	.09	3.41	5.5
MAY	.05	.17	.46	8.36	.10	3.48	5.6
JUN	.00	.30	.45	8.20	.09	3.41	6.1
JUL	.00	.41	.47	8.45	.10	3.51	6.3
AUG	.00	.35	.46	8.36	.10	3.48	6.1
SEP	.00	.20	.46	8.29	.09	3.45	6.1
OCT	1.09	.05	.46	8.36	.10	3.48	5.5
NOV	4.53	.01	.45	8.11	.09	3.38	4.2
DEC	10.65	.00	.47	8.54	.10	3.55	3.2
YEAR	43.40	1.56	5.47	99.28	1.12	41.31	6.3

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 162987. BTU/(SQFT-YEAR)

BLDG 639 - Post Exchange Game room - Zone 2 DDC SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	27	.0000	-.4400E+05
FEB	1464.	929.	1.000	37.	0.	0.	0	18	.0000	-.4400E+05
MAR	1922.	1254.	1.000	43.	0.	0.	0	13	.1454E+05	-.4400E+05
APR	2312.	1600.	1.000	55.	0.	0.	2	3	.4200E+05	-.4400E+05
MAY	2566.	1826.	1.000	65.	0.	0.	10	0	.4200E+05	-2789.
JUN	2647.	1993.	1.000	72.	0.	0.	38	0	.4200E+05	.0000
JUL	2546.	2015.	1.000	77.	0.	0.	61	0	.4200E+05	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	55	0	.4200E+05	.0000
SEP	1856.	1371.	1.000	68.	0.	0.	19	0	.4200E+05	.0000
OCT	1437.	953.	1.000	57.	0.	0.	2	2	.4200E+05	-.4400E+05
NOV	1039.	732.	1.000	47.	0.	0.	0	11	.1961E+05	-.4400E+05
DEC	883.	604.	1.000	35.	0.	0.	0	28	.0000	-.4400E+05

COMPUTER SIMULATIONS

BUILDING 651

E M C ENGINEERS, INC
DENVER ● ATLANTA ● GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 651
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	3338.9	3049.1	2765.5	2765.5		2945.4
COOLING (kWH)	55060	55060	49800	49590		48350

SUPPLY AIR FAN	27148 CFM
FLOOR AREA	40986 FT²
CFMI	3167 CFM
UA	9330 BTU/HR ● °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	0	2400	120 HR
SAT.	0	2400	24 HR
SUN.	0	2400	24 HR
	TOTAL OCCUPY HR.		168 HR/WK
	TOTAL UNOCC. HR.		0 HR/WK
	ANNUAL OCCUPY HR.		8760 HR/YR
	ANNUAL UNOCC. HR.		0 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	4368 HR/YR
HR. ON COOLING	2928 HR/YR
HR. OFF HEATING	0 HR/YR
HR. OFF COOLING	0 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	4368	=	0 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	2928	=	0 HR/YR

HOAUHC	3338.9 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	* 0 HR/YR		
HOAUH	3338.9 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	* 0 HR/YR		
COAUHC	55060 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	* 0 HR/YR		
COAUC	55060 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	* 0 HR/YR		
HOAOHC	3338.9 MBtu	– 2945.4 MBtu	=	1.42E+01 Btu/CFM-HR
	3167 CFM	* 8760 HR/YR		
HOAOH	3338.9 MBtu	– 2945.4 MBtu	=	2.84E+01 Btu/CFM-HR
	3167 CFM	* 4368 HR/YR		
COAOHC	55060 kWH	48350 kWH	=	2.42E-04 kWH/CFM-HR
	3167 CFM	* 8760 HR/YR		
COAOC	55060 kWH	48350 kWH	=	7.24E-04 kWH/CFM-HR
	3167 CFM	* 2928 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 05-Mar-93
BUILDING NO.: 651
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

ECC	49800 kWH	–	49590 kWH	=	2.64E-06 kWH/CFM-HR
	27148 CFM	*	2928 HR/YR		
ECHC	49800 kWH	–	49590 kWH	=	8.83E-07 kWH/CFM-HR
	27148 CFM	*	8760 HR/YR		
NSUCHC	55060 kWH	–	55060 kWH	=	0.00E+00 kWH/CFM-HR
	27148 CFM	*	0 HR/YR		
NSUCC	55060 kWH	–	55060 kWH	=	0.00E+00 kWH/CFM-HR
	27148 CFM	*	0 HR/YR		
DDCCHC	55060 kWH	–	49800 kWH	=	2.21E-05 kWH/CFM-HR
	27148 CFM	*	8760 HR/YR		
DDCCC	55060 kWH	–	49800 kWH	=	6.62E-05 kWH/CFM-HR
	27148 CFM	*	2928 HR/YR		
NSC	3338.9 MBtu	–	3049.1 MBtu	=	3.11E+04 Btu/UA
		9330 UA			
DSC	3049.1 MBtu	–	2765.5 MBtu	=	3.04E+04 Btu/UA
		9330 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	=	0 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			=	13.9 kWH/TON
OAR	506 HR/YR	*	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	03-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	651BHL

BUILDING HEATING LOAD CALCULATION SHEET

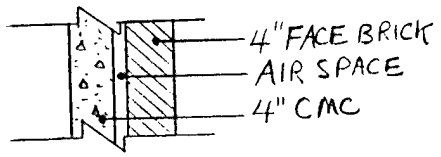
BLDG NO: 651 BLDG NAME: BARRACKS
BLDG FUNCTION:
FLOOR AREA: (SQ. FT) 40,986 # FLOORS 3
SLAB PERIMETER: (FT) 514

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	9,088	9,088	1,845	1,845	21,866
GLASS	(SQ. FT)	467	435	17	19	938
PERSONNEL DOOR	(SQ. FT)	80	40	0	0	120
INSULATED PANEL	(SQ. FT)	233	217	9	9	468
WALLS, NET	(SQ. FT)	8,308	8,396	1,819	1,817	20,341
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	13,662
INSULATED PANEL	(SQ. FT)	468	PERSONNEL DOOR		(SQ. FT)	120
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

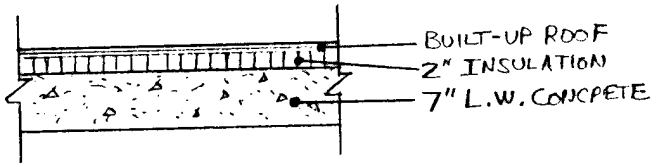
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	4"CMU / 9" L.W. CONC.	3.00
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.19
	U=1/R	0.193

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" INSULATION	6.68
4.	7" L.W. CONCRETE	6.25
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.12
	U=1/R	0.071

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.042	=	0
AVG. WALL H/M/L (SQ.FT.)	H	21866	X CFM / SQ.FT.	0.138	=	3,018
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		50	X CFM /OPENING /HR	1.600	=	80
DOOR OPENINGS / HR - DOUBLE DOORS		50	X CFM /OPENING /HR	1.385	=	69
			TOTAL INFILTRATION (CFM)		=	3167

UA PANEL	= PANEL AREA	468	X PANEL "U"	0.238	=	111
UA PDOOR	= PDOOR AREA	120	X DOOR "U"	0.391	=	47
UA WALL	= WALL AREA	19,873	X WALL "U"	0.193	=	3,917
UA ROOF	= ROOF AREA	13,662	X ROOF "U"	0.071	=	968
UA GLASS	= GLASS AREA	938	X GLASS "U"	0.621	=	582
UA SLAB	= SLAB PERIM.	514	X SLF	0.830	=	427
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	3167	X A. T. F.	1.035	=	3,278
			TOTAL UA (BTU/HR°F)			9,330

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Feb-93
PREPARED BY:
CHECKED BY: CEL
FILE: 651ZN1
BLDG: 651 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	374	1	Seated at rest	Theater, Movie	225	105	84,150	39,270
TOTAL	374					TOTAL	84,150	39,270

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	18	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	900
	76	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	6,384
	64	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	10,752
	102	18	Incandescent – 60w	60	6,120
TOTAL	260			TOTAL	24,156

Peak Value for Internal Gains

Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	6	68	Washing Machine (Automatic)	512	20%	3,072	10,485
	6	23	Clothes Dryer	4,856	45%	29,136	99,441
				TOTAL	43%	32,208	109,926

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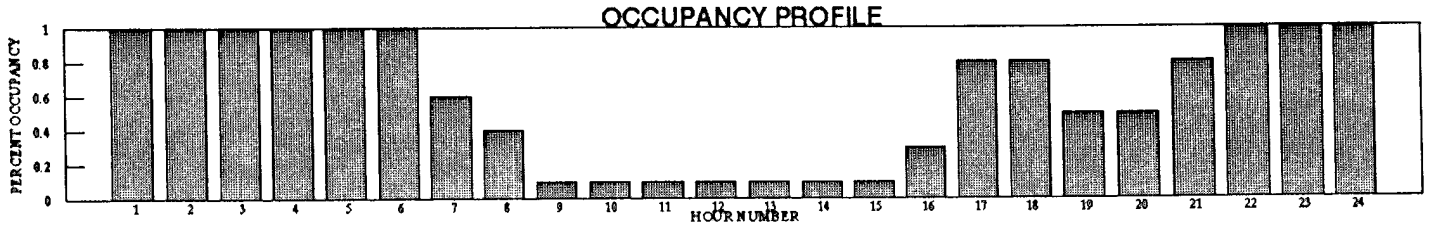
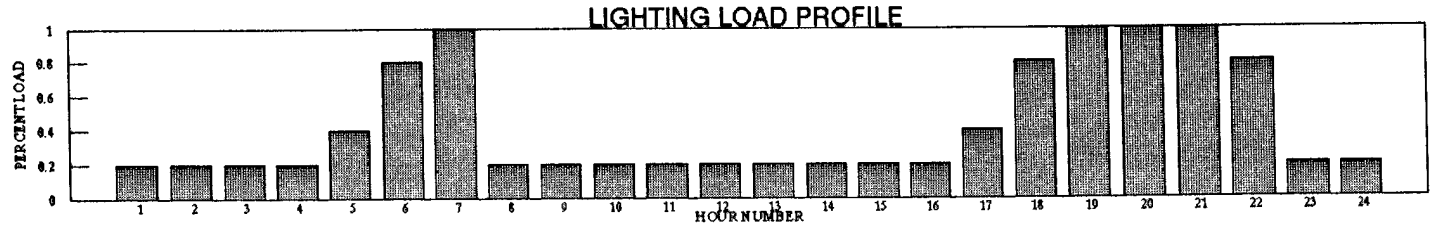
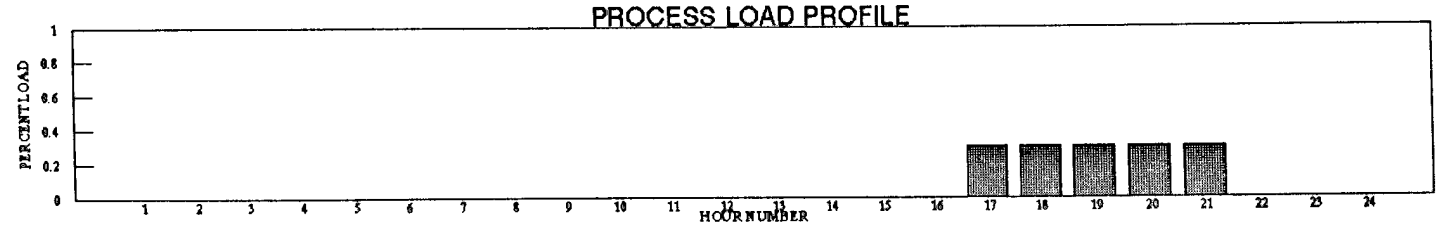
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Barracks	OCCUPANCY	1	1	1	1	1	1	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.8	0.8	0.5	0.5	0.8	1	1	1
		LIGHTING	0.2	0.2	0.2	0.2	0.4	0.8	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	1	1	1	0.8	0.2	0.2
		PROCESS																	0.3	0.3	0.3	0.3	0.3			







BLDG 651 - BARRACKS WITH A/C - BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -891200.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .121E-03 .613E-03 .403E-03 .403E-04 806.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.46 .533 -.611E-01 .820E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	72.0	76.0
2	.200	.000	1.000	1.000	72.0	76.0
3	.200	.000	1.000	1.000	72.0	76.0
4	.200	.000	1.000	1.000	72.0	76.0
5	.400	.000	1.000	1.000	72.0	76.0
6	.800	.000	1.000	1.000	72.0	76.0
7	1.000	.000	.800	.800	72.0	76.0
8	.200	.000	.400	.400	72.0	76.0
9	.200	.000	.100	.100	72.0	76.0
10	.200	.000	.100	.100	72.0	76.0
11	.200	.000	.100	.100	72.0	76.0
12	.200	.000	.100	.100	72.0	76.0

13	.200	.000	.100	.100	72.0	76.0
14	.200	.000	.100	.100	72.0	76.0
15	.200	.000	.100	.100	72.0	76.0
16	.400	.000	.300	.300	72.0	76.0
17	.800	.300	.800	.800	72.0	76.0
18	1.000	.300	.800	.800	72.0	76.0
19	1.000	.300	.500	.500	72.0	76.0
20	1.000	.300	.500	.500	72.0	76.0
21	1.000	.300	.800	.800	72.0	76.0
22	.800	.000	1.000	1.000	72.0	76.0
23	.200	.000	1.000	1.000	72.0	76.0
24	.200	.000	1.000	1.000	72.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 68.000000
SYSTEM TYPE, (IECN) 9
SUPPLY AIR CFM (SACFM) 27148.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
VAV TYPE (IVAV) 1
VAV MINIMUM SUPPLY AIR FRACTION (ARMIN) 2.500000E-01
VAV COLD DECK TEMPERATURE F (TCD) 58.000000
VAV FAN PART LOAD FACTORS

.000	.560	.200	.560	.300	.620	.400	.700
.500	.770	.600	.830	.700	.880	.800	.930
.900	.980	1.00	1.00				

HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 892000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 164905.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 651 - BARRACKS WITH A/C - BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-477.	LOSS		-30.	-1.	0.	-95.	-14.	-443.	0.
FEB	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-392.	LOSS		-26.	-1.	0.	-73.	-12.	-380.	0.
MAR	1.	GAIN	20.	0.	0.	0.	3.	0.	0.	1.
	-326.	LOSS		-22.	-1.	0.	-59.	-11.	-347.	0.
APR	19.	GAIN	20.	0.	0.	0.	11.	0.	2.	7.
	-142.	LOSS		-14.	-1.	0.	-30.	-7.	-203.	0.
MAY	64.	GAIN	22.	0.	0.	0.	20.	0.	4.	26.
	-27.	LOSS		-6.	0.	0.	-12.	-4.	-111.	0.
JUN	220.	GAIN	23.	1.	0.	0.	31.	1.	13.	124.
	0.	LOSS		-2.	0.	0.	-4.	-2.	-45.	0.
JUL	330.	GAIN	23.	3.	0.	0.	42.	2.	34.	175.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-25.	0.
AUG	301.	GAIN	20.	2.	0.	0.	36.	1.	24.	169.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-27.	0.
SEP	168.	GAIN	17.	0.	0.	0.	21.	1.	14.	97.
	-33.	LOSS		-5.	0.	0.	-11.	-3.	-84.	0.
OCT	24.	GAIN	15.	0.	0.	0.	6.	0.	2.	12.
	-131.	LOSS		-14.	-1.	0.	-31.	-6.	-184.	0.
NOV	2.	GAIN	12.	0.	0.	0.	2.	0.	0.	1.
	-246.	LOSS		-20.	-1.	0.	-55.	-9.	-271.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-467.	LOSS		-31.	-1.	0.	-96.	-14.	-427.	0.
TOT	1129.	GAIN	215.	6.	0.	0.	173.	4.	92.	612.
	-2243.	LOSS		-169.	-8.	0.	-470.	-84.	-2547.	0.

MAX HEATING LOAD= -1454453. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 891200. BTUH ON SEP 2 HOUR 18 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 651.I

BLDG 651 - BARRACKS WITH A/C - BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	72.	73.		4	18	61.	8.24	5.11	2.94	71.34
			72.	31	24	33.				
FEB	72.	76.		9	24	66.	7.44	4.62	2.65	64.44
			72.	28	24	34.				
MAR	72.	77.		24	23	68.	8.24	5.11	2.94	71.34
			72.	28	10	68.				
APR	73.	77.		6	22	65.	7.97	4.95	3.15	69.35
			72.	2	12	69.				
MAY	75.	78.		21	1	65.	8.24	5.11	3.87	72.27
			72.	24	10	61.				
JUN	76.	79.		3	22	65.	7.97	4.95	5.16	71.36
			72.	17	7	61.				
JUL	76.	78.		28	18	90.	8.24	5.11	5.70	74.10
			74.	10	5	57.				
AUG	76.	77.		16	15	72.	8.24	5.11	4.95	73.35
			72.	25	9	63.				
SEP	75.	79.		4	7	67.	7.97	4.95	4.15	70.35
			72.	17	10	68.				
OCT	73.	77.		1	22	65.	8.24	5.11	3.50	71.91
			72.	12	13	70.				
NOV	72.	77.		7	22	67.	7.97	4.95	3.05	69.24
			72.	21	15	68.				
DEC	72.	72.		31	24	42.	8.24	5.11	2.94	71.34
			72.	23	15	70.				
YEAR							97.00	60.18	45.01	850.39

BLDG 651 - BARRACKS WITH A/C - BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	735	744	0	0	-.1291E+07	.0000
FEB	655	672	0	0	-.1223E+07	.0000
MAR	652	744	1	0	-.1271E+07	.2934E+06
APR	403	720	3	0	-.7621E+06	.3959E+06
MAY	141	744	0	0	-.4283E+06	.5982E+06
JUN	0	720	0	1	.0000	.8912E+06
JUL	0	744	0	32	.0000	.8912E+06
AUG	5	744	0	1	-.1491E+06	.8912E+06
SEP	160	720	3	4	-.3828E+06	.8912E+06
OCT	446	744	6	0	-.6245E+06	.5088E+06
NOV	601	720	4	0	-.9122E+06	.2689E+06
DEC	744	744	3	0	-.1454E+07	.0000
YEAR	4542	8760	20	38	-.1454E+07	.8912E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	684.72	.00	8.24	5.11	2.03	71.34	26.9
FEB	574.36	.00	7.44	4.62	1.84	64.44	26.9
MAR	502.67	.08	8.24	5.11	2.03	71.34	42.5
APR	249.35	1.09	7.97	4.95	2.02	69.35	46.3
MAY	63.23	3.42	8.24	5.11	2.20	72.27	58.0
JUN	.00	11.12	7.97	4.95	2.39	71.36	76.6
JUL	.00	16.89	8.24	5.11	2.55	74.10	77.1
AUG	1.62	15.18	8.24	5.11	2.42	73.35	76.7
SEP	74.74	8.45	7.97	4.95	2.21	70.35	76.9
OCT	246.77	1.31	8.24	5.11	2.13	71.91	52.5
NOV	404.71	.11	7.97	4.95	2.00	69.24	40.2
DEC	676.28	.00	8.24	5.11	2.03	71.34	26.9
YEAR	3478.46	57.64	97.00	60.18	25.86	850.39	77.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 101369. BTU/(SQFT-YEAR)

BLDG 651 - BARRACKS WITH A/C - BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1291E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1223E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2934E+06	-.1271E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3959E+06	-.7621E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5982E+06	-.4283E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8912E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8912E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8912E+06	-.1491E+06
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8912E+06	-.3828E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.5088E+06	-.6245E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2689E+06	-.9122E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1454E+07

BLDG 651 - BARRACKS WITH A/C - NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -891200.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.121E-03	.613E-03	.403E-03	.403E-04	806.

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.46	.533	-.611E-01	.820E-03	999.

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01
WEEKEND COOLING THERMOSTAT PROFILE

76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0

WEEKEND HEATING THERMOSTAT PROFILE

70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	70.0	76.0
2	.200	.000	1.000	1.000	70.0	76.0
3	.200	.000	1.000	1.000	70.0	76.0
4	.200	.000	1.000	1.000	70.0	76.0
5	.400	.000	1.000	1.000	70.0	76.0
6	.800	.000	1.000	1.000	70.0	76.0
7	1.000	.000	.800	.800	70.0	76.0
8	.200	.000	.400	.400	70.0	76.0
9	.200	.000	.100	.100	70.0	76.0
10	.200	.000	.100	.100	70.0	76.0
11	.200	.000	.100	.100	70.0	76.0
12	.200	.000	.100	.100	70.0	76.0
13	.200	.000	.100	.100	70.0	76.0
14	.200	.000	.100	.100	70.0	76.0
15	.200	.000	.100	.100	70.0	76.0
16	.400	.000	.300	.300	70.0	76.0
17	.800	.300	.800	.800	70.0	76.0
18	1.000	.300	.800	.800	70.0	76.0
19	1.000	.300	.500	.500	70.0	76.0
20	1.000	.300	.500	.500	70.0	76.0
21	1.000	.300	.800	.800	70.0	76.0
22	.800	.000	1.000	1.000	70.0	76.0
23	.200	.000	1.000	1.000	70.0	76.0
24	.200	.000	1.000	1.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 68.000000
SYSTEM TYPE, (IECN) 9
SUPPLY AIR CFM (SACFM) 27148.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
VAV TYPE (IVAV) 1
VAV MINIMUM SUPPLY AIR FRACTION (ARMIN) 2.500000E-01
VAV COLD DECK TEMPERATURE F (TCD) 58.000000
VAV FAN PART LOAD FACTORS

.000	.560	.200	.560	.300	.620	.400	.700
.500	.770	.600	.830	.700	.880	.800	.930
.900	.980	1.00	1.00				

HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 892000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 164905.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 651 - BARRACKS WITH A/C - NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-435.	LOSS		-28.	-1.	0.	-89.	-14.	-410.	0.
FEB	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-355.	LOSS		-25.	-1.	0.	-67.	-11.	-350.	0.
MAR	1.	GAIN	20.	0.	0.	0.	4.	0.	0.	0.
	-288.	LOSS		-21.	-1.	0.	-54.	-10.	-318.	0.
APR	18.	GAIN	20.	0.	0.	0.	12.	0.	3.	7.
	-118.	LOSS		-13.	-1.	0.	-27.	-6.	-185.	0.
MAY	63.	GAIN	22.	0.	0.	0.	21.	0.	5.	26.
	-18.	LOSS		-6.	0.	0.	-11.	-3.	-105.	0.
JUN	220.	GAIN	23.	1.	0.	0.	31.	1.	13.	124.
	0.	LOSS		-2.	0.	0.	-4.	-2.	-45.	0.
JUL	330.	GAIN	23.	3.	0.	0.	42.	2.	34.	175.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-25.	0.
AUG	301.	GAIN	20.	2.	0.	0.	36.	1.	24.	169.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-27.	0.
SEP	167.	GAIN	17.	0.	0.	0.	22.	1.	14.	97.
	-22.	LOSS		-4.	0.	0.	-10.	-3.	-77.	0.
OCT	24.	GAIN	15.	0.	0.	0.	7.	0.	2.	11.
	-106.	LOSS		-13.	-1.	0.	-28.	-6.	-166.	0.
NOV	2.	GAIN	12.	0.	0.	0.	2.	0.	0.	1.
	-214.	LOSS		-19.	-1.	0.	-50.	-8.	-246.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-425.	LOSS		-29.	-1.	0.	-89.	-13.	-394.	0.
TOT	1125.	GAIN	215.	6.	0.	0.	177.	4.	94.	611.
	-1981.	LOSS		-159.	-8.	0.	-433.	-79.	-2349.	0.

MAX HEATING LOAD= -1386149. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 891200. BTUH ON SEP 2 HOUR 18 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 5633.3

BLDG 651 - BARRACKS WITH A/C - NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	72.		4	18	61.	8.24	5.11	2.94	71.34
			70.	31	24	33.				
FEB	70.	75.		9	24	66.	7.44	4.62	2.65	64.44
			70.	28	24	34.				
MAR	70.	77.		24	23	68.	8.24	5.11	2.94	71.34
			70.	31	24	32.				
APR	72.	77.		6	22	65.	7.97	4.95	3.15	69.35
			70.	29	8	61.				
MAY	74.	78.		21	1	65.	8.24	5.11	3.86	72.26
			70.	24	10	61.				
JUN	76.	79.		3	22	65.	7.97	4.95	5.16	71.36
			72.	17	7	61.				
JUL	76.	78.		28	18	90.	8.24	5.11	5.70	74.10
			74.	10	5	57.				
AUG	76.	77.		16	15	72.	8.24	5.11	4.94	73.35
			70.	25	9	63.				
SEP	74.	79.		4	7	67.	7.97	4.95	4.16	70.35
			70.	30	24	51.				
OCT	72.	77.		1	22	65.	8.24	5.11	3.45	71.86
			70.	31	24	44.				
NOV	71.	77.		7	22	67.	7.97	4.95	3.06	69.25
			70.	30	24	27.				
DEC	70.	70.		23	17	62.	8.24	5.11	2.94	71.34
			70.	31	24	42.				
YEAR							97.00	60.18	44.96	850.34

BLDG 651 - BARRACKS WITH A/C - NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	723	744	0	0	-.1222E+07	.0000
FEB	650	672	0	0	-.1153E+07	.0000
MAR	634	744	0	0	-.1199E+07	.2943E+06
APR	370	720	0	0	-.7024E+06	.3724E+06
MAY	101	744	0	0	-.3775E+06	.5982E+06
JUN	0	720	0	1	.0000	.8912E+06
JUL	0	744	0	32	.0000	.8912E+06
AUG	0	744	0	1	.0000	.8912E+06
SEP	127	720	0	4	-.3339E+06	.8912E+06
OCT	411	744	0	0	-.5682E+06	.5090E+06
NOV	542	720	0	0	-.8498E+06	.2693E+06
DEC	739	744	0	0	-.1386E+07	.0000
YEAR	4297	8760	0	38	-.1386E+07	.8912E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	633.73	.00	8.24	5.11	2.03	71.34	26.9
FEB	532.92	.00	7.44	4.62	1.84	64.44	26.9
MAR	459.57	.06	8.24	5.11	2.03	71.34	42.3
APR	216.49	1.02	7.97	4.95	2.02	69.35	46.4
MAY	44.65	3.35	8.24	5.11	2.20	72.26	58.0
JUN	.00	11.12	7.97	4.95	2.39	71.36	76.6
JUL	.00	16.89	8.24	5.11	2.55	74.10	77.1
AUG	.00	15.17	8.24	5.11	2.42	73.35	76.7
SEP	56.92	8.41	7.97	4.95	2.21	70.35	76.9
OCT	215.15	1.27	8.24	5.11	2.12	71.86	52.5
NOV	359.92	.10	7.97	4.95	2.00	69.25	40.2
DEC	631.31	.00	8.24	5.11	2.03	71.34	26.9
YEAR	3150.66	57.38	97.00	60.18	25.85	850.34	77.1

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 93349. BTU/(SQFT-YEAR)

BLDG 651 - BARRACKS WITH A/C - NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1222E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1153E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2943E+06	-.1199E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3724E+06	-.7024E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5982E+06	-.3775E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8912E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8912E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8912E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8912E+06	-.3339E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.5090E+06	-.5682E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2693E+06	-.8498E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1386E+07

BLDG 651 - BARRACKS WITH A/C - DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -891200.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .121E-03 .613E-03 .403E-03 .403E-04 806.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.46 .533 -.611E-01 .820E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	68.0	78.0
2	.200	.000	1.000	1.000	68.0	78.0
3	.200	.000	1.000	1.000	68.0	78.0
4	.200	.000	1.000	1.000	68.0	78.0
5	.400	.000	1.000	1.000	68.0	78.0
6	.800	.000	1.000	1.000	68.0	78.0
7	1.000	.000	.800	.800	68.0	78.0
8	.200	.000	.400	.400	68.0	78.0
9	.200	.000	.100	.100	68.0	78.0
10	.200	.000	.100	.100	68.0	78.0
11	.200	.000	.100	.100	68.0	78.0
12	.200	.000	.100	.100	68.0	78.0

13	.200	.000	.100	.100	68.0	78.0
14	.200	.000	.100	.100	68.0	78.0
15	.200	.000	.100	.100	68.0	78.0
16	.400	.000	.300	.300	68.0	78.0
17	.800	.300	.800	.800	68.0	78.0
18	1.000	.300	.800	.800	68.0	78.0
19	1.000	.300	.500	.500	68.0	78.0
20	1.000	.300	.500	.500	68.0	78.0
21	1.000	.300	.800	.800	68.0	78.0
22	.800	.000	1.000	1.000	68.0	78.0
23	.200	.000	1.000	1.000	68.0	78.0
24	.200	.000	1.000	1.000	68.0	78.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 68.000000
SYSTEM TYPE, (IECN) 9
SUPPLY AIR CFM (SACFM) 27148.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
VAV TYPE (IVAV) 1
VAV MINIMUM SUPPLY AIR FRACTION (ARMIN) 2.500000E-01
VAV COLD DECK TEMPERATURE F (TCD) 58.000000
VAV FAN PART LOAD FACTORS

.000	.560	.200	.560	.300	.620	.400	.700
.500	.770	.600	.830	.700	.880	.800	.930
.900	.980	1.00	1.00				

HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 892000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 164905.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 651 - BARRACKS WITH A/C - DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-393.	LOSS		-27.	-1.	0.	-83.	-13.	-377.	0.
FEB	0.	GAIN	16.	0.	0.	0.	1.	0.	0.	0.
	-317.	LOSS		-23.	-1.	0.	-62.	-11.	-321.	0.
MAR	0.	GAIN	20.	0.	0.	0.	5.	0.	0.	0.
	-251.	LOSS		-20.	-1.	0.	-49.	-10.	-290.	0.
APR	13.	GAIN	20.	0.	0.	0.	12.	0.	3.	5.
	-96.	LOSS		-12.	-1.	0.	-24.	-6.	-172.	0.
MAY	52.	GAIN	22.	0.	0.	0.	19.	0.	3.	22.
	-11.	LOSS		-6.	0.	0.	-12.	-4.	-108.	0.
JUN	201.	GAIN	23.	0.	0.	0.	27.	0.	8.	116.
	0.	LOSS		-3.	0.	0.	-6.	-2.	-54.	0.
JUL	304.	GAIN	23.	2.	0.	0.	38.	1.	25.	166.
	0.	LOSS		-1.	0.	0.	-3.	-1.	-32.	0.
AUG	277.	GAIN	20.	1.	0.	0.	31.	1.	17.	160.
	0.	LOSS		-1.	0.	0.	-3.	-2.	-35.	0.
SEP	151.	GAIN	17.	0.	0.	0.	20.	1.	11.	91.
	-13.	LOSS		-5.	0.	0.	-10.	-3.	-78.	0.
OCT	19.	GAIN	15.	0.	0.	0.	7.	0.	3.	10.
	-83.	LOSS		-12.	-1.	0.	-26.	-5.	-152.	0.
NOV	1.	GAIN	12.	0.	0.	0.	2.	0.	0.	1.
	-185.	LOSS		-18.	-1.	0.	-46.	-8.	-224.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-384.	LOSS		-28.	-1.	0.	-83.	-12.	-361.	0.
TOT	1018.	GAIN	215.	3.	0.	0.	163.	3.	71.	570.
	-1733.	LOSS		-154.	-7.	0.	-407.	-76.	-2203.	0.

MAX HEATING LOAD= -1318573. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 891200. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 651-1.I

BLDG 651 - BARRACKS WITH A/C - DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT AMBT. DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	68.	72.		4	18	61.	8.24	5.11	2.94	71.34
			68.	31	24	33.				
FEB	68.	74.		9	24	66.	7.44	4.62	2.65	64.44
			68.	28	24	34.				
MAR	69.	78.		24	22	68.	8.24	5.11	2.94	71.34
			68.	31	24	32.				
APR	71.	79.		30	22	67.	7.97	4.95	2.91	69.10
			68.	29	8	61.				
MAY	75.	79.		26	22	66.	8.24	5.11	3.55	71.95
			68.	23	11	61.				
JUN	78.	80.		3	22	65.	7.97	4.95	4.52	70.71
			73.	17	7	61.				
JUL	78.	79.		30	8	75.	8.24	5.11	4.78	73.19
			76.	10	5	57.				
AUG	78.	79.		1	11	75.	8.24	5.11	4.26	72.66
			71.	25	9	63.				
SEP	75.	80.		4	1	67.	7.97	4.95	3.74	69.94
			68.	30	24	51.				
OCT	71.	79.		15	11	71.	8.24	5.11	3.28	71.68
			68.	31	24	44.				
NOV	69.	79.		8	22	67.	7.97	4.95	2.93	69.12
			68.	30	24	27.				
DEC	68.	69.		23	17	62.	8.24	5.11	2.94	71.34
			68.	31	24	42.				
YEAR							97.00	60.18	41.44	846.82

BLDG 651 - BARRACKS WITH A/C - DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	704	744	0	0	-.1152E+07	.0000
FEB	645	672	0	0	-.1083E+07	.0000
MAR	613	744	0	0	-.1128E+07	.3214E+06
APR	329	720	0	0	-.6438E+06	.3954E+06
MAY	74	744	0	0	-.3275E+06	.5514E+06
JUN	0	720	0	0	.0000	.8544E+06
JUL	0	744	0	16	.0000	.8912E+06
AUG	0	744	0	0	.0000	.8634E+06
SEP	84	720	0	0	-.2893E+06	.8816E+06
OCT	367	744	0	0	-.5125E+06	.4615E+06
NOV	501	720	0	0	-.7881E+06	.2785E+06
DEC	732	744	0	0	-.1319E+07	.0000
YEAR	4049	8760	0	16	-.1319E+07	.8912E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	586.61	.00	8.24	5.11	2.03	71.34	26.9
FEB	493.10	.00	7.44	4.62	1.84	64.44	26.9
MAR	417.73	.02	8.24	5.11	2.03	71.34	26.9
APR	183.37	.73	7.97	4.95	1.98	69.10	46.8
MAY	32.05	2.80	8.24	5.11	2.14	71.95	55.2
JUN	.00	10.08	7.97	4.95	2.26	70.71	73.9
JUL	.00	15.46	8.24	5.11	2.39	73.19	77.0
AUG	.00	13.91	8.24	5.11	2.28	72.66	74.6
SEP	35.38	7.55	7.97	4.95	2.13	69.94	75.8
OCT	181.05	1.01	8.24	5.11	2.09	71.68	50.0
NOV	318.29	.07	7.97	4.95	1.98	69.12	40.9
DEC	585.32	.00	8.24	5.11	2.03	71.34	26.9
YEAR	2832.90	51.62	97.00	60.18	25.20	846.82	77.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 85062. BTU/(SQFT-YEAR)

BLDG 651 - BARRACKS WITH A/C - DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F −	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1152E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1083E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.3214E+06	-.1128E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3954E+06	-.6438E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5514E+06	-.3275E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8544E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8912E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8634E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8816E+06	-.2893E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.4615E+06	-.5125E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2785E+06	-.7881E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1319E+07

BLDG 651 - BARRACKS WITH A/C - ECONOMIZER (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -891200.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .121E-03 .613E-03 .403E-03 .403E-04 806.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.46 .533 -.611E-01 .820E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -		THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	68.0	78.0
2	.200	.000	1.000	1.000	68.0	78.0
3	.200	.000	1.000	1.000	68.0	78.0
4	.200	.000	1.000	1.000	68.0	78.0
5	.400	.000	1.000	1.000	68.0	78.0
6	.800	.000	1.000	1.000	68.0	78.0
7	1.000	.000	.800	.800	68.0	78.0
8	.200	.000	.400	.400	68.0	78.0
9	.200	.000	.100	.100	68.0	78.0
10	.200	.000	.100	.100	68.0	78.0
11	.200	.000	.100	.100	68.0	78.0
12	.200	.000	.100	.100	68.0	78.0

13	.200	.000	.100	.100	68.0	78.0
14	.200	.000	.100	.100	68.0	78.0
15	.200	.000	.100	.100	68.0	78.0
16	.400	.000	.300	.300	68.0	78.0
17	.800	.300	.800	.800	68.0	78.0
18	1.000	.300	.800	.800	68.0	78.0
19	1.000	.300	.500	.500	68.0	78.0
20	1.000	.300	.500	.500	68.0	78.0
21	1.000	.300	.800	.800	68.0	78.0
22	.800	.000	1.000	1.000	68.0	78.0
23	.200	.000	1.000	1.000	68.0	78.0
24	.200	.000	1.000	1.000	68.0	78.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 68.000000
SYSTEM TYPE, (IECN) 9
SUPPLY AIR CFM (SACFM) 27148.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
VAV TYPE (IVAV) 1
VAV MINIMUM SUPPLY AIR FRACTION (ARMIN) 2.500000E-01
VAV COLD DECK TEMPERATURE F (TCD) 58.000000
VAV FAN PART LOAD FACTORS

.000	.560	.200	.560	.300	.620	.400	.700
.500	.770	.600	.830	.700	.880	.800	.930
.900	.980	1.00	1.00				

HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 892000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 164905.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 651 - BARRACKS WITH A/C - ECONOMIZER (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-393.	LOSS		-27.	-1.	0.	-83.	-13.	-377.	0.
FEB	0.	GAIN	16.	0.	0.	0.	1.	0.	0.	0.
	-317.	LOSS		-23.	-1.	0.	-62.	-11.	-321.	0.
MAR	0.	GAIN	20.	0.	0.	0.	5.	0.	0.	0.
	-251.	LOSS		-20.	-1.	0.	-49.	-10.	-291.	0.
APR	13.	GAIN	20.	0.	0.	0.	12.	0.	3.	5.
	-96.	LOSS		-12.	-1.	0.	-24.	-6.	-174.	0.
MAY	51.	GAIN	22.	0.	0.	0.	20.	0.	3.	22.
	-11.	LOSS		-6.	0.	0.	-12.	-4.	-111.	0.
JUN	199.	GAIN	23.	0.	0.	0.	27.	0.	8.	115.
	0.	LOSS		-3.	0.	0.	-5.	-2.	-60.	0.
JUL	303.	GAIN	23.	2.	0.	0.	38.	1.	25.	165.
	0.	LOSS		-1.	0.	0.	-3.	-1.	-36.	0.
AUG	276.	GAIN	20.	1.	0.	0.	31.	1.	17.	159.
	0.	LOSS		-1.	0.	0.	-3.	-2.	-38.	0.
SEP	150.	GAIN	17.	0.	0.	0.	20.	1.	11.	90.
	-13.	LOSS		-5.	0.	0.	-10.	-3.	-82.	0.
OCT	19.	GAIN	15.	0.	0.	0.	7.	0.	3.	9.
	-83.	LOSS		-12.	-1.	0.	-25.	-5.	-155.	0.
NOV	1.	GAIN	12.	0.	0.	0.	2.	0.	0.	1.
	-185.	LOSS		-18.	-1.	0.	-46.	-8.	-226.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-384.	LOSS		-28.	-1.	0.	-83.	-12.	-361.	0.
TOT	1013.	GAIN	215.	3.	0.	0.	164.	3.	71.	566.
	-1733.	LOSS		-154.	-7.	0.	-406.	-76.	-2231.	0.

MAX HEATING LOAD= -1318573. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 891200. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 651-3.I

BLDG 651 - BARRACKS WITH A/C - ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	68.	72.		4	18	61.	8.24	5.11	2.94	71.34
			68.	31	24	33.				
FEB	68.	74.		9	24	66.	7.44	4.62	2.65	64.44
			68.	28	24	34.				
MAR	69.	79.		24	22	68.	8.24	5.11	2.94	71.34
			68.	31	24	32.				
APR	71.	79.		27	10	70.	7.97	4.95	2.87	69.06
			68.	29	8	61.				
MAY	75.	79.		31	3	67.	8.24	5.11	3.13	71.53
			68.	23	11	61.				
JUN	78.	79.		6	1	67.	7.97	4.95	3.45	69.65
			73.	17	8	66.				
JUL	78.	79.		23	6	67.	8.24	5.11	4.29	72.69
			76.	10	5	57.				
AUG	78.	80.		24	5	67.	8.24	5.11	3.82	72.22
			71.	25	10	65.				
SEP	75.	80.		13	7	72.	7.97	4.95	3.26	69.46
			68.	30	24	51.				
OCT	71.	79.		6	17	69.	8.24	5.11	2.96	71.36
			68.	31	24	44.				
NOV	69.	78.		8	13	77.	7.97	4.95	2.84	69.04
			68.	30	24	27.				
DEC	68.	69.		23	17	62.	8.24	5.11	2.94	71.34
			68.	31	24	42.				
YEAR							97.00	60.18	38.09	843.47

BLDG 651 - BARRACKS WITH A/C - ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	704	744	0	0	-.1152E+07	.0000
FEB	645	672	0	0	-.1083E+07	.0000
MAR	613	744	0	0	-.1128E+07	.3233E+06
APR	330	720	0	0	-.6437E+06	.3967E+06
MAY	74	744	0	0	-.3275E+06	.5536E+06
JUN	0	720	0	0	.0000	.8544E+06
JUL	0	744	0	16	.0000	.8912E+06
AUG	0	744	0	0	.0000	.8634E+06
SEP	87	720	0	0	-.2893E+06	.8817E+06
OCT	369	744	0	0	-.5125E+06	.4693E+06
NOV	502	720	0	0	-.7881E+06	.2762E+06
DEC	732	744	0	0	-.1319E+07	.0000
YEAR	4056	8760	0	16	-.1319E+07	.8912E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	586.61	.00	8.24	5.11	2.03	71.34	26.9
FEB	493.10	.00	7.44	4.62	1.84	64.44	26.9
MAR	418.14	.02	8.24	5.11	2.03	71.34	26.9
APR	184.21	.71	7.97	4.95	1.97	69.06	46.8
MAY	32.45	2.76	8.24	5.11	2.07	71.53	55.3
JUN	.00	10.02	7.97	4.95	2.10	69.65	73.9
JUL	.00	15.41	8.24	5.11	2.31	72.69	77.0
AUG	.00	13.89	8.24	5.11	2.22	72.22	74.6
SEP	37.01	7.51	7.97	4.95	2.06	69.46	75.8
OCT	182.23	.99	8.24	5.11	2.04	71.36	50.3
NOV	320.33	.07	7.97	4.95	1.97	69.04	40.7
DEC	585.32	.00	8.24	5.11	2.03	71.34	26.9
YEAR	2839.39	51.38	97.00	60.18	24.67	843.47	77.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 85156. BTU/(SQFT-YEAR)

BLDG 651 - BARRACKS WITH A/C - ECONOMIZER (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1152E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1083E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.3233E+06	-.1128E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3967E+06	-.6437E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5536E+06	-.3275E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8544E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8912E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8634E+06	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8817E+06	-.2893E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.4693E+06	-.5125E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2762E+06	-.7881E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1319E+07

BLDG 651 - BARRACKS WITH A/C - DAYTIME OUTSIDE AIR (FT L. WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -891200.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	.000
.330	.330	.330	.330	.330	.330	.330	.330
.330	.330	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

	WALL DATA			
WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.000	.121E-03	.613E-03	.403E-03	.403E-04	806.

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.46	.533	-.611E-01	.820E-03	999.

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	72.0	76.0
2	.200	.000	1.000	1.000	72.0	76.0
3	.200	.000	1.000	1.000	72.0	76.0
4	.200	.000	1.000	1.000	72.0	76.0
5	.400	.000	1.000	1.000	72.0	76.0
6	.800	.000	1.000	1.000	72.0	76.0
7	1.000	.000	.800	.800	72.0	76.0
8	.200	.000	.400	.400	72.0	76.0
9	.200	.000	.100	.100	72.0	76.0
10	.200	.000	.100	.100	72.0	76.0
11	.200	.000	.100	.100	72.0	76.0
12	.200	.000	.100	.100	72.0	76.0

13	.200	.000	.100	.100	72.0	76.0
14	.200	.000	.100	.100	72.0	76.0
15	.200	.000	.100	.100	72.0	76.0
16	.400	.000	.300	.300	72.0	76.0
17	.800	.300	.800	.800	72.0	76.0
18	1.000	.300	.800	.800	72.0	76.0
19	1.000	.300	.500	.500	72.0	76.0
20	1.000	.300	.500	.500	72.0	76.0
21	1.000	.300	.800	.800	72.0	76.0
22	.800	.000	1.000	1.000	72.0	76.0
23	.200	.000	1.000	1.000	72.0	76.0
24	.200	.000	1.000	1.000	72.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 68.000000
SYSTEM TYPE, (IECN) 9
SUPPLY AIR CFM (SACFM) 27148.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
VAV TYPE (IVAV) 1
VAV MINIMUM SUPPLY AIR FRACTION (ARMIN) 2.500000E-01
VAV COLD DECK TEMPERATURE F (TCD) 58.000000
VAV FAN PART LOAD FACTORS

.000	.560	.200	.560	.300	.620	.400	.700
.500	.770	.600	.830	.700	.880	.800	.930
.900	.980	1.00	1.00				

HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 892000.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 164905.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 651 - BARRACKS WITH A/C - DAYTIME OUTSIDE AIR (FT L. WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-405.	LOSS		-29.	-1.	0.	-94.	-14.	-371.	0.
FEB	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-331.	LOSS		-26.	-1.	0.	-72.	-12.	-319.	0.
MAR	1.	GAIN	20.	0.	0.	0.	3.	0.	0.	1.
	-271.	LOSS		-22.	-1.	0.	-59.	-11.	-292.	0.
APR	19.	GAIN	20.	0.	0.	0.	11.	0.	2.	6.
	-115.	LOSS		-14.	-1.	0.	-30.	-7.	-172.	0.
MAY	58.49	GAIN	22.17	.04	.02	.00	20.16	.23	3.40	20.58
	-18.84	LOSS		-5.99	-.36	.00	-12.23	-3.68	-96.52	.00
JUN	193.	GAIN	23.	1.	0.	0.	31.	1.	10.	97.
	0.	LOSS		-2.	0.	0.	-4.	-2.	-39.	0.
JUL	288.	GAIN	23.	3.	0.	0.	42.	2.	27.	139.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-21.	0.
AUG	259.	GAIN	20.	2.	0.	0.	36.	1.	18.	132.
	0.	LOSS		-1.	0.	0.	-2.	-1.	-22.	0.
SEP	147.	GAIN	17.	0.	0.	0.	21.	1.	11.	78.
	-24.	LOSS		-5.	0.	0.	-11.	-3.	-71.	0.
OCT	22.	GAIN	15.	0.	0.	0.	6.	0.	2.	10.
	-105.	LOSS		-14.	-1.	0.	-31.	-6.	-155.	0.
NOV	2.	GAIN	12.	0.	0.	0.	2.	0.	0.	1.
	-203.	LOSS		-20.	-1.	0.	-55.	-9.	-226.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-396.	LOSS		-31.	-1.	0.	-95.	-14.	-356.	0.
TOT	990.	GAIN	215.	6.	0.	0.	172.	4.	73.	483.
	-1868.	LOSS		-169.	-8.	0.	-468.	-84.	-2141.	0.

MAX HEATING LOAD= -1258288. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 891200. BTUH ON JUL 28 HOUR 18 AMBIENT TEMP 90.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 651-5.I

BLDG 651 - BARRACKS WITH A/C - DAYTIME OUTSIDE AIR (FT L. WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	72.	73.		4	18	61.	8.24	5.11	2.94	71.34
			72.	31	24	33.				
FEB	72.	76.		9	24	66.	7.44	4.62	2.65	64.44
			72.	28	24	34.				
MAR	72.	77.		24	23	68.	8.24	5.11	2.94	71.34
			72.	28	10	68.				
APR	73.	78.		6	22	65.	7.97	4.95	3.19	69.38
			72.	2	12	69.				
MAY	75.	78.		21	1	65.	8.24	5.11	3.93	72.34
			72.	24	10	61.				
JUN	76.	80.		3	22	65.	7.97	4.95	5.19	71.39
			73.	17	6	57.				
JUL	76.	78.		23	21	65.	8.24	5.11	5.51	73.91
			75.	10	5	57.				
AUG	76.	78.		21	24	65.	8.24	5.11	4.88	73.28
			72.	25	9	63.				
SEP	75.	79.		4	7	67.	7.97	4.95	4.21	70.40
			72.	17	10	68.				
OCT	73.	77.		1	22	65.	8.24	5.11	3.56	71.96
			72.	12	13	70.				
NOV	72.	78.		8	22	67.	7.97	4.95	3.08	69.28
			72.	16	14	68.				
DEC	72.	72.		23	17	62.	8.24	5.11	2.94	71.34
			72.	23	15	70.				
YEAR							97.00	60.18	45.01	850.39

BLDG 651 - BARRACKS WITH A/C - DAYTIME OUTSIDE AIR (FT L. WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	731	744	0	0	-.1109E+07	.0000
FEB	653	672	0	0	-.1074E+07	.0000
MAR	644	744	1	0	-.1118E+07	.2642E+06
APR	388	720	2	0	-.6624E+06	.3504E+06
MAY	121	744	0	0	-.3422E+06	.5427E+06
JUN	0	720	0	0	.0000	.7948E+06
JUL	0	744	0	11	.0000	.8912E+06
AUG	2	744	0	0	-.8231E+05	.7995E+06
SEP	143	720	2	0	-.3257E+06	.8468E+06
OCT	429	744	4	0	-.5439E+06	.4539E+06
NOV	578	720	4	0	-.7915E+06	.2439E+06
DEC	743	744	3	0	-.1258E+07	.0000
YEAR	4432	8760	16	11	-.1258E+07	.8912E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	606.86	.00	8.24	5.11	2.03	71.34	26.9
FEB	509.09	.00	7.44	4.62	1.84	64.44	26.9
MAR	442.90	.09	8.24	5.11	2.04	71.34	41.5
APR	216.29	1.10	7.97	4.95	2.03	69.38	45.7
MAY	50.88	3.25	8.24	5.11	2.22	72.34	55.0
JUN	.00	9.84	7.97	4.95	2.39	71.39	70.3
JUL	.00	14.73	8.24	5.11	2.52	73.91	77.0
AUG	.81	13.12	8.24	5.11	2.40	73.28	70.6
SEP	62.03	7.41	7.97	4.95	2.22	70.40	73.8
OCT	215.85	1.25	8.24	5.11	2.14	71.96	49.9
NOV	355.00	.11	7.97	4.95	2.01	69.28	39.8
DEC	599.41	.00	8.24	5.11	2.03	71.34	26.9
YEAR	3059.12	50.89	97.00	60.18	25.87	850.39	77.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 90576. BTU/(SQFT-YEAR)

BLDG 651 - BARRACKS WITH A/C - DAYTIME OUTSIDE AIR (FT L. WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1109E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1074E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.2642E+06	-.1118E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.3504E+06	-.6624E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5427E+06	-.3422E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.7948E+06	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8912E+06	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.7995E+06	-.8231E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8468E+06	-.3257E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.4539E+06	-.5439E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.2439E+06	-.7915E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1258E+07

COMPUTER SIMULATIONS

BUILDING 655

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 655
BLDG. TYPE: ADMIN./ SUPPLY

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	865.6	622.9	588.9			
COOLING (kWH)						

SUPPLY AIR FAN	0 CFM
FLOOR AREA	11861 FT²
CFMI	896 CFM
UA	4132 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	600	1800	60 HR
SAT.	600	1800	12 HR
SUN.	0	0	0 HR
	TOTAL OCCUPY HR.		72 HR/WK
	TOTAL UNOCC. HR.		96 HR/WK
	ANNUAL OCCUPY HR.		3754 HR/YR
	ANNUAL UNOCC. HR.		5006 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1872 HR/YR
HR. ON COOLING	1255 HR/YR
HR. OFF HEATING	2496 HR/YR
HR. OFF COOLING	1673 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	1872	=	2496 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	1255	=	1673 HR/YR

HOAUHC	865.6 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM-HR
	896 CFM *	5006 HR/YR		
HOAUH	865.6 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM-HR
	896 CFM *	2496 HR/YR		
COAUHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	896 CFM *	5006 HR/YR		
COAUC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	896 CFM *	1673 HR/YR		
HOAOHC	865.6 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM-HR
	896 CFM *	3754 HR/YR		
HOAOH	865.6 MBtu –	0 MBtu	=	0.00E+00 Btu/CFM-HR
	896 CFM *	1872 HR/YR		
COAOHC	0 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	896 CFM *	3754 HR/YR		
COAOC	0 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	896 CFM *	1255 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER ● ATLANTA ● GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 655
BLDG. TYPE: ADMIN./ SUPPLY

ENERGY CONSTANT CALCULATIONS

ECC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	1255 HR/YR		
ECHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	3754 HR/YR		
NSUCHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	5006 HR/YR		
NSUCC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	1673 HR/YR		
DDCCHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	3754 HR/YR		
DDCCC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	1255 HR/YR		
NSC	865.6 MBtu –	622.91 MBtu	=	5.87E+04 Btu/UA
	4132 UA			
DSC	622.91 MBtu –	588.89 MBtu	=	8.23E+03 Btu/UA
	4132 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR		
			=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			
			=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	08-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	655BHL

BUILDING HEATING LOAD CALCULATION SHEET

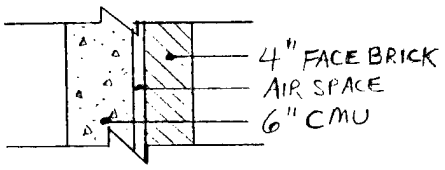
BLDG NO: 655 BLDG NAME: ADMINISTRATION / SUPPLY
BLDG FUNCTION: COMPANY ADMINISTRATION / SUPPLY
FLOOR AREA: (SQ. FT) 11,861 # FLOORS 1
SLAB PERIMETER: (FT) 509

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	2,859	3,278	729	476	7,342
GLASS	(SQ. FT)	310	976	0	0	1,286
PERSONNEL DOOR	(SQ. FT)	297	105	0	0	402
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	2,252	2,197	729	476	5,654
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	11,869
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	402
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

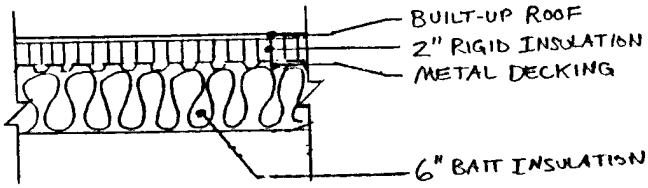
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	6" BATT INSULATION	19.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	26.87
	U=1/R	0.037

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	4" CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	7342	X CFM / SQ.FT.	0.115	=	844
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		15	X CFM /OPENING /HR	1.600	=	24
DOOR OPENINGS / HR - DOUBLE DOORS		20	X CFM /OPENING /HR	1.385	=	28
			TOTAL INFILTRATION (CFM)		=	896

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	402	X DOOR "U"	0.391	=	157
UA WALL	= WALL AREA	5,654	X WALL "U"	0.245	=	1,385
UA ROOF	= ROOF AREA	11,869	X ROOF "U"	0.037	=	442
UA GLASS	= GLASS AREA	1,286	X GLASS "U"	0.621	=	799
UA SLAB	= SLAB PERIM.	509	X SLF	0.830	=	422
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	896	X A. T. F.	1.035	=	927
			TOTAL UA (BTU/HR°F)			4,132

E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 08-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 655Z1
BLDG: 655 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	30	4	Seated, light work, typing	Offices, hotels, apts	250	200	7,500	6,000
TOTAL	30					TOTAL	7,500	6,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	59	20	Incandescent - 100w	100	5,900
	17	18	Incandescent - 60w	60	1,020
	16	2	Fluorescent, 2 - 40w lamps, 16w ballast (1x4 ft. fixture)	96	1,536
	39	8	Fluorescent, 4 - 34w lamps, 2 - 16w ballasts (2x4 ft. fix.)	168	6,552
TOTAL	131			TOTAL	15,008

Peak Value for Internal Gains

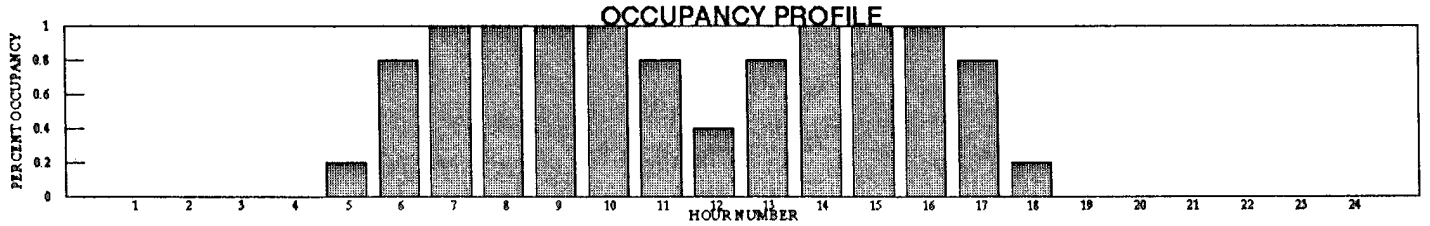
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	4	12	Typewriter	100	10%	400	1,365
	1	46	Microwave Oven	600	65%	600	2,048
	5	24	Coffee Maker	1,500	30%	7,500	25,598
	8	3	Microcomputer	350	91%	2,800	9,556
	5	70	Water Cooler	700	50%	3,500	11,946
	2	53	Refrigerator (12 cu. ft.)	241	20%	482	1,645
	1	49	Radio	71	10%	71	242
			TOTAL		46%	15,353	52,400

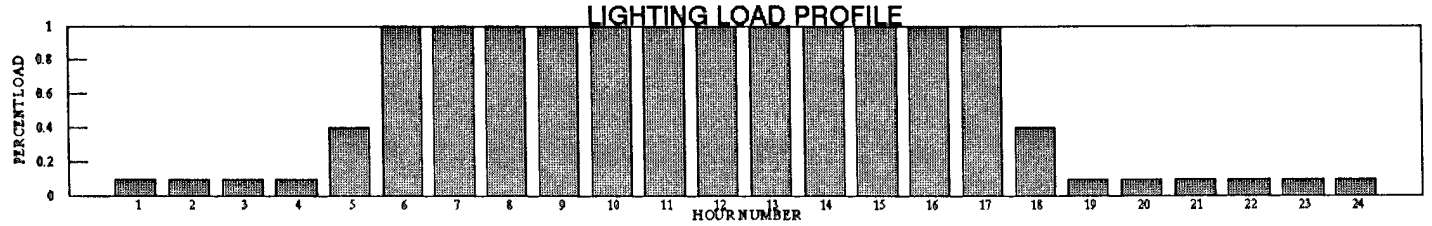
E M C Engineers, Inc.

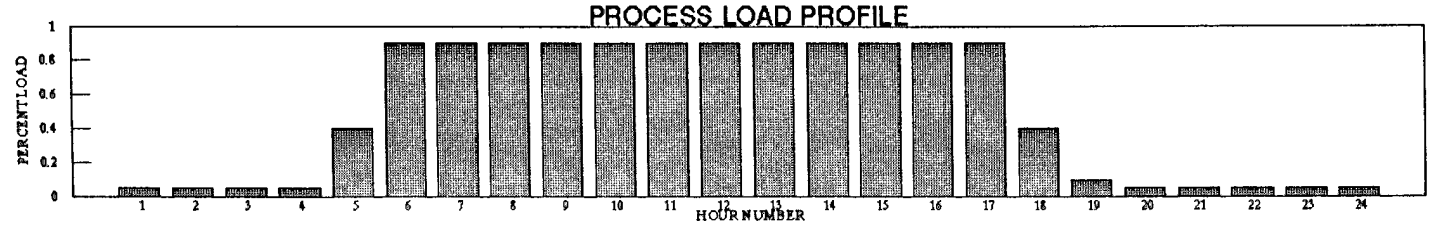
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 08-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 655Z1
BLDG: 655
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY					0.2	0.8	1	1	1	1	0.8	0.4	0.8	1	1	1	0.8	0.2						
		LIGHTING	0.1	0.1	0.1	0.1	0.4	1	1	1	1	1	1	1	1	1	1	1	1	0.4	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.1







BLDG 655 - ADMINISTRATION / SUPPLY BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 6.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 146321.000000
FLOOR AREA (SQFT) 11861.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 493300.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 118610.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 896.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 3.670000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 22638.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 442.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 157.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	2197.0	476.0	2252.0	729.0
WINDOW AREA SQFT (AWND)	976.0	.0	310.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	.0	10.0	.0
WINDOW WIDTH FT (WNDW)	97.6	.0	31.0	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 11869.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 3.700000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 7.043545E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.713E-05 .105E-02 .391E-02 .193E-02 .143E-03 712.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.500000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	12.	19279.	7500.	6000.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.050	.000	.000	70.0	.0
2	.100	.050	.000	.000	70.0	.0
3	.100	.050	.000	.000	70.0	.0
4	.100	.050	.000	.000	70.0	.0
5	.400	.400	.200	.200	70.0	.0
6	1.000	.800	1.000	1.000	70.0	.0
7	1.000	.800	1.000	1.000	70.0	.0
8	1.000	.800	1.000	1.000	70.0	.0
9	1.000	1.000	1.000	1.000	70.0	.0
10	1.000	1.000	1.000	1.000	70.0	.0
11	1.000	1.000	.800	.800	70.0	.0
12	1.000	.700	.400	.400	70.0	.0

13	1.000	1.000	.800	.800	70.0	.0
14	1.000	1.000	1.000	1.000	70.0	.0
15	1.000	1.000	1.000	1.000	70.0	.0
16	1.000	1.000	1.000	1.000	70.0	.0
17	1.000	.800	1.000	1.000	70.0	.0
18	.800	.600	.800	.800	70.0	.0
19	.200	.200	.200	.200	70.0	.0
20	.100	.050	.000	.000	70.0	.0
21	.100	.050	.000	.000	70.0	.0
22	.100	.050	.000	.000	70.0	.0
23	.100	.050	.000	.000	70.0	.0
24	.100	.050	.000	.000	70.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 0.000000E+00
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 493300.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 616625.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 655 - ADMINISTRATION / SUPPLY BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	21.	0.	0.	0.	0.	0.	0.	0.
	-130.	LOSS		-13.	-16.	0.	-29.	-18.	-100.	0.
FEB	0.	GAIN	24.	0.	0.	0.	0.	0.	0.	0.
	-102.	LOSS		-11.	-14.	0.	-23.	-15.	-86.	0.
MAR	.00	GAIN	29.45	.00	.00	.00	.21	.00	.00	.00
	-81.62	LOSS		-10.03	-13.22	.00	-18.73	-14.97	-79.79	.00
APR	.00	GAIN	28.22	.00	.00	.00	.64	.00	.00	.00
	-36.04	LOSS		-6.67	-9.27	.00	-10.31	-10.56	-52.45	.00
MAY	.00	GAIN	30.73	.00	.00	.00	.87	.00	.01	.00
	-11.36	LOSS		-5.46	-8.15	.00	-6.93	-8.94	-39.21	.00
JUN	.00	GAIN	30.87	.00	.00	.00	1.23	.00	.00	.00
	-1.91	LOSS		-4.44	-7.09	.00	-4.74	-7.84	-34.33	.00
JUL	.00	GAIN	31.21	.00	.01	.00	1.30	.01	.05	.00
	-.71	LOSS		-4.36	-7.07	.00	-4.71	-7.88	-34.67	.00
AUG	.00	GAIN	27.85	.01	.00	.00	.99	.00	.01	.00
	-1.09	LOSS		-4.47	-6.86	.00	-5.24	-7.52	-31.90	.00
SEP	.00	GAIN	25.12	.00	.01	.00	.78	.01	.03	.00
	-11.54	LOSS		-5.20	-6.91	.00	-6.63	-7.75	-35.37	.00
OCT	.00	GAIN	23.46	.00	.00	.00	.11	.00	.00	.00
	-32.56	LOSS		-7.23	-8.76	.00	-11.74	-9.70	-44.53	.00
NOV	.00	GAIN	20.32	.00	.00	.00	.01	.00	.00	.00
	-64.45	LOSS		-9.06	-10.89	.00	-17.96	-12.07	-59.71	.00
DEC	0.	GAIN	19.	0.	0.	0.	0.	0.	0.	0.
	-126.	LOSS		-13.	-16.	0.	-30.	-17.	-95.	0.
TOT	0.	GAIN	311.	0.	0.	0.	6.	0.	0.	0.
	-598.	LOSS		-93.	-123.	0.	-169.	-138.	-693.	0.

MAX HEATING LOAD= -493300. BTUH ON DEC 18 HOUR 4 AMBIENT TEMP 1.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 2778.7

BLDG 655 - ADMINISTRATION / SUPPLY BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	85.		5	16	61.	4.85	14.95	.00	25.82
			69.	29	4	11.				
FEB	71.	86.		13	16	68.	4.33	13.33	.00	23.04
			69.	2	4	14.				
MAR	73.	104.		28	16	76.	4.78	14.73	.00	25.45
			69.	4	4	15.				
APR	77.	108.		30	16	84.	4.61	14.19	.00	24.52
			69.	9	4	31.				
MAY	84.	115.		29	16	85.	4.85	14.95	.00	25.82
			69.	11	4	38.				
JUN	89.	119.		29	16	87.	4.61	14.19	.00	24.52
			70.	16	4	55.				
JUL	93.	125.		31	16	95.	4.78	14.73	.00	25.45
			70.	10	4	57.				
AUG	91.	120.		29	16	95.	4.85	14.95	.00	25.82
			70.	25	4	54.				
SEP	84.	117.		7	16	86.	4.54	13.98	.00	24.15
			69.	15	4	41.				
OCT	77.	112.		4	16	81.	4.85	14.95	.00	25.82
			69.	28	4	30.				
NOV	73.	100.		8	16	75.	4.68	14.41	.00	24.89
			69.	3	4	17.				
DEC	70.	85.		23	16	67.	4.71	14.52	.00	25.08
			68.	18	4	1.				
YEAR							56.42	173.89	.00	300.40

BLDG 655 - ADMINISTRATION / SUPPLY BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	671	0	0	0	-.4601E+06	.0000
FEB	555	0	0	0	-.4023E+06	.0000
MAR	523	0	0	0	-.3972E+06	.0000
APR	330	0	0	0	-.2511E+06	.0000
MAY	179	0	0	0	-.1746E+06	.0000
JUN	54	0	0	0	-.7681E+05	.0000
JUL	26	0	0	0	-.6304E+05	.0000
AUG	28	0	0	0	-.8032E+05	.0000
SEP	149	0	0	0	-.1550E+06	.0000
OCT	343	0	0	0	-.2315E+06	.0000
NOV	498	0	0	0	-.3281E+06	.0000
DEC	662	0	2	0	-.4933E+06	.0000
YEAR	4018	0	2	0	-.4933E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	185.47	.00	4.85	14.95	.00	25.82	12.2
FEB	147.56	.00	4.33	13.33	.00	23.04	12.2
MAR	124.16	.00	4.78	14.73	.00	25.45	12.2
APR	62.38	.00	4.61	14.19	.00	24.52	12.2
MAY	25.79	.00	4.85	14.95	.00	25.82	12.2
JUN	6.62	.00	4.61	14.19	.00	24.52	12.2
JUL	3.08	.00	4.78	14.73	.00	25.45	12.2
AUG	3.49	.00	4.85	14.95	.00	25.82	12.2
SEP	23.63	.00	4.54	13.98	.00	24.15	12.2
OCT	60.16	.00	4.85	14.95	.00	25.82	12.2
NOV	104.84	.00	4.68	14.41	.00	24.89	12.2
DEC	180.99	.00	4.71	14.52	.00	25.08	12.2
YEAR	928.16	.00	56.42	173.89	.00	300.40	12.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 109148. BTU/(SQFT-YEAR)

BLDG 655 - ADMINISTRATION / SUPPLY BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.4601E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.4023E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.3972E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.2511E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.1746E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.7681E+05
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-.6304E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	-.8032E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.1550E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.2315E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.3281E+06
DEC	856.	586.	1.000	35.	0.	0.	0	2	.0000	-.4933E+06

BLDG 655 - ADMINISTRATION / SUPPLY NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 6.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 146321.000000
FLOOR AREA (SQFT) 11861.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 493300.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 118610.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 896.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 3.670000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 22638.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 442.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 157.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	2197.0	476.0	2252.0	729.0
WINDOW AREA SQFT (AWND)	976.0	.0	310.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	.0	10.0	.0
WINDOW WIDTH FT (WNDW)	97.6	.0	31.0	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 11869.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 3.700000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 7.043545E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.713E-05 .105E-02 .391E-02 .193E-02 .143E-03 712.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.500000E-01
WEEKEND COOLING THERMOSTAT PROFILE

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	70.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
70.0	70.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

KW	BTU/HR		THERMOSTAT SET POINT DEG F	
	PEOPLE	PEOPLE		
LIGHTS PROCESS	SENSIBLE	LATENT	HEATING	COOLING

PEAK VAL	12.	19279.	7500.	6000.			
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -						
1	.100	.050	.000	.000	55.0	.0	
2	.100	.050	.000	.000	55.0	.0	
3	.100	.050	.000	.000	55.0	.0	
4	.100	.050	.000	.000	55.0	.0	
5	.400	.400	.200	.200	55.0	.0	
6	1.000	.800	1.000	1.000	70.0	.0	
7	1.000	.800	1.000	1.000	70.0	.0	
8	1.000	.800	1.000	1.000	70.0	.0	
9	1.000	1.000	1.000	1.000	70.0	.0	
10	1.000	1.000	1.000	1.000	70.0	.0	
11	1.000	1.000	.800	.800	70.0	.0	
12	1.000	.700	.400	.400	70.0	.0	
13	1.000	1.000	.800	.800	70.0	.0	
14	1.000	1.000	1.000	1.000	70.0	.0	
15	1.000	1.000	1.000	1.000	70.0	.0	
16	1.000	1.000	1.000	1.000	70.0	.0	
17	1.000	.800	1.000	1.000	70.0	.0	
18	.800	.600	.800	.800	70.0	.0	
19	.200	.200	.200	.200	55.0	.0	
20	.100	.050	.000	.000	55.0	.0	
21	.100	.050	.000	.000	55.0	.0	
22	.100	.050	.000	.000	55.0	.0	
23	.100	.050	.000	.000	55.0	.0	
24	.100	.050	.000	.000	55.0	.0	

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 0.000000E+00
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 493300.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 616625.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 655 - ADMINISTRATION / SUPPLY NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	21.02	.00	.00	.00	.00	.00	.00	.00
	-94.92	LOSS		-10.87	-13.13	.00	-23.06	-14.84	-80.21	.00
FEB	.00	GAIN	23.72	.00	.00	.00	.01	.00	.00	.00
	-71.98	LOSS		-9.00	-11.23	.00	-17.03	-12.74	-68.76	.00
MAR	.00	GAIN	29.45	.00	.00	.00	.26	.00	.00	.00
	-53.96	LOSS		-8.33	-10.90	.00	-13.44	-12.35	-64.10	.00
APR	.00	GAIN	28.22	.00	.00	.00	.74	.00	.02	.00
	-20.48	LOSS		-5.63	-7.87	.00	-7.10	-9.00	-43.90	.00
MAY	.00	GAIN	30.73	.00	.00	.00	.98	.01	.02	.00
	-5.32	LOSS		-5.02	-7.56	.00	-5.66	-8.29	-36.26	.00
JUN	.00	GAIN	30.87	.00	.00	.00	1.30	.00	.00	.00
	-.72	LOSS		-4.35	-6.96	.00	-4.52	-7.70	-33.78	.00
JUL	.00	GAIN	31.21	.00	.01	.00	1.33	.01	.06	.00
	-.25	LOSS		-4.32	-7.02	.00	-4.62	-7.82	-34.47	.00
AUG	.00	GAIN	27.85	.01	.00	.00	1.01	.00	.01	.00
	-.56	LOSS		-4.43	-6.80	.00	-5.13	-7.46	-31.65	.00
SEP	.00	GAIN	25.12	.00	.01	.00	.82	.01	.04	.00
	-5.22	LOSS		-4.80	-6.34	.00	-5.41	-7.12	-32.27	.00
OCT	.00	GAIN	23.46	.00	.01	.00	.14	.01	.03	.00
	-17.08	LOSS		-6.16	-7.31	.00	-8.41	-8.11	-36.55	.00
NOV	.00	GAIN	20.32	.00	.00	.00	.01	.00	.00	.00
	-41.08	LOSS		-7.56	-8.82	.00	-13.22	-9.79	-46.93	.00
DEC	.00	GAIN	19.31	.00	.00	.00	.00	.00	.00	.00
	-91.67	LOSS		-10.74	-12.77	.00	-23.00	-14.27	-75.28	.00
TOT	0.	GAIN	311.	0.	0.	0.	7.	0.	0.	0.
	-403.	LOSS		-81.	-107.	0.	-131.	-119.	-584.	0.

MAX HEATING LOAD= -493300. BTUH ON DEC 18 HOUR 7 AMBIENT TEMP -1.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 2778.7

BLDG 655 - ADMINISTRATION / SUPPLY NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	64.	86.		5	16	61.	4.85	14.95	.00	25.82
			54.	29	4	11.				
FEB	65.	87.		13	16	68.	4.33	13.33	.00	23.04
			54.	2	4	14.				
MAR	68.	104.		28	16	76.	4.78	14.73	.00	25.45
			54.	4	4	15.				
APR	74.	108.		30	16	84.	4.61	14.19	.00	24.52
			55.	9	4	31.				
MAY	82.	115.		29	16	85.	4.85	14.95	.00	25.82
			55.	11	4	38.				
JUN	89.	119.		29	16	87.	4.61	14.19	.00	24.52
			60.	17	5	56.				
JUL	93.	125.		31	16	95.	4.78	14.73	.00	25.45
			63.	10	5	57.				
AUG	91.	120.		29	16	95.	4.85	14.95	.00	25.82
			60.	25	5	52.				
SEP	83.	117.		7	16	86.	4.54	13.98	.00	24.15
			55.	15	4	41.				
OCT	73.	112.		4	16	81.	4.85	14.95	.00	25.82
			55.	28	4	30.				
NOV	68.	100.		8	16	75.	4.68	14.41	.00	24.89
			54.	3	4	17.				
DEC	64.	85.		23	16	67.	4.71	14.52	.00	25.08
			54.	18	4	1.				
YEAR							56.42	173.89	.00	300.40

BLDG 655 - ADMINISTRATION / SUPPLY NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	600	0	4	0	-.4933E+06	.0000
FEB	476	0	0	0	-.4927E+06	.0000
MAR	410	0	2	0	-.4933E+06	.0000
APR	201	0	0	0	-.3886E+06	.0000
MAY	62	0	0	0	-.3039E+06	.0000
JUN	13	0	0	0	-.1613E+06	.0000
JUL	5	0	0	0	-.8738E+05	.0000
AUG	8	0	0	0	-.2039E+06	.0000
SEP	64	0	0	0	-.3271E+06	.0000
OCT	199	0	0	0	-.3743E+06	.0000
NOV	366	0	0	0	-.4671E+06	.0000
DEC	597	0	3	0	-.4933E+06	.0000
YEAR	3001	0	9	0	-.4933E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	143.86	.00	4.85	14.95	.00	25.82	12.2
FEB	110.87	.00	4.33	13.33	.00	23.04	12.2
MAR	86.86	.00	4.78	14.73	.00	25.45	12.2
APR	36.81	.00	4.61	14.19	.00	24.52	12.2
MAY	10.44	.00	4.85	14.95	.00	25.82	12.2
JUN	1.90	.00	4.61	14.19	.00	24.52	12.2
JUL	.64	.00	4.78	14.73	.00	25.45	12.2
AUG	1.23	.00	4.85	14.95	.00	25.82	12.2
SEP	10.72	.00	4.54	13.98	.00	24.15	12.2
OCT	33.60	.00	4.85	14.95	.00	25.82	12.2
NOV	70.78	.00	4.68	14.41	.00	24.89	12.2
DEC	140.12	.00	4.71	14.52	.00	25.08	12.2
YEAR	647.84	.00	56.42	173.89	.00	300.40	12.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 85514. BTU/(SQFT-YEAR)

BLDG 655 - ADMINISTRATION / SUPPLY NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	4	.0000	-.4933E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.4927E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	2	.0000	-.4933E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.3886E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.3039E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.1613E+06
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-.8738E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	-.2039E+06
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.3271E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.3743E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.4671E+06
DEC	856.	586.	1.000	35.	0.	0.	0	3	.0000	-.4933E+06

BLDG 655 - ADMINISTRATION / SUPPLY DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 6.000000E-01
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 146321.000000
FLOOR AREA (SQFT) 11861.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 493300.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 118610.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 896.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 3.670000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 22638.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 442.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 157.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

	1	2	3	4
WALL NUMBER				
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	2197.0	476.0	2252.0	729.0
WINDOW AREA SQFT (AWND)	976.0	.0	310.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	.0	10.0	.0
WINDOW WIDTH FT (WNDW)	97.6	.0	31.0	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 11869.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 3.700000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 7.043545E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.713E-05 .105E-02 .391E-02 .193E-02 .143E-03 712.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.500000E-01
WEEKEND COOLING THERMOSTAT PROFILE

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	68.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
68.0	68.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

```
PEAK VAL         12.     19279.      7500.      6000.
  HOUR     - - - - HOURLY FRACTION OF PEAK - - - -
   1          .100       .050       .000       .000         55.0          .0
   2          .100       .050       .000       .000         55.0          .0
   3          .100       .050       .000       .000         55.0          .0
   4          .100       .050       .000       .000         55.0          .0
   5          .400       .400       .200       .200         55.0          .0
   6         1.000       .800      1.000      1.000         68.0          .0
   7         1.000       .800      1.000      1.000         68.0          .0
   8         1.000       .800      1.000      1.000         68.0          .0
   9         1.000      1.000      1.000      1.000         68.0          .0
  10         1.000      1.000      1.000      1.000         68.0          .0
  11         1.000      1.000       .800       .800         68.0          .0
  12         1.000       .700       .400       .400         68.0          .0
  13         1.000      1.000       .800       .800         68.0          .0
  14         1.000      1.000      1.000      1.000         68.0          .0
  15         1.000      1.000      1.000      1.000         68.0          .0
  16         1.000      1.000      1.000      1.000         68.0          .0
  17         1.000       .800      1.000      1.000         68.0          .0
  18          .800       .600       .800       .800         68.0          .0
  19          .200       .200       .200       .200         55.0          .0
  20          .100       .050       .000       .000         55.0          .0
  21          .100       .050       .000       .000         55.0          .0
  22          .100       .050       .000       .000         55.0          .0
  23          .100       .050       .000       .000         55.0          .0
  24          .100       .050       .000       .000         55.0          .0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)      68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)     100.000000
SYSTEM TYPE, (IECN)            2
SUPPLY AIR CFM (SACFM)    0.000000E+00
ECONOMIZER HIGH TEMP LIMIT F       100.000000
SYSTEM SUPPLY AIR START TIME HR     0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR        24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)       55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)     0.000000E+00
FAN EFFICIENCY (EFAN)     5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)     8.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT)  493300.000000
HEATING PLANT RATED INPUT BTU (HFLIN)   616625.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100       .191       .200       .286       .300       .369       .400       .451

 .500       .537       .600       .625       .700       .718       .800       .812

 .900       .906       1.00       1.00
CHILLER TYPE (ITYPCH)             4
COOLING PLANT RATED OUTPUT BTU (CFLOT)     1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN)     0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000       .000       .000       .000       .000

 .000       .000       .000       .000
```

BLDG 655 - ADMINISTRATION / SUPPLY DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	21.02	.00	.00	.00	.00	.00	.00	.00
	-89.49	LOSS		-10.55	-12.70	.00	-22.07	-14.36	-77.00	.00
FEB	.00	GAIN	23.72	.00	.00	.00	.01	.00	.00	.00
	-67.65	LOSS		-8.75	-10.89	.00	-16.25	-12.35	-66.19	.00
MAR	.00	GAIN	29.45	.00	.00	.00	.31	.00	.00	.00
	-50.17	LOSS		-8.11	-10.60	.00	-12.79	-12.00	-61.89	.00
APR	.00	GAIN	28.22	.00	.00	.00	.83	.00	.02	.00
	-18.31	LOSS		-5.49	-7.68	.00	-6.74	-8.78	-42.70	.00
MAY	.00	GAIN	30.73	.00	.01	.00	1.08	.01	.03	.00
	-4.17	LOSS		-4.94	-7.44	.00	-5.49	-8.17	-35.71	.00
JUN	.00	GAIN	30.87	.00	.00	.00	1.34	.00	.00	.00
	-.39	LOSS		-4.32	-6.93	.00	-4.48	-7.66	-33.63	.00
JUL	.00	GAIN	31.21	.00	.02	.00	1.34	.02	.07	.00
	-.08	LOSS		-4.31	-7.01	.00	-4.60	-7.81	-34.41	.00
AUG	.00	GAIN	27.85	.01	.00	.00	1.03	.00	.01	.00
	-.35	LOSS		-4.42	-6.78	.00	-5.11	-7.44	-31.55	.00
SEP	.00	GAIN	25.12	.00	.01	.00	.86	.01	.04	.00
	-4.46	LOSS		-4.74	-6.26	.00	-5.28	-7.03	-31.89	.00
OCT	.00	GAIN	23.46	.00	.01	.00	.17	.01	.02	.00
	-15.11	LOSS		-6.03	-7.13	.00	-8.03	-7.91	-35.51	.00
NOV	.00	GAIN	20.32	.00	.00	.00	.02	.00	.00	.00
	-37.65	LOSS		-7.34	-8.53	.00	-12.55	-9.46	-45.03	.00
DEC	.00	GAIN	19.31	.00	.00	.00	.00	.00	.00	.00
	-86.39	LOSS		-10.43	-12.34	.00	-22.02	-13.79	-72.20	.00
TOT	0.	GAIN	311.	0.	0.	0.	7.	0.	0.	0.
	-374.	LOSS		-79.	-104.	0.	-125.	-117.	-568.	0.

MAX HEATING LOAD= -493300. BTUH ON DEC 18 HOUR 6 AMBIENT TEMP 0.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 2778.7

BLDG 655 - ADMINISTRATION / SUPPLY DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT AMBT. DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	63.	86.		5	16	61.	4.85	14.95	.00	25.82
			54.	29	4	11.				
FEB	64.	87.		13	16	68.	4.33	13.33	.00	23.04
			54.	2	4	14.				
MAR	67.	104.		28	16	76.	4.78	14.73	.00	25.45
			54.	4	4	15.				
APR	74.	108.		30	16	84.	4.61	14.19	.00	24.52
			55.	9	4	31.				
MAY	82.	115.		29	16	85.	4.85	14.95	.00	25.82
			55.	11	4	38.				
JUN	89.	119.		29	16	87.	4.61	14.19	.00	24.52
			60.	17	5	56.				
JUL	93.	125.		31	16	95.	4.78	14.73	.00	25.45
			63.	10	5	57.				
AUG	91.	120.		29	16	95.	4.85	14.95	.00	25.82
			60.	25	5	52.				
SEP	83.	117.		7	16	86.	4.54	13.98	.00	24.15
			55.	15	4	41.				
OCT	73.	112.		4	16	81.	4.85	14.95	.00	25.82
			55.	28	4	30.				
NOV	67.	100.		8	16	75.	4.68	14.41	.00	24.89
			54.	3	4	17.				
DEC	63.	85.		23	16	67.	4.71	14.52	.00	25.08
			54.	18	4	1.				
YEAR							56.42	173.89	.00	300.40

BLDG 655 - ADMINISTRATION / SUPPLY DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	595	0	2	0	-.4933E+06	.0000
FEB	469	0	0	0	-.4550E+06	.0000
MAR	399	0	0	0	-.4839E+06	.0000
APR	185	0	0	0	-.3512E+06	.0000
MAY	56	0	0	0	-.2666E+06	.0000
JUN	5	0	0	0	-.1237E+06	.0000
JUL	4	0	0	0	-.5009E+05	.0000
AUG	6	0	0	0	-.1666E+06	.0000
SEP	60	0	0	0	-.2898E+06	.0000
OCT	181	0	0	0	-.3368E+06	.0000
NOV	345	0	0	0	-.4294E+06	.0000
DEC	596	0	1	0	-.4933E+06	.0000
YEAR	2901	0	3	0	-.4933E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	138.03	.00	4.85	14.95	.00	25.82	12.2
FEB	105.70	.00	4.33	13.33	.00	23.04	12.2
MAR	82.04	.00	4.78	14.73	.00	25.45	12.2
APR	33.09	.00	4.61	14.19	.00	24.52	12.2
MAY	8.76	.00	4.85	14.95	.00	25.82	12.2
JUN	.79	.00	4.61	14.19	.00	24.52	12.2
JUL	.47	.00	4.78	14.73	.00	25.45	12.2
AUG	.91	.00	4.85	14.95	.00	25.82	12.2
SEP	9.56	.00	4.54	13.98	.00	24.15	12.2
OCT	29.86	.00	4.85	14.95	.00	25.82	12.2
NOV	65.44	.00	4.68	14.41	.00	24.89	12.2
DEC	134.74	.00	4.71	14.52	.00	25.08	12.2
YEAR	609.38	.00	56.42	173.89	.00	300.40	12.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 82272. BTU/(SQFT-YEAR)

BLDG 655 - ADMINISTRATION / SUPPLY DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	2	.0000	-.4933E+06
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.4550E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.4839E+06
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.3512E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.2666E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	-.1237E+06
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	-.5009E+05
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	-.1666E+06
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2898E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.3368E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.4294E+06
DEC	856.	586.	1.000	35.	0.	0.	0	1	.0000	-.4933E+06

COMPUTER SIMULATIONS

BUILDING 672

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 672
BLDG. TYPE: MOTOR POOL

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	1103.2	737.6	719.4			
COOLING (kWH)						

SUPPLY AIR FAN	4400 CFM
FLOOR AREA	4800 FT²
CFMI	1320 CFM
UA	4857 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	700	1700	50 HR
SAT.	0	0	0 HR
SUN.	0	0	0 HR
	TOTAL OCCUPY HR.		50 HR/WK
	TOTAL UNOCC. HR.		118 HR/WK
	ANNUAL OCCUPY HR.		2607 HR/YR
	ANNUAL UNOCC. HR.		6153 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1300 HR/YR
HR. ON COOLING	871 HR/YR
HR. OFF HEATING	3068 HR/YR
HR. OFF COOLING	2057 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	1300	=	3068 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	871	=	2057 HR/YR

HOAUHC	1103.16 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	1320 CFM	*	6153 HR/YR		
HOAUH	1103.16 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	1320 CFM	*	3068 HR/YR		
COAUHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	1320 CFM	*	6153 HR/YR		
COAUC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	1320 CFM	*	2057 HR/YR		
HOAOHC	1103.16 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	1320 CFM	*	2607 HR/YR		
HOAOH	1103.16 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	1320 CFM	*	1300 HR/YR		
COAOHC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	1320 CFM	*	2607 HR/YR		
COAOC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	1320 CFM	*	871 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)			=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)			=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 672
BLDG. TYPE: MOTOR POOL

ENERGY CONSTANT CALCULATIONS

ECC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	871 HR/YR	
ECHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	2607 HR/YR	
NSUCHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	6153 HR/YR	
NSUCC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	2057 HR/YR	
DDCCHC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	2607 HR/YR	
DDCCC	0 kWH	–	0 kWH	= 0.00E+00 kWH/CFM-HR
	4400 CFM	*	871 HR/YR	
NSC	1103.16 MBtu	–	737.55 MBtu	= 7.53E+04 Btu/UA
	4857 UA			
DSC	737.55 MBtu	–	719.43 MBtu	= 3.73E+03 Btu/UA
	4857 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	= 250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			= 13.9 kWH/TON
OAR	506 HR/YR *		0.01	= 5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	672BHL

BUILDING HEATING LOAD CALCULATION SHEET

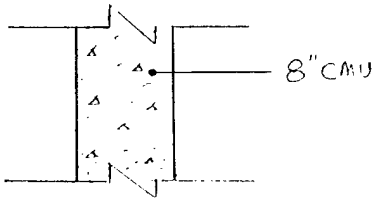
BLDG NO: 672 BLDG NAME: MOTOR POOL
BLDG FUNCTION: VEHICLE MAINTENANCE
FLOOR AREA: (SQ. FT) 4,800 # FLOORS 1
SLAB PERIMETER: (FT) 321

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	583	583	1,770	1,770	4,706
GLASS	(SQ. FT)	42	142	179	142	505
PERSONNEL DOOR,	(SQ. FT)	0	0	21	21	42
OVERHEAD DOOR,	(SQ. FT)	0	0	432	576	1,008
WALLS, NET	(SQ. FT)	541	441	1,138	1,031	2,324
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	4,800
OVERHEAD DOOR	(SQ. FT)	1,008	PERSONNEL DOOR		(SQ. FT)	42
INSULATED PANEL	(SQ. FT)	378	147	160	142	827

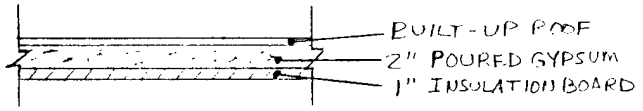
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	8" CMU	2.02
3.		
4.		
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	2.87
	U=1/R	0.348

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" POURED GYPSUM	1.80
4.	1" INSULATION BOARD	3.33
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	6.32
	U=1/R	0.158

GLASS TYPE:	'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
INSULATED PANEL:		R-PANEL	4.20
OVERHEAD DOOR TYPE:	METAL (NO INSULATION)	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)	H . 4706	X CFM / SQ.FT.	0.277	=	1,304
DOOR OPENINGS / HR - SINGLE DOOR	10	X CFM /OPENING /HR	1.600	=	16
DOOR OPENINGS / HR - DOUBLE DOORS		X CFM /OPENING /HR	1.385	=	0
		TOTAL INFILTRATION (CFM)		=	1320

UA ODOOR	= ODOOR AREA	1,008	X ODOOR "U"	0.952	=	960
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	2,324	X WALL "U"	0.348	=	810
UA ROOF	= ROOF AREA	4,800	X ROOF "U"	0.158	=	760
UA GLASS	= GLASS AREA	505	X GLASS "U"	0.621	=	314
UA SLAB	= SLAB PERIM.	321	X SLF	0.830	=	266
UA PANEL	= PANEL AREA	827	X PANEL "U"	0.238	=	197
INFILTRATION	= CFM	1320	X A. T. F.	1.035	=	1,366
			TOTAL UA (BTU/HR°F)			4,689

E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 27-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 672Z1
BLDG: 672 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	9	7	Walking, 3mph, light machine work	Factory	375	625	3,375	5,625
TOTAL	9					TOTAL	3,375	5,625

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	42	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	3,528
	3	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	354
	6	18	Incandescent – 60w	60	360
TOTAL	51			TOTAL	4,242

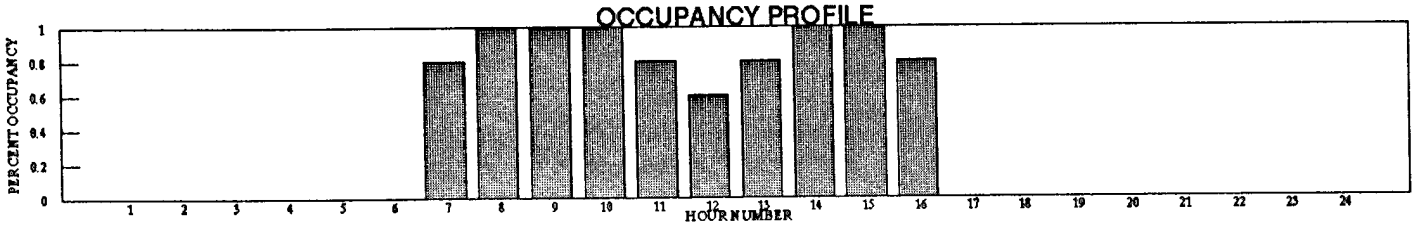
Peak Value for Internal Gains

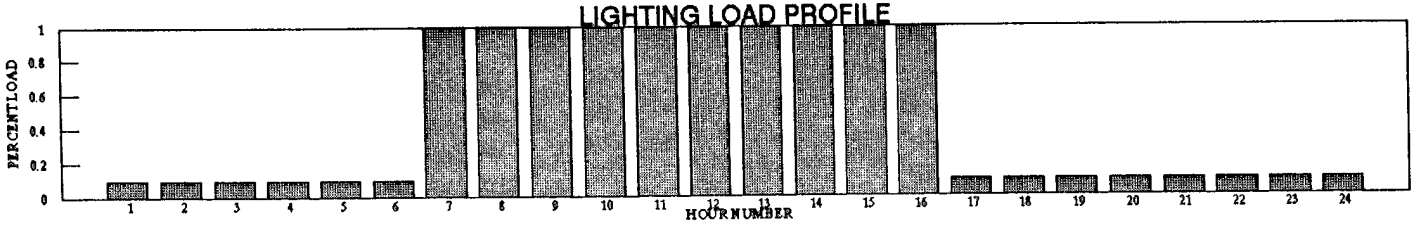
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	1	53	Refrigerator (12 cu. ft.)	241	20%	241	823
	1	46	Microwave Oven	600	65%	600	2,048
	1	24	Coffee Maker	1,500	30%	1,500	5,120
	1	25	Cold Food/Beverage	1,535	50%	1,535	5,239
	1	62	Television (Color, tube)	300	15%	300	1,024
				TOTAL	41%	4,176	14,253

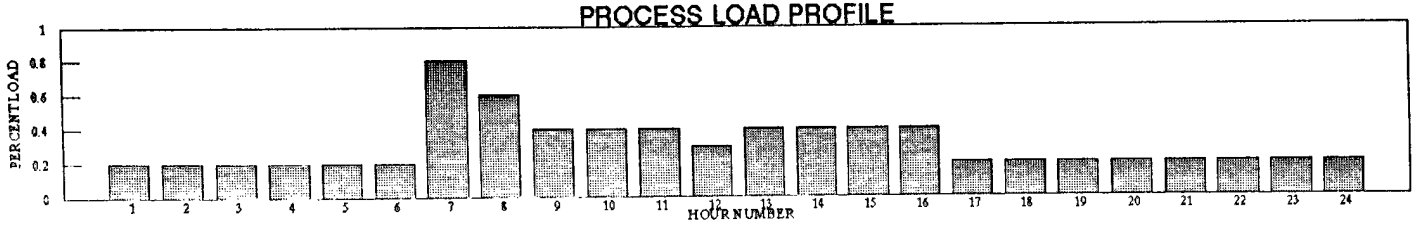
E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 27-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 672Z1
BLDG: 672
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	Motor Pool	OCCUPANCY							0.8	1	1	1	0.8	0.6	0.8	1	1	0.8								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.6	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2







BLDG 672 - MOTOR POOL BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 0.000000E+00
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 70368.000000
FLOOR AREA (SQFT) 4800.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 334239.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 334239.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 1320.000000
INFILTRATION PROFILE

.500	.500	.500	.500	.500	.500	.500	.500
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.500	.500	.500	.500	.500	.500	.500	.500

A FACTOR IN INFILTRATION EQUATION (CINA) 1.126000
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 2760.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 266.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 976.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	588.0	1173.0	919.0	1298.0
WINDOW AREA SQFT (AWND)	142.0	142.0	42.0	179.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	14.2	14.2	4.2	17.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.321	.335	.303	.334
WALL TRANSFER FUNCTIONS				
CN FACTORS	.05164	.05390	.04875	.05374
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00022	.00023	.00021	.00023
N=2	.01343	.01402	.01268	.01397
N=3	.02959	.03088	.02793	.03079
N=4	.00819	.00855	.00773	.00852
N=5	.00022	.00023	.00021	.00023
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.16550	-1.16550	-1.16550	-1.16550
N=3	.35090	.35090	.35090	.35090
N=4	-.02450	-.02450	-.02450	-.02450
N=5	.00020	.00020	.00020	.00020
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4800.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.580000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.314657E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.482E-03 .687E-02 .543E-02 .362E-03 .120E+04 .120E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.10 .189 -.180E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.100000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	4.	5844.	3375.	5625.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	70.0	.0
2	.100	.200	.000	.000	70.0	.0
3	.100	.200	.000	.000	70.0	.0
4	.100	.200	.000	.000	70.0	.0
5	.100	.200	.000	.000	70.0	.0
6	.100	.200	.000	.000	70.0	.0
7	1.000	.800	.800	.800	70.0	.0
8	1.000	.600	1.000	1.000	70.0	.0
9	1.000	.400	1.000	1.000	70.0	.0
10	1.000	.400	1.000	1.000	70.0	.0
11	1.000	.400	.800	.800	70.0	.0
12	1.000	.300	.600	.600	70.0	.0

```
 13        1.000       .400        .800        .800        70.0        .0
 14        1.000       .400       1.000       1.000        70.0        .0
 15        1.000       .400       1.000       1.000        70.0        .0
 16        1.000       .400       1.000       1.000        70.0        .0
 17         .100       .200        .000        .000        70.0        .0
 18         .100       .200        .000        .000        70.0        .0
 19         .100       .200        .000        .000        70.0        .0
 20         .100       .200        .000        .000        70.0        .0
 21         .100       .200        .000        .000        70.0        .0
 22         .100       .200        .000        .000        70.0        .0
 23         .100       .200        .000        .000        70.0        .0
 24         .100       .200        .000        .000        70.0        .0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)       65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)      100.000000
SYSTEM TYPE, (IECN)                    0
SUPPLY AIR CFM (SACFM)      4400.000000
ECONOMIZER HIGH TEMP LIMIT F         68.000000
SYSTEM SUPPLY AIR START TIME HR      0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR         24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)        70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)     0.000000E+00
FAN EFFICIENCY (EFAN)      5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)     6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT)  334239.000000
HEATING PLANT RATED INPUT BTU (HFLIN)   417800.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100      .210      .200      .300      .300      .500      .400      .510

 .500      .590      .600      .680      .700      .770      .800      .840

 .900      .910      1.00      1.00
CHILLER TYPE (ITYPCH)                  0
COOLING PLANT RATED OUTPUT BTU (CFLOT)     1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN)     0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .000      .000      .000      .000      .000      .000      .000      .000

 .000      .000      .000      .000      .000      .000      .000      .000

 .000      .000      .000      .000
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BLDG 672 - MOTOR POOL BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	8.	0.	0.	0.	0.	0.	0.	0.
	-157.	LOSS		-21.	-32.	0.	-27.	-7.	-84.	0.
FEB	0.	GAIN	10.	0.	0.	0.	0.	0.	0.	0.
	-127.	LOSS		-18.	-27.	0.	-20.	-6.	-72.	0.
MAR	0.	GAIN	12.	0.	0.	0.	2.	0.	0.	0.
	-108.	LOSS		-16.	-25.	0.	-17.	-5.	-65.	0.
APR	.00	GAIN	12.22	.00	.00	.00	3.77	.00	.01	.00
	-52.51	LOSS		-9.41	-15.73	.00	-8.17	-3.38	-38.14	.00
MAY	.00	GAIN	13.30	.00	.00	.00	5.59	.00	.01	.00
	-19.05	LOSS		-5.38	-10.56	.00	-3.37	-2.19	-23.15	.00
JUN	.00	GAIN	13.31	.01	.07	.00	6.38	.01	.13	.00
	-3.85	LOSS		-3.08	-7.49	.00	-.79	-1.57	-16.85	.00
JUL	.00	GAIN	13.61	.02	.12	.00	6.41	.03	.24	.00
	-1.95	LOSS		-2.81	-7.27	.00	-.49	-1.54	-16.56	.00
AUG	.00	GAIN	12.06	.01	.09	.00	5.51	.02	.18	.00
	-2.23	LOSS		-2.96	-6.74	.00	-.56	-1.41	-15.03	.00
SEP	.00	GAIN	10.60	.00	.13	.00	4.18	.03	.27	.00
	-16.65	LOSS		-5.12	-8.42	.00	-3.00	-1.79	-19.32	.00
OCT	.00	GAIN	9.06	.00	.03	.00	2.06	.01	.07	.00
	-49.24	LOSS		-9.81	-13.99	.00	-8.62	-2.93	-31.94	.00
NOV	.00	GAIN	7.38	.00	.01	.00	.65	.00	.03	.00
	-89.69	LOSS		-14.27	-20.51	.00	-15.75	-4.30	-49.53	.00
DEC	0.	GAIN	7.	0.	0.	0.	0.	0.	0.	0.
	-154.	LOSS		-21.	-31.	0.	-27.	-7.	-81.	0.
TOT	0.	GAIN	128.	0.	0.	0.	37.	0.	1.	0.
	-782.	LOSS		-130.	-207.	0.	-132.	-44.	-513.	0.

MAX HEATING LOAD= -334239. BTUH ON DEC 27 HOUR 4 AMBIENT TEMP 18.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 3341.2

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 672 - MOTOR POOL BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	69.	77.		5	15	64.	1.11	2.39	1.43	6.91
			50.	27	5	5.				
FEB	69.	76.		13	15	65.	.97	2.08	1.29	6.05
			58.	2	3	15.				
MAR	70.	97.		12	14	73.	1.06	2.29	1.39	6.62
			58.	3	9	17.				
APR	73.	103.		24	15	81.	1.02	2.18	1.31	6.31
			66.	2	24	66.				
MAY	77.	105.		29	13	85.	1.11	2.39	1.22	6.70
			66.	5	22	66.				
JUN	81.	110.		29	14	88.	1.02	2.18	1.06	6.06
			61.	10	5	66.				
JUL	85.	117.		6	14	92.	1.06	2.29	1.06	6.29
			62.	24	6	66.				
AUG	83.	111.		29	14	96.	1.11	2.39	1.12	6.60
			64.	5	6	66.				
SEP	77.	115.		24	15	85.	.97	2.08	1.03	5.80
			62.	30	10	66.				
OCT	72.	99.		4	12	83.	1.11	2.39	1.33	6.80
			61.	24	4	66.				
NOV	70.	93.		8	13	77.	1.06	2.29	1.37	6.61
			60.	16	17	67.				
DEC	69.	73.		23	15	70.	1.02	2.18	1.42	6.42
			40.	18	9	3.				
YEAR							12.62	27.16	15.04	77.18

BLDG 672 - MOTOR POOL BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	740	0	39	0	-.3342E+06	.0000
FEB	668	0	29	0	-.3342E+06	.0000
MAR	688	0	12	0	-.3342E+06	.0000
APR	509	0	0	0	-.2456E+06	.0000
MAY	371	0	0	0	-.1788E+06	.0000
JUN	122	0	0	0	-.7598E+05	.0000
JUL	71	0	0	0	-.6325E+05	.0000
AUG	65	0	0	0	-.9528E+05	.0000
SEP	227	0	0	0	-.1739E+06	.0000
OCT	539	0	0	0	-.2343E+06	.0000
NOV	647	0	0	0	-.3300E+06	.0000
DEC	740	0	38	0	-.3342E+06	.0000
YEAR	5387	0	118	0	-.3342E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	218.03	.00	1.11	2.39	.42	6.91	4.8
FEB	182.00	.00	.97	2.08	.38	6.05	4.8
MAR	163.63	.00	1.06	2.29	.41	6.62	4.8
APR	92.03	.00	1.02	2.18	.38	6.31	4.8
MAY	44.06	.00	1.11	2.39	.36	6.70	4.8
JUN	11.53	.00	1.02	2.18	.31	6.06	4.8
JUL	6.45	.00	1.06	2.29	.31	6.29	4.8
AUG	6.44	.00	1.11	2.39	.33	6.60	4.8
SEP	33.96	.00	.97	2.08	.30	5.80	4.8
OCT	91.03	.00	1.11	2.39	.39	6.80	4.8
NOV	140.87	.00	1.06	2.29	.40	6.61	4.8
DEC	215.57	.00	1.02	2.18	.42	6.42	4.8
YEAR	1205.60	.00	12.62	27.16	4.41	77.18	4.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 268932. BTU/(SQFT-YEAR)

BLDG 672 - MOTOR POOL BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F −	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	39	.0000	-.3342E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	29	.0000	-.3342E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	12	.0000	-.3342E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.2456E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.1788E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-.7598E+05
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	-.6325E+05
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	-.9528E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.1739E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.2343E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.3300E+06
DEC	883.	604.	1.000	35.	0.	0.	0	38	.0000	-.3342E+06

BLDG 672 - MOTOR POOL NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 0.000000E+00
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 70368.000000
FLOOR AREA (SQFT) 4800.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 334239.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 334239.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 1320.000000
INFILTRATION PROFILE

.500	.500	.500	.500	.500	.500	.500	.500
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.500	.500	.500	.500	.500	.500	.500	.500

A FACTOR IN INFILTRATION EQUATION (CINA) 1.126000
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 2760.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 266.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 976.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

	1	2	3	4
WALL NUMBER				
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	588.0	1173.0	919.0	1298.0
WINDOW AREA SQFT (AWND)	142.0	142.0	42.0	179.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	14.2	14.2	4.2	17.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.321	.335	.303	.334
WALL TRANSFER FUNCTIONS				
CN FACTORS	.05164	.05390	.04875	.05374
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00022	.00023	.00021	.00023
N=2	.01343	.01402	.01268	.01397
N=3	.02959	.03088	.02793	.03079
N=4	.00819	.00855	.00773	.00852
N=5	.00022	.00023	.00021	.00023
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.16550	-1.16550	-1.16550	-1.16550
N=3	.35090	.35090	.35090	.35090
N=4	-.02450	-.02450	-.02450	-.02450
N=5	.00020	.00020	.00020	.00020
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4800.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.580000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.314657E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.482E-03 .687E-02 .543E-02 .362E-03 .120E+04 .120E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.10 .189 -.180E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.100000E-01

WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	4.	5844.	3375.	5625.			
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -						
1	.100	.200	.000	.000	55.0	.0	
2	.100	.200	.000	.000	55.0	.0	
3	.100	.200	.000	.000	55.0	.0	
4	.100	.200	.000	.000	55.0	.0	
5	.100	.200	.000	.000	55.0	.0	
6	.100	.200	.000	.000	55.0	.0	
7	1.000	.800	.800	.800	55.0	.0	
8	1.000	.600	1.000	1.000	70.0	.0	
9	1.000	.400	1.000	1.000	70.0	.0	
10	1.000	.400	1.000	1.000	70.0	.0	
11	1.000	.400	.800	.800	70.0	.0	
12	1.000	.300	.600	.600	70.0	.0	
13	1.000	.400	.800	.800	70.0	.0	
14	1.000	.400	1.000	1.000	70.0	.0	
15	1.000	.400	1.000	1.000	70.0	.0	
16	1.000	.400	1.000	1.000	70.0	.0	
17	.100	.200	.000	.000	55.0	.0	
18	.100	.200	.000	.000	55.0	.0	
19	.100	.200	.000	.000	55.0	.0	
20	.100	.200	.000	.000	55.0	.0	
21	.100	.200	.000	.000	55.0	.0	
22	.100	.200	.000	.000	55.0	.0	
23	.100	.200	.000	.000	55.0	.0	
24	.100	.200	.000	.000	55.0	.0	

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 0
SUPPLY AIR CFM (SACFM) 4400.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 334239.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 417800.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.210	.200	.300	.300	.500	.400	.510
.500	.590	.600	.680	.700	.770	.800	.840
.900	.910	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 672 - MOTOR POOL NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	8.	0.	0.	0.	0.	0.	0.	0.
	-105.	LOSS		-16.	-23.	0.	-17.	-5.	-59.	0.
FEB	.00	GAIN	9.58	.00	.02	.00	1.06	.00	.04	.00
	-79.68	LOSS		-12.67	-18.70	.00	-12.10	-4.01	-48.94	.00
MAR	.00	GAIN	11.92	.00	.02	.00	2.75	.01	.05	.00
	-61.88	LOSS		-10.78	-16.91	.00	-8.68	-3.63	-43.30	.00
APR	.00	GAIN	12.22	.00	.05	.00	4.99	.01	.10	.00
	-19.93	LOSS		-5.55	-9.60	.00	-2.91	-2.07	-23.54	.00
MAY	.00	GAIN	13.30	.01	.09	.00	6.28	.02	.17	.00
	-2.76	LOSS		-3.36	-7.32	.00	-.60	-1.53	-16.71	.00
JUN	.00	GAIN	13.31	.02	.07	.00	6.54	.02	.14	.00
	.00	LOSS		-2.63	-6.75	.00	-.16	-1.42	-15.50	.00
JUL	.00	GAIN	13.61	.02	.15	.00	6.47	.03	.30	.00
	.00	LOSS		-2.60	-6.96	.00	-.20	-1.48	-16.01	.00
AUG	.00	GAIN	12.06	.01	.09	.00	5.56	.02	.17	.00
	-.03	LOSS		-2.72	-6.34	.00	-.21	-1.33	-14.28	.00
SEP	.00	GAIN	10.60	.00	.13	.00	4.59	.03	.27	.00
	-3.00	LOSS		-3.56	-5.75	.00	-.69	-1.23	-13.57	.00
OCT	.00	GAIN	9.06	.00	.08	.00	2.90	.02	.16	.00
	-17.88	LOSS		-6.06	-7.88	.00	-3.05	-1.65	-18.35	.00
NOV	.00	GAIN	7.38	.00	.05	.00	1.26	.01	.11	.00
	-47.10	LOSS		-9.33	-12.45	.00	-7.94	-2.61	-30.19	.00
DEC	0.	GAIN	7.	0.	0.	0.	1.	0.	0.	0.
	-102.	LOSS		-16.	-22.	0.	-18.	-5.	-56.	0.
TOT	0.	GAIN	128.	0.	1.	0.	43.	0.	2.	0.
	-439.	LOSS		-91.	-143.	0.	-72.	-30.	-356.	0.

MAX HEATING LOAD= -334239. BTUH ON DEC 19 HOUR 9 AMBIENT TEMP 21.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 3341.2

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 672 - MOTOR POOL NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	59.	77.		5	15	64.	1.11	2.39	1.43	6.91
			54.	27	6	4.				
FEB	59.	79.		13	15	65.	.97	2.08	1.29	6.05
			54.	2	6	14.				
MAR	61.	95.		12	14	73.	1.06	2.29	1.43	6.67
			54.	4	6	15.				
APR	66.	106.		24	13	80.	1.02	2.18	1.38	6.38
			55.	9	6	30.				
MAY	73.	105.		29	13	85.	1.11	2.39	1.43	6.91
			55.	11	4	38.				
JUN	80.	110.		29	14	88.	1.02	2.18	1.38	6.38
			55.	17	3	55.				
JUL	85.	117.		6	14	92.	1.06	2.29	1.43	6.67
			57.	10	4	57.				
AUG	83.	111.		29	14	96.	1.11	2.39	1.43	6.91
			55.	25	6	51.				
SEP	75.	115.		24	15	85.	.97	2.08	1.38	6.15
			55.	15	6	39.				
OCT	65.	99.		4	12	83.	1.11	2.39	1.43	6.91
			55.	28	5	31.				
NOV	61.	93.		8	13	77.	1.06	2.29	1.38	6.62
			54.	3	7	18.				
DEC	59.	83.		23	13	71.	1.02	2.18	1.43	6.43
			47.	18	4	1.				
YEAR							12.62	27.16	16.85	78.99

BLDG 672 - MOTOR POOL NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	713	0	0	0	-.3342E+06	.0000
FEB	624	0	0	0	-.3250E+06	.0000
MAR	592	0	0	0	-.2775E+06	.0000
APR	338	0	0	0	-.1887E+06	.0000
MAY	101	0	0	0	-.8785E+05	.0000
JUN	2	0	0	0	-313.7	.0000
JUL	0	0	0	0	.0000	.0000
AUG	4	0	0	0	-.1554E+05	.0000
SEP	123	0	0	0	-.8312E+05	.0000
OCT	376	0	0	0	-.1380E+06	.0000
NOV	518	0	0	0	-.2350E+06	.0000
DEC	707	0	15	0	-.3342E+06	.0000
YEAR	4098	0	15	0	-.3342E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	163.27	.00	1.11	2.39	.42	6.91	4.8
FEB	129.48	.00	.97	2.08	.38	6.05	4.8
MAR	108.10	.00	1.06	2.29	.42	6.67	4.8
APR	45.17	.00	1.02	2.18	.41	6.38	4.8
MAY	9.87	.00	1.11	2.39	.42	6.91	4.8
JUN	.09	.00	1.02	2.18	.41	6.38	4.8
JUL	.00	.00	1.06	2.29	.42	6.67	4.8
AUG	.35	.00	1.11	2.39	.42	6.91	4.8
SEP	11.45	.00	.97	2.08	.41	6.15	4.8
OCT	44.50	.00	1.11	2.39	.42	6.91	4.8
NOV	88.33	.00	1.06	2.29	.41	6.62	4.8
DEC	158.72	.00	1.02	2.18	.42	6.43	4.8
YEAR	759.31	.00	12.62	27.16	4.94	78.99	4.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 176331. BTU/(SQFT-YEAR)

BLDG 672 - MOTOR POOL NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.3342E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.3250E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.2775E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.1887E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.8785E+05
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-313.7
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	-.1554E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.8312E+05
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.1380E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.2350E+06
DEC	883.	604.	1.000	35.	0.	0.	0	15	.0000	-.3342E+06

BLDG 672 - MOTOR POOL DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 0.000000E+00
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 1.000000
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 70368.000000
FLOOR AREA (SQFT) 4800.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 334239.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 334239.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 1320.000000
INFILTRATION PROFILE

.500	.500	.500	.500	.500	.500	.500	.500
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.500	.500	.500	.500	.500	.500	.500	.500

A FACTOR IN INFILTRATION EQUATION (CINA) 1.126000
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 2760.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 266.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 976.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	588.0	1173.0	919.0	1298.0
WINDOW AREA SQFT (AWND)	142.0	142.0	42.0	179.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	14.2	14.2	4.2	17.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.321	.335	.303	.334
WALL TRANSFER FUNCTIONS				
CN FACTORS	.05164	.05390	.04875	.05374
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00022	.00023	.00021	.00023
N=2	.01343	.01402	.01268	.01397
N=3	.02959	.03088	.02793	.03079
N=4	.00819	.00855	.00773	.00852
N=5	.00022	.00023	.00021	.00023
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.16550	-1.16550	-1.16550	-1.16550
N=3	.35090	.35090	.35090	.35090
N=4	-.02450	-.02450	-.02450	-.02450
N=5	.00020	.00020	.00020	.00020
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 4800.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 1.580000E-01
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.314657E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.482E-03 .687E-02 .543E-02 .362E-03 .120E+04 .120E+04
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.10 .189 -.180E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.100000E-01
WEEKEND COOLING THERMOSTAT PROFILE

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

KW	BTU/HR			THERMOSTAT SET POINT DEG F	
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	4.	5844.	3375.	5625.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	55.0	.0
2	.100	.200	.000	.000	55.0	.0
3	.100	.200	.000	.000	55.0	.0
4	.100	.200	.000	.000	55.0	.0
5	.100	.200	.000	.000	55.0	.0
6	.100	.200	.000	.000	55.0	.0
7	1.000	.800	.800	.800	55.0	.0
8	1.000	.600	1.000	1.000	68.0	.0
9	1.000	.400	1.000	1.000	68.0	.0
10	1.000	.400	1.000	1.000	68.0	.0
11	1.000	.400	.800	.800	68.0	.0
12	1.000	.300	.600	.600	68.0	.0
13	1.000	.400	.800	.800	68.0	.0
14	1.000	.400	1.000	1.000	68.0	.0
15	1.000	.400	1.000	1.000	68.0	.0
16	1.000	.400	1.000	1.000	68.0	.0
17	.100	.200	.000	.000	55.0	.0
18	.100	.200	.000	.000	55.0	.0
19	.100	.200	.000	.000	55.0	.0
20	.100	.200	.000	.000	55.0	.0
21	.100	.200	.000	.000	55.0	.0
22	.100	.200	.000	.000	55.0	.0
23	.100	.200	.000	.000	55.0	.0
24	.100	.200	.000	.000	55.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 0
SUPPLY AIR CFM (SACFM) 4400.000000
ECONOMIZER HIGH TEMP LIMIT F 68.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 6.000000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 334239.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 417800.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.210	.200	.300	.300	.500	.400	.510
.500	.590	.600	.680	.700	.770	.800	.840
.900	.910	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 672 - MOTOR POOL DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	8.	0.	0.	0.	0.	0.	0.	0.
	-102.	LOSS		-16.	-22.	0.	-17.	-5.	-58.	0.
FEB	.00	GAIN	9.58	.00	.01	.00	1.14	.00	.03	.00
	-77.24	LOSS		-12.42	-18.29	.00	-11.77	-3.93	-47.65	.00
MAR	.00	GAIN	11.92	.00	.02	.00	2.88	.01	.05	.00
	-59.57	LOSS		-10.54	-16.53	.00	-8.40	-3.54	-42.10	.00
APR	.00	GAIN	12.22	.00	.05	.00	5.08	.01	.10	.00
	-18.98	LOSS		-5.45	-9.44	.00	-2.83	-2.04	-23.05	.00
MAY	.00	GAIN	13.30	.01	.09	.00	6.31	.02	.17	.00
	-2.52	LOSS		-3.33	-7.28	.00	-.59	-1.52	-16.59	.00
JUN	.00	GAIN	13.31	.02	.07	.00	6.54	.02	.14	.00
	.00	LOSS		-2.63	-6.75	.00	-.16	-1.42	-15.50	.00
JUL	.00	GAIN	13.61	.02	.15	.00	6.47	.03	.30	.00
	.00	LOSS		-2.60	-6.96	.00	-.20	-1.48	-16.01	.00
AUG	.00	GAIN	12.06	.01	.09	.00	5.56	.02	.17	.00
	-.03	LOSS		-2.72	-6.34	.00	-.21	-1.33	-14.28	.00
SEP	.00	GAIN	10.60	.00	.13	.00	4.60	.03	.27	.00
	-2.87	LOSS		-3.55	-5.73	.00	-.68	-1.22	-13.51	.00
OCT	.00	GAIN	9.06	.00	.08	.00	2.98	.02	.16	.00
	-16.60	LOSS		-5.93	-7.66	.00	-2.90	-1.61	-17.71	.00
NOV	.00	GAIN	7.38	.00	.06	.00	1.30	.01	.11	.00
	-45.22	LOSS		-9.14	-12.13	.00	-7.65	-2.55	-29.24	.00
DEC	.00	GAIN	6.86	.00	.02	.00	.55	.01	.06	.00
	-99.47	LOSS		-15.40	-21.45	.00	-17.25	-4.53	-54.76	.00
TOT	0.	GAIN	128.	0.	1.	0.	44.	0.	2.	0.
	-425.	LOSS		-89.	-141.	0.	-70.	-30.	-348.	0.

MAX HEATING LOAD= -334239. BTUH ON DEC 18 HOUR 11 AMBIENT TEMP 11.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 3341.2

BLDG 672 - MOTOR POOL DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	COIN-CIDENT AMBT. DAY	HR	AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	78.	54.	5 27	15 6	64. 4.	1.11	2.39	1.43	6.91
FEB	59.	79.	54.	13 2	15 6	65. 14.	.97	2.08	1.29	6.05
MAR	61.	95.	54.	12 4	14 6	73. 15.	1.06	2.29	1.43	6.67
APR	66.	106.	55.	24 9	13 6	80. 30.	1.02	2.18	1.38	6.38
MAY	73.	105.	55.	29 11	13 4	85. 38.	1.11	2.39	1.43	6.91
JUN	80.	110.	55.	29 17	14 3	88. 55.	1.02	2.18	1.38	6.38
JUL	85.	117.	57.	6 10	14 4	92. 57.	1.06	2.29	1.43	6.67
AUG	83.	111.	55.	29 25	14 6	96. 51.	1.11	2.39	1.43	6.91
SEP	74.	115.	55.	24 15	15 6	85. 39.	.97	2.08	1.38	6.15
OCT	65.	99.	55.	4 28	12 5	83. 31.	1.11	2.39	1.43	6.91
NOV	61.	93.	54.	8 3	13 7	77. 18.	1.06	2.29	1.38	6.62
DEC	58.	83.	47.	23 18	13 4	71. 1.	1.02	2.18	1.43	6.43
YEAR							12.62	27.16	16.85	78.99

BLDG 672 - MOTOR POOL DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	708	0	0	0	-.3339E+06	.0000
FEB	619	0	0	0	-.3123E+06	.0000
MAR	586	0	0	0	-.2646E+06	.0000
APR	334	0	0	0	-.1768E+06	.0000
MAY	93	0	0	0	-.8784E+05	.0000
JUN	2	0	0	0	-313.7	.0000
JUL	0	0	0	0	.0000	.0000
AUG	4	0	0	0	-.1554E+05	.0000
SEP	119	0	0	0	-.8309E+05	.0000
OCT	363	0	0	0	-.1360E+06	.0000
NOV	507	0	0	0	-.2294E+06	.0000
DEC	706	0	13	0	-.3342E+06	.0000
YEAR	4041	0	13	0	-.3342E+06	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	160.13	.00	1.11	2.39	.42	6.91	4.8
FEB	126.43	.00	.97	2.08	.38	6.05	4.8
MAR	105.14	.00	1.06	2.29	.42	6.67	4.8
APR	43.82	.00	1.02	2.18	.41	6.38	4.8
MAY	9.13	.00	1.11	2.39	.42	6.91	4.8
JUN	.09	.00	1.02	2.18	.41	6.38	4.8
JUL	.00	.00	1.06	2.29	.42	6.67	4.8
AUG	.35	.00	1.11	2.39	.42	6.91	4.8
SEP	11.07	.00	.97	2.08	.41	6.15	4.8
OCT	42.12	.00	1.11	2.39	.42	6.91	4.8
NOV	85.63	.00	1.06	2.29	.41	6.62	4.8
DEC	156.15	.00	1.02	2.18	.42	6.43	4.8
YEAR	740.07	.00	12.62	27.16	4.94	78.99	4.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 172322. BTU/(SQFT-YEAR)

BLDG 672 - MOTOR POOL DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.3339E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.3123E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.2646E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.1768E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.8784E+05
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-313.7
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	-.1554E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.8309E+05
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.1360E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.2294E+06
DEC	883.	604.	1.000	35.	0.	0.	0	13	.0000	-.3342E+06

COMPUTER SIMULATIONS

BUILDING 730

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 730
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	2797.5	2601.8				
COOLING (kWH)						

SUPPLY AIR FAN	0 CFM
FLOOR AREA	40986 FT²
CFMI	3167 CFM
UA	9330 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	0	2400	120 HR
SAT.	0	2400	24 HR
SUN.	0	2400	24 HR
	TOTAL OCCUPY HR.		168 HR/WK
	TOTAL UNOCC. HR.		0 HR/WK
	ANNUAL OCCUPY HR.		8760 HR/YR
	ANNUAL UNOCC. HR.		0 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	4368 HR/YR
HR. ON COOLING	2928 HR/YR
HR. OFF HEATING	0 HR/YR
HR. OFF COOLING	0 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	4368	=	0 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	2928	=	0 HR/YR

HOAUHC	2797.5 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	*	0 HR/YR		
HOAUH	2797.5 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	*	0 HR/YR		
COAUHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	*	0 HR/YR		
COAUC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	*	0 HR/YR		
HOAOHC	2797.5 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	*	8760 HR/YR		
HOAOH	2797.5 MBtu	–	0 MBtu	=	0.00E+00 Btu/CFM-HR
	3167 CFM	*	4368 HR/YR		
COAOHC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	*	8760 HR/YR		
COAOC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	3167 CFM	*	2928 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)			=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)			=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 730
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

ECC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	2928 HR/YR		
ECHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	8760 HR/YR		
NSUCHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	0 HR/YR		
NSUCC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	0 HR/YR		
DDCCHC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	8760 HR/YR		
DDCCC	0 kWH –	0 kWH	=	0.00E+00 kWH/CFM-HR
	0 CFM *	2928 HR/YR		
NSC	2797.5 MBtu –	2601.8 MBtu	=	2.10E+04 Btu/UA
	9330 UA			
DSC	2601.8 MBtu –	0 MBtu	=	2.79E+05 Btu/UA
	9330 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR		
			=	0 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			
			=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	09-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	730BHL

BUILDING HEATING LOAD CALCULATION SHEET

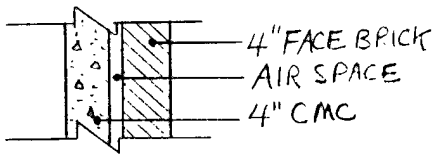
BLDG NO: 730 BLDG NAME: BARRACKS (WITHOUT A/C)
BLDG FUNCTION:
FLOOR AREA: (SQ. FT) 40,986 # FLOORS 3
SLAB PERIMETER: (FT) 514

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	9,088	9,088	1,845	1,845	21,866
GLASS	(SQ. FT)	467	435	17	19	938
PERSONNEL DOOR	(SQ. FT)	80	40	0	0	120
INSULATED PANEL	(SQ. FT)	233	217	9	9	468
WALLS, NET	(SQ. FT)	8,308	8,396	1,819	1,817	20,341
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	13,662
INSULATED PANEL	(SQ. FT)	468	PERSONNEL DOOR		(SQ. FT)	120
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

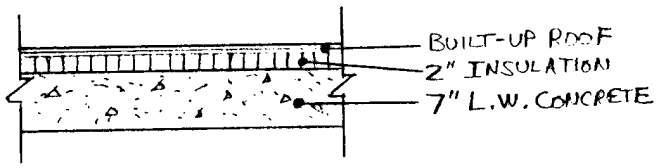
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	4"CMU / 9" L.W. CONC.	3.00
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.19
	U=1/R	0.193

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" INSULATION	6.68
4.	7" L.W. CONCRETE	6.25
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.12
	U=1/R	0.071

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .68 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.042	=	0
AVG. WALL H/M/L (SQ.FT.)	H	21866	X CFM / SQ.FT.	0.138	=	3,018
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		50	X CFM /OPENING /HR	1.600	=	80
DOOR OPENINGS / HR - DOUBLE DOORS		50	X CFM /OPENING /HR	1.385	=	69
			TOTAL INFILTRATION (CFM)		=	3167

UA PANEL	= PANEL AREA	468	X PANEL "U"	0.238	=	111
UA PDOOR	= PDOOR AREA	120	X DOOR "U"	0.391	=	47
UA WALL	= WALL AREA	19,873	X WALL "U"	0.193	=	3,917
UA ROOF	= ROOF AREA	13,662	X ROOF "U"	0.071	=	968
UA GLASS	= GLASS AREA	938	X GLASS "U"	0.621	=	582
UA SLAB	= SLAB PERIM.	514	X SLF	0.830	=	427
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	3167	X A. T. F.	1.035	=	3,278
			TOTAL UA (BTU/HR°F)			9,330

E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 27-Mar-93
PREPARED BY:
CHECKED BY: CEL
FILE: 730ZN1
BLDG: 730 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	374	1	Seated at rest	Theater, Movie	225	105	84,150	39,270
TOTAL	374					TOTAL	84,150	39,270

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	18	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	900
	76	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	6,384
	64	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	10,752
	102	18	Incandescent – 60w	60	6,120
TOTAL	260			TOTAL	24,156

Peak Value for Internal Gains

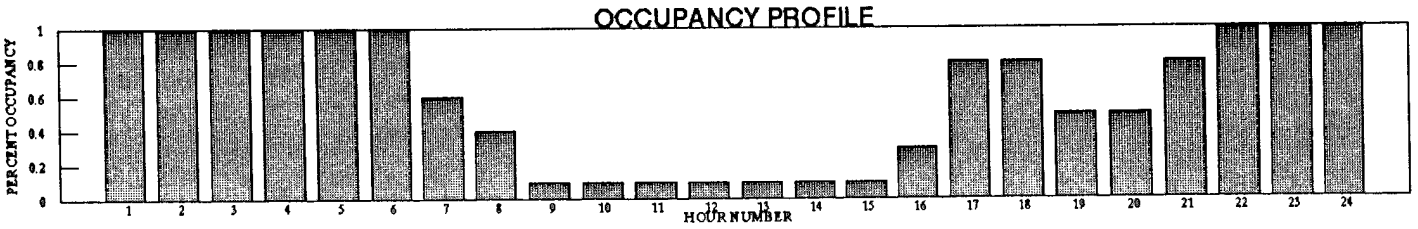
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	6	68	Washing Machine (Automatic)	512	20%	3,072	10,485
	6	23	Clothes Dryer	4,856	45%	29,136	99,441
				TOTAL	43%	32,208	109,926

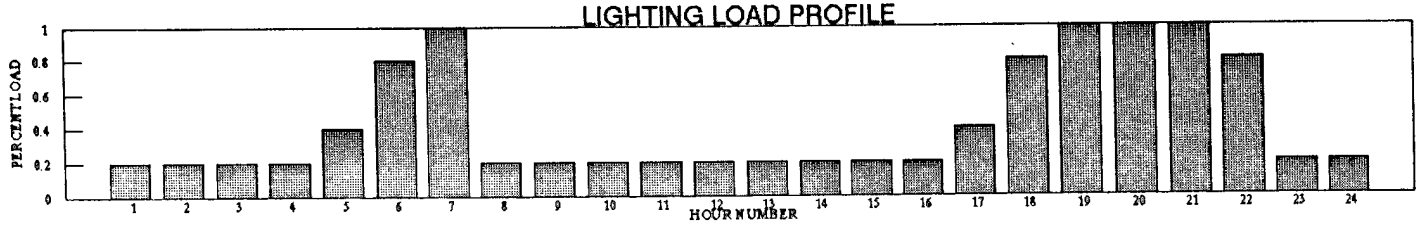
E M C Engineers, Inc.

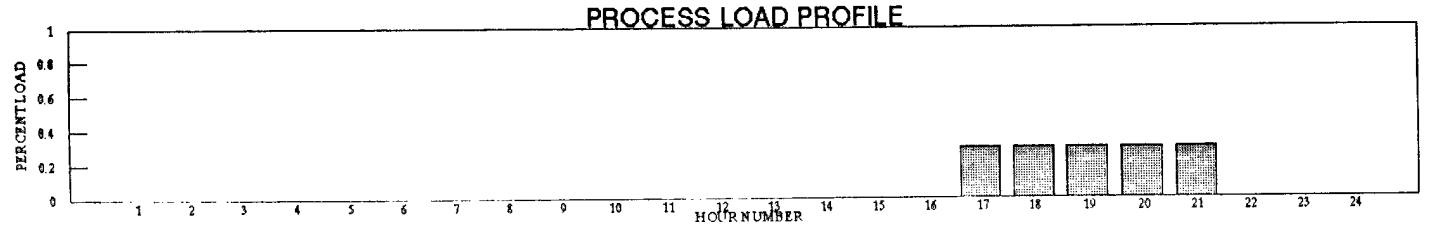
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 27-Mar-93
PREPARED BY:
CHECKED BY: CEL
FILE: 730ZN1
BLDG: 730
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Barracks	OCCUPANCY	1	1	1	1	1	1	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.8	0.8	0.5	0.5	0.8	1	1	1
		LIGHTING	0.2	0.2	0.2	0.2	0.4	0.8	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	1	1	1	0.8	0.2	0.2
		PROCESS																	0.3	0.3	0.3	0.3	0.3			







BLDG 730 - BARRACKS WITHOUT A/C BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 0.000000E+00
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .121E-03 .613E-03 .403E-03 .403E-04 806.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.46 .533 -.611E-01 .820E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	72.0	.0
2	.200	.000	1.000	1.000	72.0	.0
3	.200	.000	1.000	1.000	72.0	.0
4	.200	.000	1.000	1.000	72.0	.0
5	.400	.000	1.000	1.000	72.0	.0
6	.800	.000	1.000	1.000	72.0	.0
7	1.000	.000	.600	.600	72.0	.0
8	.200	.000	.400	.400	72.0	.0
9	.200	.000	.100	.100	72.0	.0
10	.200	.000	.100	.100	72.0	.0
11	.200	.000	.100	.100	72.0	.0
12	.200	.000	.100	.100	72.0	.0

13	.200	.000	.100	.100	72.0	.0
14	.200	.000	.100	.100	72.0	.0
15	.200	.000	.100	.100	72.0	.0
16	.200	.000	.300	.300	72.0	.0
17	.400	.300	.800	.800	72.0	.0
18	.800	.300	.800	.800	72.0	.0
19	1.000	.300	.500	.500	72.0	.0
20	1.000	.300	.500	.500	72.0	.0
21	1.000	.300	.800	.800	72.0	.0
22	.800	.000	1.000	1.000	72.0	.0
23	.200	.000	1.000	1.000	72.0	.0
24	.200	.000	1.000	1.000	72.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 0.000000E+00
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 0.000000E+00
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 0.000000E+00
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 1.000000E-05
FAN TOTAL PRESSURE IN. WATER (DP) 0.000000E+00
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

10.0	16.0	20.0	22.0	30.0	28.5	40.0	34.5
50.0	42.5	60.0	50.0	70.0	60.0	80.0	71.5
90.0	85.0	100.	100.				

BLDG 730 - BARRACKS WITHOUT A/C BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-381.	LOSS		-28.	-1.	0.	-90.	-14.	-326.	0.
FEB	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-307.	LOSS		-25.	-1.	0.	-69.	-12.	-276.	0.
MAR	0.	GAIN	20.	0.	0.	0.	4.	0.	0.	0.
	-245.	LOSS		-22.	-1.	0.	-56.	-11.	-245.	0.
APR	0.	GAIN	20.	0.	0.	0.	10.	0.	1.	0.
	-96.	LOSS		-14.	-1.	0.	-30.	-7.	-139.	0.
MAY	.00	GAIN	22.17	.00	.00	.00	14.87	.05	.77	.00
	-12.99	LOSS		-8.26	-.47	.00	-17.38	-4.75	-84.96	.00
JUN	.00	GAIN	22.84	.00	.00	.00	15.78	.02	.26	.00
	.00	LOSS		-7.05	-.42	.00	-14.56	-4.32	-74.92	.00
JUL	.00	GAIN	23.13	.00	.01	.00	16.24	.06	1.00	.00
	.00	LOSS		-7.05	-.43	.00	-15.29	-4.43	-78.56	.00
AUG	.00	GAIN	19.94	.00	.01	.00	13.90	.08	1.43	.00
	.00	LOSS		-7.32	-.43	.00	-15.87	-4.33	-74.79	.00
SEP	.00	GAIN	16.90	.00	.01	.00	11.72	.09	1.69	.00
	-16.25	LOSS		-8.76	-.43	.00	-17.99	-4.45	-82.58	.00
OCT	0.	GAIN	15.	0.	0.	0.	6.	0.	1.	0.
	-85.	LOSS		-14.	-1.	0.	-32.	-6.	-120.	0.
NOV	0.	GAIN	12.	0.	0.	0.	2.	0.	0.	0.
	-186.	LOSS		-19.	-1.	0.	-52.	-9.	-183.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-367.	LOSS		-30.	-1.	0.	-91.	-13.	-310.	0.
TOT	0.	GAIN	215.	0.	0.	0.	94.	0.	8.	0.
	-1696.	LOSS		-189.	-9.	0.	-500.	-93.	-1996.	0.

MAX HEATING LOAD= -1221352. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 730 - BARRACKS WITHOUT A/C BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	72.	72.		4	18	61.	7.64	5.11	.00	65.84
			71.	1	1	42.				
FEB	72.	73.		9	22	64.	6.90	4.62	.00	59.46
			71.	2	9	16.				
MAR	72.	78.		28	21	63.	7.64	5.11	.00	65.84
			71.	3	9	17.				
APR	74.	84.		30	22	67.	7.39	4.95	.00	63.71
			72.	9	9	34.				
MAY	79.	90.		29	22	68.	7.64	5.11	.00	65.84
			72.	11	4	38.				
JUN	85.	95.		29	22	75.	7.39	4.95	.00	63.71
			77.	17	10	72.				
JUL	89.	98.		15	22	83.	7.64	5.11	.00	65.84
			77.	24	10	70.				
AUG	88.	95.		29	21	76.	7.64	5.11	.00	65.84
			76.	26	8	66.				
SEP	81.	94.		2	22	79.	7.39	4.95	.00	63.71
			72.	18	9	66.				
OCT	74.	86.		4	22	69.	7.64	5.11	.00	65.84
			72.	13	12	68.				
NOV	72.	79.		8	22	67.	7.39	4.95	.00	63.71
			71.	14	16	67.				
DEC	72.	72.		23	21	52.	7.64	5.11	.00	65.84
			71.	18	9	3.				
YEAR							89.95	60.18	.00	775.16

BLDG 730 - BARRACKS WITHOUT A/C BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	740	0	0	0	-.1112E+07	.0000
FEB	659	0	0	0	-.1013E+07	.0000
MAR	639	0	0	0	-.1056E+07	.0000
APR	363	0	0	0	-.5931E+06	.0000
MAY	97	0	0	0	-.3199E+06	.0000
JUN	0	0	0	0	.0000	.0000
JUL	0	0	0	0	.0000	.0000
AUG	0	0	0	0	.0000	.0000
SEP	117	0	0	0	-.2777E+06	.0000
OCT	408	0	0	0	-.4730E+06	.0000
NOV	591	0	0	0	-.7336E+06	.0000
DEC	740	0	0	0	-.1221E+07	.0000
YEAR	4354	0	0	0	-.1221E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	585.68	.00	7.64	5.11	.00	65.84	24.2
FEB	486.06	.00	6.90	4.62	.00	59.46	24.2
MAR	418.71	.00	7.64	5.11	.00	65.84	24.2
APR	193.69	.00	7.39	4.95	.00	63.71	24.2
MAY	41.52	.00	7.64	5.11	.00	65.84	24.2
JUN	.00	.00	7.39	4.95	.00	63.71	24.2
JUL	.00	.00	7.64	5.11	.00	65.84	24.2
AUG	.00	.00	7.64	5.11	.00	65.84	24.2
SEP	49.64	.00	7.39	4.95	.00	63.71	24.2
OCT	194.11	.00	7.64	5.11	.00	65.84	24.2
NOV	349.25	.00	7.39	4.95	.00	63.71	24.2
DEC	569.97	.00	7.64	5.11	.00	65.84	24.2
YEAR	2888.63	.00	89.95	60.18	.00	775.16	24.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 79437. BTU/(SQFT-YEAR)

BLDG 730 - BARRACKS WITHOUT A/C BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1112E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.1013E+07
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.1056E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5931E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.3199E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2777E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4730E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.7336E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1221E+07

BLDG 730 - BARRACKS WITHOUT A/C DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 0.000000E+00
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 437184.000000
FLOOR AREA (SQFT) 40986.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1664120.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 409860.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 3167.000000
INFILTRATION PROFILE

.670	.670	.670	.670	.670	.670	.670	.670
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	.670	.670	.670	.670	.670	.670

A FACTOR IN INFILTRATION EQUATION (CINA) 4.350000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 231200.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 0.000000E+00
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 47.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	8613.0	1828.0	8541.0	1826.0
WINDOW AREA SQFT (AWND)	435.0	18.5	467.0	17.2
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	43.5	1.9	46.7	1.7
WIDTH OF OVERHANG (WOH)	2.5	2.5	2.5	2.5
OVERHANG HGT ABV WNDW(HOH)	1.0	1.0	1.0	1.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.194	.193	.194	.194
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01454	.01447	.01454	.01454
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00002	.00002	.00002	.00002
N=2	.00224	.00223	.00224	.00224
N=3	.00805	.00801	.00805	.00805
N=4	.00394	.00392	.00394	.00394
N=5	.00029	.00029	.00029	.00029
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 13662.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 1.177955E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.000 .121E-03 .613E-03 .403E-03 .403E-04 806.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.46 .533 -.611E-01 .820E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.300000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	24.	47268.	84150.	39270.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.000	1.000	1.000	70.0	.0
2	.200	.000	1.000	1.000	70.0	.0
3	.200	.000	1.000	1.000	70.0	.0
4	.200	.000	1.000	1.000	70.0	.0
5	.400	.000	1.000	1.000	70.0	.0
6	.800	.000	1.000	1.000	70.0	.0
7	1.000	.000	.600	.600	70.0	.0
8	.200	.000	.400	.400	70.0	.0
9	.200	.000	.100	.100	70.0	.0
10	.200	.000	.100	.100	70.0	.0
11	.200	.000	.100	.100	70.0	.0
12	.200	.000	.100	.100	70.0	.0

13	.200	.000	.100	.100	70.0	.0
14	.200	.000	.100	.100	70.0	.0
15	.200	.000	.100	.100	70.0	.0
16	.200	.000	.300	.300	70.0	.0
17	.400	.300	.800	.800	70.0	.0
18	.800	.300	.800	.800	70.0	.0
19	1.000	.300	.500	.500	70.0	.0
20	1.000	.300	.500	.500	70.0	.0
21	1.000	.300	.800	.800	70.0	.0
22	.800	.000	1.000	1.000	70.0	.0
23	.200	.000	1.000	1.000	70.0	.0
24	.200	.000	1.000	1.000	70.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 65.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 0.000000E+00
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 0.000000E+00
ECONOMIZER HIGH TEMP LIMIT F 0.000000E+00
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 0.000000E+00
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 1.000000E-05
FAN TOTAL PRESSURE IN. WATER (DP) 0.000000E+00
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1700000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2125000.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

10.0	16.0	20.0	22.0	30.0	28.5	40.0	34.5
50.0	42.5	60.0	50.0	70.0	60.0	80.0	71.5
90.0	85.0	100.	100.				

BLDG 730 - BARRACKS WITHOUT A/C DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	13.	0.	0.	0.	0.	0.	0.	0.
	-352.	LOSS		-27.	-1.	0.	-84.	-13.	-305.	0.
FEB	0.	GAIN	16.	0.	0.	0.	0.	0.	0.	0.
	-281.	LOSS		-24.	-1.	0.	-63.	-11.	-258.	0.
MAR	0.	GAIN	20.	0.	0.	0.	4.	0.	0.	0.
	-219.	LOSS		-20.	-1.	0.	-51.	-10.	-228.	0.
APR	0.	GAIN	20.	0.	0.	0.	11.	0.	2.	0.
	-81.	LOSS		-13.	-1.	0.	-27.	-6.	-128.	0.
MAY	.00	GAIN	22.17	.00	.00	.00	15.34	.05	.86	.00
	-8.69	LOSS		-7.97	-.45	.00	-16.71	-4.62	-82.31	.00
JUN	.00	GAIN	22.84	.00	.00	.00	15.78	.02	.26	.00
	.00	LOSS		-7.05	-.42	.00	-14.56	-4.32	-74.92	.00
JUL	.00	GAIN	23.13	.00	.01	.00	16.24	.06	1.00	.00
	.00	LOSS		-7.05	-.43	.00	-15.29	-4.43	-78.56	.00
AUG	.00	GAIN	19.94	.00	.01	.00	13.90	.08	1.43	.00
	.00	LOSS		-7.32	-.43	.00	-15.87	-4.33	-74.79	.00
SEP	.00	GAIN	16.90	.00	.01	.00	12.34	.11	2.10	.00
	-9.97	LOSS		-8.42	-.41	.00	-17.11	-4.29	-79.19	.00
OCT	0.	GAIN	15.	0.	0.	0.	6.	0.	2.	0.
	-69.	LOSS		-13.	-1.	0.	-29.	-6.	-110.	0.
NOV	0.	GAIN	12.	0.	0.	0.	2.	0.	0.	0.
	-164.	LOSS		-18.	-1.	0.	-48.	-8.	-168.	0.
DEC	0.	GAIN	12.	0.	0.	0.	0.	0.	0.	0.
	-339.	LOSS		-28.	-1.	0.	-85.	-13.	-291.	0.
TOT	0.	GAIN	215.	0.	0.	0.	98.	1.	10.	0.
	-1524.	LOSS		-180.	-9.	0.	-466.	-89.	-1878.	0.

MAX HEATING LOAD= -1174096. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 5633.3

BEACON Energy Analysis By Energy Systems Engineers, Inc. 730-1.I

BLDG 730 - BARRACKS WITHOUT A/C DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	71.		4	21	57.	7.64	5.11	.00	65.84
			69.	29	8	18.				
FEB	70.	71.		9	22	64.	6.90	4.62	.00	59.46
			69.	2	9	16.				
MAR	70.	77.		28	21	63.	7.64	5.11	.00	65.84
			70.	3	9	17.				
APR	73.	84.		30	22	67.	7.39	4.95	.00	63.71
			70.	9	9	34.				
MAY	78.	90.		29	22	68.	7.64	5.11	.00	65.84
			70.	9	4	44.				
JUN	85.	95.		29	22	75.	7.39	4.95	.00	63.71
			77.	17	10	72.				
JUL	89.	98.		15	22	83.	7.64	5.11	.00	65.84
			77.	24	10	70.				
AUG	88.	95.		29	21	76.	7.64	5.11	.00	65.84
			76.	26	8	66.				
SEP	80.	94.		2	22	79.	7.39	4.95	.00	63.71
			70.	14	8	49.				
OCT	73.	86.		4	22	69.	7.64	5.11	.00	65.84
			70.	11	9	43.				
NOV	70.	78.		8	22	67.	7.39	4.95	.00	63.71
			70.	3	8	22.				
DEC	70.	70.		23	21	52.	7.64	5.11	.00	65.84
			69.	18	9	3.				
YEAR							89.95	60.18	.00	775.16

BLDG 730 - BARRACKS WITHOUT A/C DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	733	0	0	0	-.1063E+07	.0000
FEB	653	0	0	0	-.9637E+06	.0000
MAR	617	0	0	0	-.1005E+07	.0000
APR	328	0	0	0	-.5527E+06	.0000
MAY	71	0	0	0	-.2870E+06	.0000
JUN	0	0	0	0	.0000	.0000
JUL	0	0	0	0	.0000	.0000
AUG	0	0	0	0	.0000	.0000
SEP	74	0	0	0	-.2466E+06	.0000
OCT	373	0	0	0	-.4365E+06	.0000
NOV	559	0	0	0	-.6909E+06	.0000
DEC	739	0	0	0	-.1174E+07	.0000
YEAR	4147	0	0	0	-.1174E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	554.38	.00	7.64	5.11	.00	65.84	24.2
FEB	458.88	.00	6.90	4.62	.00	59.46	24.2
MAR	387.87	.00	7.64	5.11	.00	65.84	24.2
APR	169.04	.00	7.39	4.95	.00	63.71	24.2
MAY	30.00	.00	7.64	5.11	.00	65.84	24.2
JUN	.00	.00	7.39	4.95	.00	63.71	24.2
JUL	.00	.00	7.64	5.11	.00	65.84	24.2
AUG	.00	.00	7.64	5.11	.00	65.84	24.2
SEP	30.86	.00	7.39	4.95	.00	63.71	24.2
OCT	171.04	.00	7.64	5.11	.00	65.84	24.2
NOV	319.64	.00	7.39	4.95	.00	63.71	24.2
DEC	540.93	.00	7.64	5.11	.00	65.84	24.2
YEAR	2662.64	.00	89.95	60.18	.00	775.16	24.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 73923. BTU/(SQFT-YEAR)

BLDG 730 - BARRACKS WITHOUT A/C DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.1063E+07
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.9637E+06
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.0000	-.1005E+07
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.0000	-.5527E+06
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.0000	-.2870E+06
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.0000	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.0000	-.2466E+06
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.0000	-.4365E+06
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.0000	-.6909E+06
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.1174E+07

COMPUTER SIMULATIONS

BUILDING 826

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 826
BLDG. TYPE: GYMNASIUM

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	3504.6	3172.0	3012.7		3352.1	3438.5
COOLING (kWH)						

SUPPLY AIR FAN	26500 CFM
FLOOR AREA	19827 FT²
CFMI	2146 CFM
UA	8806 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	500	2000	75 HR
SAT.	1200	1700	5 HR
SUN.	1200	1700	5 HR
	TOTAL OCCUPY HR.		85 HR/WK
	TOTAL UNOCC. HR.		83 HR/WK
	ANNUAL OCCUPY HR.		4432 HR/YR
	ANNUAL UNOCC. HR.		4328 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	2210 HR/YR
HR. ON COOLING	1481 HR/YR
HR. OFF HEATING	2158 HR/YR
HR. OFF COOLING	1447 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	2210	=	2158 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	1481	=	1447 HR/YR

HOAUHC	3504.6 MBtu	–	3352.1 MBtu	=	1.64E+01 Btu/CFM-HR
	2146 CFM	*	4328 HR/YR		
HOAUH	3504.6 MBtu	–	3352.1 MBtu	=	3.29E+01 Btu/CFM-HR
	2146 CFM	*	2158 HR/YR		
COAUHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	2146 CFM	*	4328 HR/YR		
COAUC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	2146 CFM	*	1447 HR/YR		
HOAOHC	3504.6 MBtu	–	3438.5 MBtu	=	6.95E+00 Btu/CFM-HR
	2146 CFM	*	4432 HR/YR		
HOAOH	3504.6 MBtu	–	3438.5 MBtu	=	1.39E+01 Btu/CFM-HR
	2146 CFM	*	2210 HR/YR		
COAOHC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	2146 CFM	*	4432 HR/YR		
COAOC	0 kWH		0 kWH	=	0.00E+00 kWH/CFM-HR
	2146 CFM	*	1481 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)			=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)			=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 826
BLDG. TYPE: GYMNASIUM

ENERGY CONSTANT CALCULATIONS

ECC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	1481 HR/YR		
ECHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	4432 HR/YR		
NSUCHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	4328 HR/YR		
NSUCC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	1447 HR/YR		
DDCCHC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	4432 HR/YR		
DDCCC	0 kWH	–	0 kWH	=	0.00E+00 kWH/CFM-HR
	26500 CFM	*	1481 HR/YR		
NSC	3504.6 MBtu	–	3172 MBtu	=	3.78E+04 Btu/UA
	8806 UA				
DSC	3172 MBtu	–	3012.69 MBtu	=	1.81E+04 Btu/UA
	8806 UA				
OPT	(2 HR/DAY X 272 DAY/YR) –		294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			=	13.9 kWH/TON
OAR	506 HR/YR	*	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE: 22-Feb-93
BY: BHS
JOB: 3204.000
CHK:
FILE: 826BHL

BUILDING HEATING LOAD CALCULATION SHEET

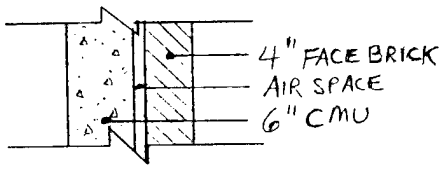
BLDG NO: 826 BLDG NAME: GYMNASIUM
BLDG FUNCTION: BASKETBALL, RACQUET BALL, WEIGHT LIFTING
FLOOR AREA: (SQ. FT) 19,827 # FLOORS 1
SLAB PERIMETER: (FT) 588

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	5,844	6,252	3,420	2,660	18,176
GLASS	(SQ. FT)	42	55	0	0	97
PERSONNEL DOOR	(SQ. FT)	84	168	42	0	294
INSULATED PANEL	(SQ. FT)	345	324	0	120	789
WALLS, NET	(SQ. FT)	5,373	5,705	3,378	2,540	16,996
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	19,827
INSULATED PANEL	(SQ. FT)	789	PERSONNEL DOOR		(SQ. FT)	294
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

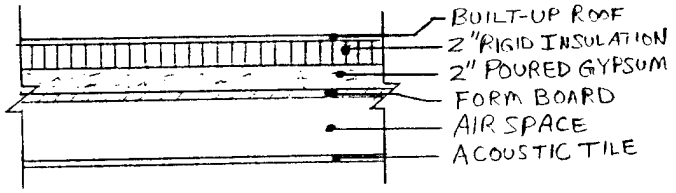
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CONCRETE BLK	1.89
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	4.08
	U=1/R	0.245

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	2" POURED GYPSUM	1.80
5.	FORM BOARD	1.19
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	12.64
	U=1/R	0.079

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	18176	X CFM / SQ.FT.	0.115	=	2,090
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		40	X CFM /OPENING /HR	1.385	=	55
			TOTAL INFILTRATION (CFM)		=	2146

UA PANEL	= PANEL AREA	789	X PANEL "U"	0.238	=	188
UA PDOOR	= PDOOR AREA	294	X DOOR "U"	0.391	=	115
UA WALL	= WALL AREA	16,996	X WALL "U"	0.245	=	4,166
UA ROOF	= ROOF AREA	19,827	X ROOF "U"	0.079	=	1,568
UA GLASS	= GLASS AREA	97	X GLASS "U"	0.621	=	60
UA SLAB	= SLAB PERIM.	588	X SLF	0.830	=	488
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	2146	X A. T. F.	1.035	=	2,221
			TOTAL UA (BTU/HR°F)			8,806

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 06-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 826Z1
BLDG: 826 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	5	4	Seated, light work, typing	Offices, hotels, apts	250	200	1,250	1,000
	60	11	Heavy work, athletics	Gymnasium	710	1,090	42,600	65,400
TOTAL	65					TOTAL	43,850	66,400

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	40	35	Merc. Vap. – Medium Base, 75w with 18w ballast	93	3,720
	10	18	Incandescent – 60w	60	600
	34	16	Fluorescent, 2 – 15w lamps, 5w ballast	35	1,190
	10	10	Fluorescent, 2 – 34w lamps, 4w ballast (2x4 ft. fixture)	72	720
	35	47	HPS – Medium Base, 35w with 11w ballast	46	1,610
	3	38	Merc. Vap. – Mogul Base, 175w with 25w ballast	200	600
TOTAL	132			TOTAL	8,440

Peak Value for Internal Gains

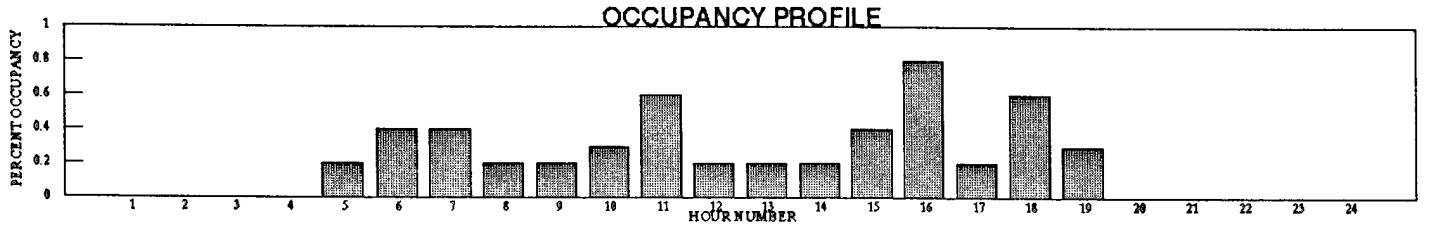
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	1	3	Microcomputer	350	91%	350	1,195
	1	24	Coffee Maker	1,500	30%	1,500	5,120
	1	49	Radio	71	10%	71	242
	2	70	Water Cooler	700	50%	1,400	4,778
				TOTAL	44%	3,321	11,335

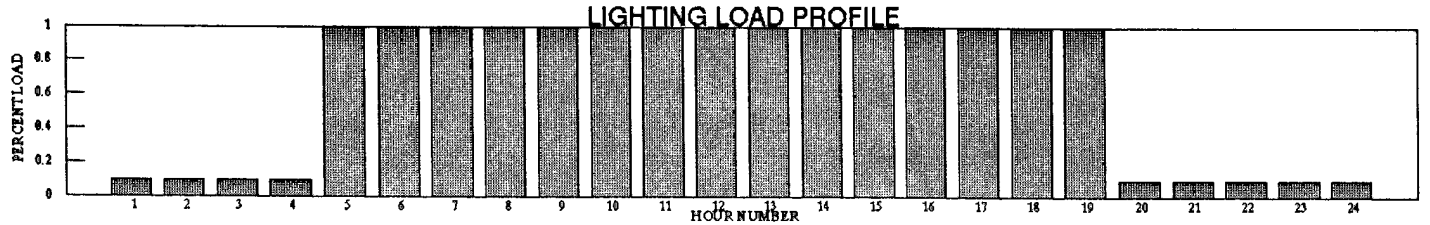
E M C Engineers, Inc.

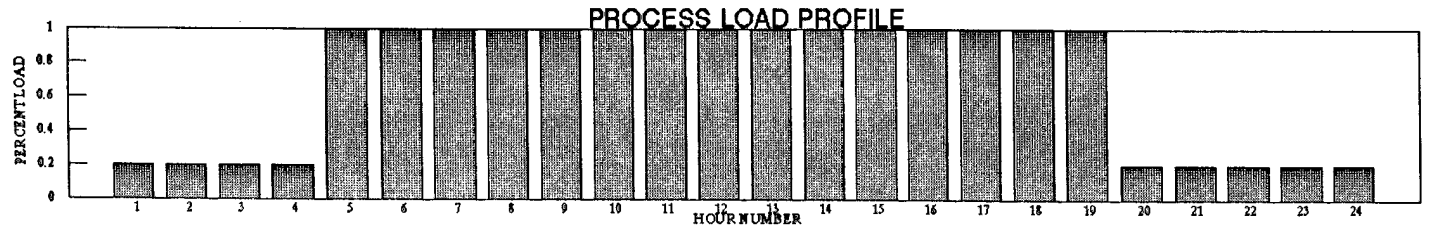
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 06-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 826Z1
BLDG: 826
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	Gym	OCCUPANCY					0.2	0.4	0.4	0.2	0.2	0.3	0.6	0.2	0.2	0.2	0.4	0.8	0.2	0.6	0.3					
		LIGHTING	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.2	0.2	0.2	0.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.2	0.2	0.2	0.2	0.2







BLDG 826 - GYMNASIUM BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 553768.100000
FLOOR AREA (SQFT) 19827.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1919350.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 1919350.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 2146.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.330000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 48600.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 488.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 115.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	6029.0	2660.0	5718.0	3378.0
WINDOW AREA SQFT (AWND)	55.0	.0	42.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	5.5	.0	4.2	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 19827.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.900000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.035165E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.868E-04 .217E-02 .252E-02 .260E-03 867. 867.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.16 .223 -.220E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	4987.	43850.	66400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	60.0	.0
2	.100	.200	.000	.000	60.0	.0
3	.100	.200	.000	.000	60.0	.0
4	.100	.200	.000	.000	60.0	.0
5	1.000	1.000	.200	.200	60.0	.0
6	1.000	1.000	.400	.400	60.0	.0
7	1.000	1.000	.400	.400	60.0	.0
8	1.000	1.000	.200	.200	60.0	.0
9	1.000	1.000	.200	.200	60.0	.0
10	1.000	1.000	.300	.300	60.0	.0
11	1.000	1.000	.600	.600	60.0	.0
12	1.000	1.000	.200	.200	60.0	.0

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 13        1.000     1.000      .200      .200        60.0         .0
 14        1.000     1.000      .200      .200        60.0         .0
 15        1.000     1.000      .400      .400        60.0         .0
 16        1.000     1.000      .800      .800        60.0         .0
 17        1.000     1.000      .200      .200        60.0         .0
 18        1.000     1.000      .600      .600        60.0         .0
 19        1.000     1.000      .300      .300        60.0         .0
 20         .100      .200      .000      .000        60.0         .0
 21         .100      .200      .000      .000        60.0         .0
 22         .100      .200      .000      .000        60.0         .0
 23         .100      .200      .000      .000        60.0         .0
 24         .100      .200      .000      .000        60.0         .0
NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT)      60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT)     100.000000
SYSTEM TYPE, (IECN)            2
SUPPLY AIR CFM (SACFM)    26500.000000
ECONOMIZER HIGH TEMP LIMIT F       100.000000
SYSTEM SUPPLY AIR START TIME HR     0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR        24.000000
SYSTEM MIXED AIR TEMP(TMXAIR)       70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR)    6.000000E-01
FAN EFFICIENCY (EFAN)    5.500000E-01
FAN TOTAL PRESSURE IN. WATER  (DP)    3.750000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1919350.000000
HEATING PLANT RATED INPUT BTU (HFLIN)  2399188.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)
 .100      .191      .200      .286      .300      .369      .400      .451

 .500      .537      .600      .625      .700      .718      .800      .812

 .900      .906      1.00      1.00
CHILLER TYPE (ITYPCH)             4
COOLING PLANT RATED OUTPUT BTU (CFLOT)     1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN)    0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)
 .000      .000      .000      .000      .000      .000      .000      .000

 .000      .000      .000      .000      .000      .000      .000      .000

 .000      .000      .000      .000
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BLDG 826 - GYMNASIUM BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	2.	0.	0.	0.	1.	0.	0.	0.
	-506.	LOSS		-34.	-11.	0.	-60.	-1.	-433.	0.
FEB	0.	GAIN	2.	0.	0.	0.	3.	0.	1.	0.
	-407.	LOSS		-27.	-9.	0.	-42.	-1.	-360.	0.
MAR	0.	GAIN	2.	0.	0.	0.	10.	0.	2.	0.
	-336.	LOSS		-22.	-8.	0.	-30.	-1.	-319.	0.
APR	0.	GAIN	2.	0.	0.	0.	21.	0.	7.	0.
	-118.	LOSS		-11.	-4.	0.	-11.	0.	-149.	0.
MAY	.00	GAIN	2.36	1.01	.29	.00	30.14	.02	9.57	.00
	-23.07	LOSS		-4.21	-2.37	.00	-2.74	-.19	-84.41	.00
JUN	.00	GAIN	2.41	1.45	.28	.00	32.03	.02	9.49	.00
	-.37	LOSS		-2.68	-1.94	.00	-1.14	-.16	-66.10	.00
JUL	.00	GAIN	2.43	1.64	.31	.00	31.91	.03	11.08	.00
	-.05	LOSS		-2.79	-1.96	.00	-1.20	-.16	-69.48	.00
AUG	.00	GAIN	2.11	1.23	.34	.00	28.87	.03	10.85	.00
	-.01	LOSS		-2.86	-1.85	.00	-1.26	-.15	-65.63	.00
SEP	.00	GAIN	1.90	.25	.32	.00	22.41	.03	10.91	.00
	-22.84	LOSS		-5.43	-2.27	.00	-3.15	-.19	-74.87	.00
OCT	0.	GAIN	2.	0.	0.	0.	14.	0.	7.	0.
	-102.	LOSS		-12.	-4.	0.	-11.	0.	-127.	0.
NOV	0.	GAIN	1.	0.	0.	0.	6.	0.	3.	0.
	-241.	LOSS		-20.	-6.	0.	-27.	-1.	-227.	0.
DEC	0.	GAIN	1.	0.	0.	0.	1.	0.	0.	0.
	-517.	LOSS		-34.	-11.	0.	-60.	-1.	-443.	0.
TOT	0.	GAIN	23.	6.	2.	0.	202.	0.	73.	0.
	-2274.	LOSS		-176.	-65.	0.	-251.	-5.	-2418.	0.

MAX HEATING LOAD= -1919350. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 6098.8

BLDG 826 - GYMNASIUM BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	66.		4	16	63.	4.16	5.90	5.39	29.25
			59.	29	4	11.				
FEB	60.	69.		13	16	68.	3.76	5.33	4.78	26.33
			59.	2	3	15.				
MAR	61.	80.		28	16	76.	4.16	5.90	4.86	28.73
			59.	12	1	58.				
APR	65.	88.		30	16	84.	4.03	5.71	4.53	27.63
			58.	1	6	61.				
MAY	70.	94.		26	19	75.	4.16	5.90	4.05	27.92
			59.	9	20	54.				
JUN	76.	96.		30	19	82.	4.03	5.71	3.65	26.74
			60.	19	5	58.				
JUL	81.	105.		28	18	90.	4.16	5.90	3.82	27.69
			60.	10	4	57.				
AUG	79.	100.		29	16	95.	4.16	5.90	4.02	27.88
			60.	25	6	51.				
SEP	73.	99.		2	18	86.	4.03	5.71	3.71	26.80
			59.	24	20	56.				
OCT	65.	88.		1	15	85.	4.16	5.90	4.52	28.39
			59.	3	2	58.				
NOV	62.	78.		8	16	75.	4.03	5.71	4.80	27.89
			59.	13	18	55.				
DEC	60.	68.		23	17	62.	4.16	5.90	5.20	29.06
			53.	18	4	1.				
YEAR							48.98	69.51	53.33	334.31

BLDG 826 - GYMNASIUM BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	715	0	0	0	-.1897E+07	.0000
FEB	634	0	0	0	-.1654E+07	.0000
MAR	614	0	0	0	-.1423E+07	.0000
APR	376	0	0	0	-.9515E+06	.0000
MAY	135	0	0	0	-.6113E+06	.0000
JUN	7	0	0	0	-.1041E+06	.0000
JUL	2	0	0	0	-.3933E+05	.0000
AUG	3	0	0	0	-7478.	.0000
SEP	139	0	0	0	-.4159E+06	.0000
OCT	389	0	0	0	-.7568E+06	.0000
NOV	526	0	0	0	-.1272E+07	.0000
DEC	715	0	12	0	-.1919E+07	.0000
YEAR	4255	0	12	0	-.1919E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	736.88	.00	4.16	5.90	1.58	29.25	10.6
FEB	611.25	.00	3.76	5.33	1.40	26.33	10.6
MAR	531.35	.00	4.16	5.90	1.43	28.73	10.6
APR	238.32	.00	4.03	5.71	1.33	27.63	10.6
MAY	69.72	.00	4.16	5.90	1.19	27.92	10.6
JUN	3.20	.00	4.03	5.71	1.07	26.74	10.6
JUL	.91	.00	4.16	5.90	1.12	27.69	10.6
AUG	1.37	.00	4.16	5.90	1.18	27.88	10.6
SEP	68.37	.00	4.03	5.71	1.09	26.80	10.6
OCT	225.72	.00	4.16	5.90	1.33	28.39	10.6
NOV	408.75	.00	4.03	5.71	1.41	27.89	10.6
DEC	752.35	.00	4.16	5.90	1.52	29.06	10.6
YEAR	3648.20	.00	48.98	69.51	15.62	334.31	10.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 198628. BTU/(SQFT-YEAR)

BLDG 826 - GYMNASIUM BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.1897E+07
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.1654E+07
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.1423E+07
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.9515E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.6113E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-.1041E+06
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	-.3933E+05
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	-7478.
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.4159E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.7568E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.1272E+07
DEC	883.	604.	1.000	35.	0.	0.	0	12	.0000	-.1919E+07

BLDG 826 - GYMNASIUM NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 2
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 553768.100000
FLOOR AREA (SQFT) 19827.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1919350.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 1919350.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 2146.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.330000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 48600.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 488.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 115.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	6029.0	2660.0	5718.0	3378.0
WINDOW AREA SQFT (AWND)	55.0	.0	42.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	5.5	.0	4.2	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 19827.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.900000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.035165E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.868E-04 .217E-02 .252E-02 .260E-03 867. 867.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.16 .223 -.220E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.400000E-01
WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	60.0	60.0	60.0	60.0
60.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR		THERMOSTAT SET POINT DEG F	
	LIGHTS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	43850.	66400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -				
1	.100	.200	.000	.000	55.0	.0
2	.100	.200	.000	.000	55.0	.0
3	.100	.200	.000	.000	55.0	.0
4	.100	.200	.000	.000	55.0	.0
5	1.000	1.000	.200	.200	60.0	.0

6	1.000	1.000	.400	.400	60.0	.0
7	1.000	1.000	.400	.400	60.0	.0
8	1.000	1.000	.200	.200	60.0	.0
9	1.000	1.000	.200	.200	60.0	.0
10	1.000	1.000	.300	.300	60.0	.0
11	1.000	1.000	.600	.600	60.0	.0
12	1.000	1.000	.200	.200	60.0	.0
13	1.000	1.000	.200	.200	60.0	.0
14	1.000	1.000	.200	.200	60.0	.0
15	1.000	1.000	.400	.400	60.0	.0
16	1.000	1.000	.800	.800	60.0	.0
17	1.000	1.000	.200	.200	60.0	.0
18	1.000	1.000	.600	.600	60.0	.0
19	1.000	1.000	.300	.300	60.0	.0
20	.100	.200	.000	.000	60.0	.0
21	.100	.200	.000	.000	55.0	.0
22	.100	.200	.000	.000	55.0	.0
23	.100	.200	.000	.000	55.0	.0
24	.100	.200	.000	.000	55.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 26500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 6.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 3.750000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1919350.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2399188.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 826 - GYMNASIUM NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	2.	0.	0.	0.	1.	0.	0.	0.
	-459.	LOSS		-31.	-10.	0.	-53.	-1.	-397.	0.
FEB	0.	GAIN	2.	0.	0.	0.	4.	0.	1.	0.
	-366.	LOSS		-25.	-8.	0.	-36.	-1.	-329.	0.
MAR	0.	GAIN	2.	0.	0.	0.	11.	0.	3.	0.
	-298.	LOSS		-20.	-7.	0.	-25.	-1.	-289.	0.
APR	0.	GAIN	2.	0.	0.	0.	22.	0.	7.	0.
	-97.	LOSS		-9.	-4.	0.	-8.	0.	-134.	0.
MAY	.00	GAIN	2.36	1.08	.30	.00	30.69	.02	9.52	.00
	-15.91	LOSS		-3.83	-2.21	.00	-2.04	-.18	-79.08	.00
JUN	.00	GAIN	2.41	1.46	.28	.00	32.06	.02	9.52	.00
	-.12	LOSS		-2.66	-1.94	.00	-1.11	-.16	-65.97	.00
JUL	.00	GAIN	2.43	1.64	.31	.00	31.92	.03	11.08	.00
	-.05	LOSS		-2.79	-1.95	.00	-1.20	-.16	-69.48	.00
AUG	.00	GAIN	2.11	1.23	.34	.00	28.88	.03	10.87	.00
	.00	LOSS		-2.86	-1.85	.00	-1.26	-.15	-65.62	.00
SEP	.00	GAIN	1.90	.30	.33	.00	23.13	.03	10.97	.00
	-13.52	LOSS		-4.86	-2.04	.00	-2.15	-.17	-68.39	.00
OCT	0.	GAIN	2.	0.	0.	0.	15.	0.	7.	0.
	-80.	LOSS		-10.	-3.	0.	-8.	0.	-110.	0.
NOV	0.	GAIN	1.	0.	0.	0.	7.	0.	4.	0.
	-209.	LOSS		-18.	-5.	0.	-23.	0.	-203.	0.
DEC	0.	GAIN	1.	0.	0.	0.	2.	0.	1.	0.
	-473.	LOSS		-31.	-10.	0.	-53.	-1.	-410.	0.
TOT	0.	GAIN	23.	6.	2.	0.	208.	0.	74.	0.
	-2012.	LOSS		-161.	-59.	0.	-215.	-5.	-2220.	0.

MAX HEATING LOAD= -1919350. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 6098.8

BLDG 826 - GYMNASIUM NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	58.	66.		4	16	63.	4.16	5.90	5.36	29.22
			54.	29	4	11.				
FEB	58.	69.		13	16	68.	3.76	5.33	4.65	26.21
			53.	16	21	50.				
MAR	59.	81.		28	16	76.	4.16	5.90	4.68	28.54
			53.	9	21	49.				
APR	64.	88.		30	16	84.	4.03	5.71	4.36	27.45
			53.	3	21	48.				
MAY	69.	94.		26	19	75.	4.16	5.90	4.05	27.91
			55.	11	22	51.				
JUN	76.	96.		30	19	82.	4.03	5.71	3.65	26.74
			56.	18	3	56.				
JUL	81.	105.		28	18	90.	4.16	5.90	3.82	27.69
			58.	10	4	57.				
AUG	79.	100.		29	16	95.	4.16	5.90	4.00	27.86
			59.	25	6	51.				
SEP	72.	99.		2	18	86.	4.03	5.71	3.63	26.73
			53.	17	1	50.				
OCT	63.	88.		1	15	85.	4.16	5.90	4.39	28.26
			54.	15	21	52.				
NOV	60.	78.		8	16	75.	4.03	5.71	4.63	27.72
			53.	15	21	50.				
DEC	58.	69.		23	17	62.	4.16	5.90	5.00	28.87
			53.	18	4	1.				
YEAR							48.98	69.51	52.21	333.20

BLDG 826 - GYMNASIUM NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	694	0	0	0	-.1825E+07	.0000
FEB	611	0	0	0	-.1646E+07	.0000
MAR	577	0	0	0	-.1453E+07	.0000
APR	323	0	0	0	-.9694E+06	.0000
MAY	108	0	0	0	-.6365E+06	.0000
JUN	2	0	0	0	-.1031E+06	.0000
JUL	1	0	0	0	-.4597E+05	.0000
AUG	0	0	0	0	.0000	.0000
SEP	103	0	0	0	-.4935E+06	.0000
OCT	348	0	0	0	-.7563E+06	.0000
NOV	473	0	0	0	-.1226E+07	.0000
DEC	688	0	8	0	-.1919E+07	.0000
YEAR	3928	0	8	0	-.1919E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	679.58	.00	4.16	5.90	1.57	29.22	10.6
FEB	562.74	.00	3.76	5.33	1.36	26.21	10.6
MAR	479.84	.00	4.16	5.90	1.37	28.54	10.6
APR	199.32	.00	4.03	5.71	1.28	27.45	10.6
MAY	54.20	.00	4.16	5.90	1.19	27.91	10.6
JUN	.91	.00	4.03	5.71	1.07	26.74	10.6
JUL	.46	.00	4.16	5.90	1.12	27.69	10.6
AUG	.00	.00	4.16	5.90	1.17	27.86	10.6
SEP	49.41	.00	4.03	5.71	1.06	26.73	10.6
OCT	192.78	.00	4.16	5.90	1.29	28.26	10.6
NOV	358.64	.00	4.03	5.71	1.36	27.72	10.6
DEC	699.09	.00	4.16	5.90	1.47	28.87	10.6
YEAR	3276.98	.00	48.98	69.51	15.30	333.20	10.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 179849. BTU/(SQFT-YEAR)

BLDG 826 - GYMNASIUM NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.1825E+07
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.1646E+07
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.1453E+07
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.9694E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.6365E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-.1031E+06
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	-.4597E+05
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.4935E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.7563E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.1226E+07
DEC	883.	604.	1.000	35.	0.	0.	0	8	.0000	-.1919E+07

BLDG 826 - GYMNASIUM DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 2
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 553768.100000
FLOOR AREA (SQFT) 19827.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1919350.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 1919350.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 2146.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.330000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 48600.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 488.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 115.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	6029.0	2660.0	5718.0	3378.0
WINDOW AREA SQFT (AWND)	55.0	.0	42.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	5.5	.0	4.2	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 19827.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.900000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.035165E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.868E-04 .217E-02 .252E-02 .260E-03 867. 867.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.16 .223 -.220E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.400000E-01
WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0
55.0	55.0	55.0	55.0	58.0	58.0	58.0	58.0
58.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	4987.	43850.	66400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	55.0	.0
2	.100	.200	.000	.000	55.0	.0
3	.100	.200	.000	.000	55.0	.0
4	.100	.200	.000	.000	55.0	.0
5	1.000	1.000	.200	.200	58.0	.0

6	1.000	1.000	.400	.400	58.0	.0
7	1.000	1.000	.400	.400	58.0	.0
8	1.000	1.000	.200	.200	58.0	.0
9	1.000	1.000	.200	.200	58.0	.0
10	1.000	1.000	.300	.300	58.0	.0
11	1.000	1.000	.600	.600	58.0	.0
12	1.000	1.000	.200	.200	58.0	.0
13	1.000	1.000	.200	.200	58.0	.0
14	1.000	1.000	.200	.200	58.0	.0
15	1.000	1.000	.400	.400	58.0	.0
16	1.000	1.000	.800	.800	58.0	.0
17	1.000	1.000	.200	.200	58.0	.0
18	1.000	1.000	.600	.600	58.0	.0
19	1.000	1.000	.300	.300	58.0	.0
20	.100	.200	.000	.000	58.0	.0
21	.100	.200	.000	.000	55.0	.0
22	.100	.200	.000	.000	55.0	.0
23	.100	.200	.000	.000	55.0	.0
24	.100	.200	.000	.000	55.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 26500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 6.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 3.750000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1919350.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2399188.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 826 - GYMNASIUM DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	2.	0.	0.	0.	2.	0.	0.	0.
	-433.	LOSS		-30.	-10.	0.	-50.	-1.	-376.	0.
FEB	0.	GAIN	2.	0.	0.	0.	5.	0.	1.	0.
	-344.	LOSS		-24.	-8.	0.	-34.	-1.	-311.	0.
MAR	0.	GAIN	2.	0.	0.	0.	12.	0.	3.	0.
	-276.	LOSS		-19.	-7.	0.	-24.	-1.	-272.	0.
APR	0.	GAIN	2.	0.	0.	0.	23.	0.	8.	0.
	-86.	LOSS		-9.	-4.	0.	-8.	0.	-126.	0.
MAY	.00	GAIN	2.36	1.11	.31	.00	31.06	.03	10.14	.00
	-12.65	LOSS		-3.68	-2.15	.00	-1.91	-.18	-77.19	.00
JUN	.00	GAIN	2.41	1.46	.29	.00	32.06	.02	9.58	.00
	-.01	LOSS		-2.66	-1.94	.00	-1.11	-.16	-65.93	.00
JUL	.00	GAIN	2.43	1.64	.31	.00	31.93	.03	11.14	.00
	.00	LOSS		-2.79	-1.95	.00	-1.20	-.16	-69.50	.00
AUG	.00	GAIN	2.11	1.23	.34	.00	28.88	.03	10.87	.00
	.00	LOSS		-2.86	-1.85	.00	-1.26	-.15	-65.62	.00
SEP	.00	GAIN	1.90	.31	.34	.00	23.34	.03	11.58	.00
	-10.76	LOSS		-4.74	-2.00	.00	-2.00	-.17	-66.79	.00
OCT	0.	GAIN	2.	0.	0.	0.	16.	0.	8.	0.
	-68.	LOSS		-10.	-3.	0.	-7.	0.	-102.	0.
NOV	0.	GAIN	1.	0.	0.	0.	7.	0.	4.	0.
	-193.	LOSS		-17.	-5.	0.	-21.	0.	-190.	0.
DEC	0.	GAIN	1.	0.	0.	0.	2.	0.	1.	0.
	-448.	LOSS		-30.	-10.	0.	-51.	-1.	-390.	0.
TOT	0.	GAIN	23.	6.	2.	0.	213.	0.	78.	0.
	-1872.	LOSS		-155.	-56.	0.	-202.	-5.	-2112.	0.

MAX HEATING LOAD= -1919350. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 6098.8

BLDG 826 - GYMNASIUM DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	57.	66.		4	16	63.	4.16	5.90	5.38	29.24
			54.	29	4	11.				
FEB	57.	69.		13	16	68.	3.76	5.33	4.66	26.22
			54.	8	21	53.				
MAR	58.	81.		28	16	76.	4.16	5.90	4.66	28.53
			55.	15	4	18.				
APR	63.	88.		30	16	84.	4.03	5.71	4.36	27.46
			53.	16	1	50.				
MAY	69.	94.		26	19	75.	4.16	5.90	4.05	27.91
			55.	11	22	51.				
JUN	76.	96.		30	19	82.	4.03	5.71	3.65	26.74
			56.	18	3	56.				
JUL	81.	105.		28	18	90.	4.16	5.90	3.82	27.69
			58.	10	4	57.				
AUG	79.	100.		29	16	95.	4.16	5.90	4.00	27.86
			59.	25	6	51.				
SEP	72.	99.		2	18	86.	4.03	5.71	3.63	26.73
			53.	17	1	50.				
OCT	63.	88.		1	15	85.	4.16	5.90	4.39	28.25
			54.	15	21	52.				
NOV	59.	78.		8	16	75.	4.03	5.71	4.63	27.73
			55.	2	24	20.				
DEC	57.	69.		23	17	62.	4.16	5.90	5.01	28.87
			53.	18	4	1.				
YEAR							48.98	69.51	52.24	333.23

BLDG 826 - GYMNASIUM DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	687	0	0	0	-.1730E+07	.0000
FEB	607	0	0	0	-.1549E+07	.0000
MAR	567	0	0	0	-.1356E+07	.0000
APR	314	0	0	0	-.8746E+06	.0000
MAY	83	0	0	0	-.5409E+06	.0000
JUN	1	0	0	0	-9489.	.0000
JUL	0	0	0	0	.0000	.0000
AUG	0	0	0	0	.0000	.0000
SEP	93	0	0	0	-.3990E+06	.0000
OCT	318	0	0	0	-.6782E+06	.0000
NOV	461	0	0	0	-.1155E+07	.0000
DEC	689	0	8	0	-.1919E+07	.0000
YEAR	3820	0	8	0	-.1919E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	650.45	.00	4.16	5.90	1.58	29.24	10.6
FEB	538.19	.00	3.76	5.33	1.37	26.22	10.6
MAR	454.57	.00	4.16	5.90	1.37	28.53	10.6
APR	186.20	.00	4.03	5.71	1.28	27.46	10.6
MAY	41.62	.00	4.16	5.90	1.19	27.91	10.6
JUN	.46	.00	4.03	5.71	1.07	26.74	10.6
JUL	.00	.00	4.16	5.90	1.12	27.69	10.6
AUG	.00	.00	4.16	5.90	1.17	27.86	10.6
SEP	43.55	.00	4.03	5.71	1.06	26.73	10.6
OCT	171.35	.00	4.16	5.90	1.29	28.25	10.6
NOV	338.75	.00	4.03	5.71	1.36	27.73	10.6
DEC	673.19	.00	4.16	5.90	1.47	28.87	10.6
YEAR	3098.32	.00	48.98	69.51	15.31	333.23	10.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 170840. BTU/(SQFT-YEAR)

BLDG 826 - GYMNASIUM DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	MAX SYSTEM DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.1730E+07
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.1549E+07
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.1356E+07
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.8746E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.5409E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-9489.
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.3990E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.6782E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.1155E+07
DEC	883.	604.	1.000	35.	0.	0.	0	8	.0000	-.1919E+07

BLDG 826 - GYMNASIUM OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 553768.100000
FLOOR AREA (SQFT) 19827.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1919350.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 1919350.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 2146.000000
INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA) 2.330000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 48600.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 488.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 115.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	6029.0	2660.0	5718.0	3378.0
WINDOW AREA SQFT (AWND)	55.0	.0	42.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	5.5	.0	4.2	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 19827.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.900000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.035165E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.868E-04 .217E-02 .252E-02 .260E-03 867. 867.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.16 .223 -.220E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	4987.	43850.	66400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	60.0	.0
2	.100	.200	.000	.000	60.0	.0
3	.100	.200	.000	.000	60.0	.0
4	.100	.200	.000	.000	60.0	.0
5	1.000	1.000	.200	.200	60.0	.0
6	1.000	1.000	.400	.400	60.0	.0
7	1.000	1.000	.400	.400	60.0	.0
8	1.000	1.000	.200	.200	60.0	.0
9	1.000	1.000	.200	.200	60.0	.0
10	1.000	1.000	.300	.300	60.0	.0
11	1.000	1.000	.600	.600	60.0	.0
12	1.000	1.000	.200	.200	60.0	.0

13	1.000	1.000	.200	.200	60.0	.0
14	1.000	1.000	.200	.200	60.0	.0
15	1.000	1.000	.400	.400	60.0	.0
16	1.000	1.000	.800	.800	60.0	.0
17	1.000	1.000	.200	.200	60.0	.0
18	1.000	1.000	.600	.600	60.0	.0
19	1.000	1.000	.300	.300	60.0	.0
20	.100	.200	.000	.000	60.0	.0
21	.100	.200	.000	.000	60.0	.0
22	.100	.200	.000	.000	60.0	.0
23	.100	.200	.000	.000	60.0	.0
24	.100	.200	.000	.000	60.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 26500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 6.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 3.750000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1919350.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2399188.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 826 - GYMNASIUM OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	2.	0.	0.	0.	1.	0.	0.	0.
	-476.	LOSS		-34.	-11.	0.	-60.	-1.	-402.	0.
FEB	0.	GAIN	2.	0.	0.	0.	3.	0.	1.	0.
	-382.	LOSS		-27.	-9.	0.	-42.	-1.	-335.	0.
MAR	0.	GAIN	2.	0.	0.	0.	10.	0.	2.	0.
	-315.	LOSS		-22.	-8.	0.	-30.	-1.	-297.	0.
APR	0.	GAIN	2.	0.	0.	0.	20.	0.	7.	0.
	-109.	LOSS		-11.	-4.	0.	-12.	0.	-139.	0.
MAY	.00	GAIN	2.36	.93	.29	.00	29.58	.02	9.57	.00
	-20.74	LOSS		-4.54	-2.53	.00	-3.34	-.21	-80.33	.00
JUN	.00	GAIN	2.41	1.34	.28	.00	31.36	.02	9.48	.00
	-.31	LOSS		-3.04	-2.12	.00	-1.77	-.17	-63.93	.00
JUL	.00	GAIN	2.43	1.53	.30	.00	31.26	.03	11.06	.00
	-.04	LOSS		-3.17	-2.13	.00	-1.89	-.18	-67.54	.00
AUG	.00	GAIN	2.11	1.12	.33	.00	28.22	.03	10.80	.00
	.00	LOSS		-3.22	-2.02	.00	-1.90	-.17	-63.60	.00
SEP	.00	GAIN	1.90	.21	.31	.00	21.95	.03	10.90	.00
	-20.12	LOSS		-5.76	-2.41	.00	-3.73	-.20	-70.57	.00
OCT	0.	GAIN	2.	0.	0.	0.	14.	0.	7.	0.
	-94.	LOSS		-12.	-4.	0.	-11.	0.	-118.	0.
NOV	0.	GAIN	1.	0.	0.	0.	6.	0.	3.	0.
	-225.	LOSS		-20.	-6.	0.	-27.	-1.	-210.	0.
DEC	0.	GAIN	1.	0.	0.	0.	1.	0.	0.	0.
	-489.	LOSS		-34.	-11.	0.	-60.	-1.	-415.	0.
TOT	0.	GAIN	23.	5.	2.	0.	198.	0.	73.	0.
	-2131.	LOSS		-179.	-66.	0.	-256.	-6.	-2262.	0.

MAX HEATING LOAD= -1919350. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 6098.8

BLDG 826 - GYMNASIUM OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	66.		4	16	63.	4.16	5.90	5.39	29.25
			59.	29	4	11.				
FEB	60.	69.		13	16	68.	3.76	5.33	4.74	26.30
			60.	13	22	58.				
MAR	61.	80.		28	16	76.	4.16	5.90	4.83	28.69
			59.	9	20	55.				
APR	65.	88.		30	16	84.	4.03	5.71	4.50	27.60
			58.	1	6	61.				
MAY	70.	95.		26	19	75.	4.16	5.90	4.05	27.92
			59.	11	21	54.				
JUN	77.	98.		30	19	82.	4.03	5.71	3.65	26.74
			60.	19	5	58.				
JUL	81.	106.		28	19	82.	4.16	5.90	3.82	27.69
			60.	10	4	57.				
AUG	80.	101.		11	19	84.	4.16	5.90	4.00	27.86
			61.	25	4	54.				
SEP	73.	99.		2	18	86.	4.03	5.71	3.68	26.78
			58.	14	19	53.				
OCT	65.	88.		1	15	85.	4.16	5.90	4.48	28.35
			59.	17	20	55.				
NOV	62.	78.		8	16	75.	4.03	5.71	4.77	27.86
			59.	13	18	55.				
DEC	60.	69.		23	18	55.	4.16	5.90	5.18	29.04
			55.	18	8	1.				
YEAR							48.98	69.51	53.09	334.07

BLDG 826 - GYMNASIUM OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
MONTH	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	714	0	0	0	-.1777E+07	.0000
FEB	628	0	0	0	-.1558E+07	.0000
MAR	607	0	0	0	-.1343E+07	.0000
APR	372	0	0	0	-.8834E+06	.0000
MAY	134	0	0	0	-.5601E+06	.0000
JUN	7	0	0	0	-.1031E+06	.0000
JUL	2	0	0	0	-.3169E+05	.0000
AUG	0	0	0	0	.0000	.0000
SEP	134	0	0	0	-.3794E+06	.0000
OCT	380	0	0	0	-.6932E+06	.0000
NOV	522	0	0	0	-.1184E+07	.0000
DEC	712	0	9	0	-.1919E+07	.0000
YEAR	4212	0	9	0	-.1919E+07	.0000

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	704.31	.00	4.16	5.90	1.58	29.25	10.6
FEB	583.67	.00	3.76	5.33	1.39	26.30	10.6
MAR	507.08	.00	4.16	5.90	1.41	28.69	10.6
APR	228.73	.00	4.03	5.71	1.32	27.60	10.6
MAY	67.82	.00	4.16	5.90	1.19	27.92	10.6
JUN	3.20	.00	4.03	5.71	1.07	26.74	10.6
JUL	.91	.00	4.16	5.90	1.12	27.69	10.6
AUG	.00	.00	4.16	5.90	1.17	27.86	10.6
SEP	65.29	.00	4.03	5.71	1.08	26.78	10.6
OCT	215.16	.00	4.16	5.90	1.31	28.35	10.6
NOV	391.31	.00	4.03	5.71	1.40	27.86	10.6
DEC	721.87	.00	4.16	5.90	1.52	29.04	10.6
YEAR	3489.36	.00	48.98	69.51	15.55	334.07	10.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 190605. BTU/(SQFT-YEAR)

BLDG 826 - GYMNASIUM OUTSIDE AIR (NIGHTIME) (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.1777E+07
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.1558E+07
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.1343E+07
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.8834E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.5601E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-.1031E+06
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	-.3169E+05
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	.0000
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.3794E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.6932E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.1184E+07
DEC	883.	604.	1.000	35.	0.	0.	0	9	.0000	-.1919E+07

BLDG 826 - GYMNASIUM OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 0
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 553768.100000
FLOOR AREA (SQFT) 19827.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 1919350.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) 0.000000E+00
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 1919350.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 2146.000000
INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA) 2.330000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 48600.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 488.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 115.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 6.200000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	6029.0	2660.0	5718.0	3378.0
WINDOW AREA SQFT (AWND)	55.0	.0	42.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	5.5	.0	4.2	.0
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.245	.245	.245	.245
WALL TRANSFER FUNCTIONS				
CN FACTORS	.01837	.01837	.01837	.01837
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00003	.00003	.00003	.00003
N=2	.00283	.00283	.00283	.00283
N=3	.01017	.01017	.01017	.01017
N=4	.00498	.00498	.00498	.00498
N=5	.00037	.00037	.00037	.00037
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.50943	-1.50943	-1.50943	-1.50943
N=3	.65654	.65654	.65654	.65654
N=4	-.07415	-.07415	-.07415	-.07415
N=5	.00212	.00212	.00212	.00212
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 19827.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.900000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 5.035165E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.868E-04 .217E-02 .252E-02 .260E-03 867. 867.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.16 .223 -.220E-02 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.400000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	8.	4987.	43850.	66400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.200	.000	.000	60.0	.0
2	.100	.200	.000	.000	60.0	.0
3	.100	.200	.000	.000	60.0	.0
4	.100	.200	.000	.000	60.0	.0
5	1.000	1.000	.200	.200	60.0	.0
6	1.000	1.000	.400	.400	60.0	.0
7	1.000	1.000	.400	.400	60.0	.0
8	1.000	1.000	.200	.200	60.0	.0
9	1.000	1.000	.200	.200	60.0	.0
10	1.000	1.000	.300	.300	60.0	.0
11	1.000	1.000	.600	.600	60.0	.0
12	1.000	1.000	.200	.200	60.0	.0

13	1.000	1.000	.200	.200	60.0	.0
14	1.000	1.000	.200	.200	60.0	.0
15	1.000	1.000	.400	.400	60.0	.0
16	1.000	1.000	.800	.800	60.0	.0
17	1.000	1.000	.200	.200	60.0	.0
18	1.000	1.000	.600	.600	60.0	.0
19	1.000	1.000	.300	.300	60.0	.0
20	.100	.200	.000	.000	60.0	.0
21	.100	.200	.000	.000	60.0	.0
22	.100	.200	.000	.000	60.0	.0
23	.100	.200	.000	.000	60.0	.0
24	.100	.200	.000	.000	60.0	.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 60.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 100.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 26500.000000
ECONOMIZER HIGH TEMP LIMIT F 100.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 6.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 3.750000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 1919350.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 2399188.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 4
COOLING PLANT RATED OUTPUT BTU (CFLOT) 1.000000E-10
COOLING PLANT RATED INPUT BTU (CFLIN) 0.000000E+00
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000	.000	.000	.000	.000
.000	.000	.000	.000				

BLDG 826 - GYMNASIUM OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	2.	0.	0.	0.	1.	0.	0.	0.
	-491.	LOSS		-34.	-11.	0.	-60.	-1.	-418.	0.
FEB	0.	GAIN	2.	0.	0.	0.	3.	0.	0.	0.
	-395.	LOSS		-27.	-9.	0.	-42.	-1.	-348.	0.
MAR	0.	GAIN	2.	0.	0.	0.	10.	0.	2.	0.
	-327.	LOSS		-22.	-8.	0.	-30.	-1.	-309.	0.
APR	0.	GAIN	2.	0.	0.	0.	21.	0.	7.	0.
	-115.	LOSS		-11.	-4.	0.	-11.	0.	-146.	0.
MAY	.00	GAIN	2.36	1.04	.32	.00	30.30	.03	9.03	.00
	-22.86	LOSS		-4.18	-2.38	.00	-2.72	-.19	-83.93	.00
JUN	.00	GAIN	2.41	1.47	.30	.00	32.13	.03	9.00	.00
	-.36	LOSS		-2.66	-1.95	.00	-1.14	-.16	-65.75	.00
JUL	.00	GAIN	2.43	1.67	.33	.00	32.05	.03	10.59	.00
	-.05	LOSS		-2.76	-1.96	.00	-1.19	-.16	-69.20	.00
AUG	.00	GAIN	2.11	1.28	.37	.00	29.09	.03	10.20	.00
	-.01	LOSS		-2.82	-1.85	.00	-1.23	-.15	-65.35	.00
SEP	.00	GAIN	1.90	.27	.34	.00	22.55	.03	10.36	.00
	-22.64	LOSS		-5.39	-2.28	.00	-3.15	-.19	-74.34	.00
OCT	0.	GAIN	2.	0.	0.	0.	14.	0.	7.	0.
	-100.	LOSS		-12.	-4.	0.	-11.	0.	-124.	0.
NOV	0.	GAIN	1.	0.	0.	0.	6.	0.	3.	0.
	-235.	LOSS		-20.	-6.	0.	-27.	-1.	-220.	0.
DEC	0.	GAIN	1.	0.	0.	0.	1.	0.	0.	0.
	-503.	LOSS		-34.	-11.	0.	-60.	-1.	-429.	0.
TOT	0.	GAIN	23.	6.	2.	0.	203.	0.	69.	0.
	-2210.	LOSS		-176.	-65.	0.	-251.	-5.	-2352.	0.

MAX HEATING LOAD= -1919350. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 0. BTUH ON DEC 31 HOUR 24 AMBIENT TEMP 42.

ZONE UA BTU/HR-F 6098.8

BLDG 826 - GYMNASIUM OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	60.	66.		4	16	63.	4.16	5.90	5.39	29.25
			59.	29	4	11.				
FEB	60.	68.		13	16	68.	3.76	5.33	4.76	26.32
			59.	2	3	15.				
MAR	61.	81.		28	16	76.	4.16	5.90	4.85	28.71
			59.	12	1	58.				
APR	65.	89.		30	16	84.	4.03	5.71	4.53	27.63
			58.	1	6	61.				
MAY	70.	94.		26	19	75.	4.16	5.90	4.05	27.92
			59.	9	20	54.				
JUN	76.	96.		30	19	82.	4.03	5.71	3.65	26.74
			60.	19	5	58.				
JUL	81.	105.		28	18	90.	4.16	5.90	3.82	27.69
			60.	10	4	57.				
AUG	79.	100.		29	16	95.	4.16	5.90	4.02	27.88
			60.	25	6	51.				
SEP	73.	99.		2	18	86.	4.03	5.71	3.71	26.80
			59.	16	9	61.				
OCT	65.	88.		1	15	85.	4.16	5.90	4.52	28.39
			59.	3	2	58.				
NOV	62.	79.		8	16	75.	4.03	5.71	4.78	27.88
			59.	9	14	55.				
DEC	60.	68.		23	17	62.	4.16	5.90	5.19	29.05
			53.	18	4	1.				
YEAR							48.98	69.51	53.28	334.26

BLDG 826 - GYMNASIUM OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED		NUMBER OF HOURS WHEN LOADS WERE NOT MET		MAXIMUM LOADS BTU	
	HEATING	COOLING INCLUDING ECONOMIZER	HEATING	COOLING	HEATING	COOLING
JAN	715	0	0	0	-.1897E+07	.0000
FEB	631	0	0	0	-.1654E+07	.0000
MAR	612	0	0	0	-.1423E+07	.0000
APR	376	0	0	0	-.9515E+06	.0000
MAY	133	0	0	0	-.6114E+06	.0000
JUN	7	0	0	0	-.1034E+06	.0000
JUL	2	0	0	0	-.3945E+05	.0000
AUG	3	0	0	0	-7507.	.0000
SEP	139	0	0	0	-.4159E+06	.0000
OCT	389	0	0	0	-.7569E+06	.0000
NOV	523	0	0	0	-.1272E+07	.0000
DEC	714	0	11	0	-.1919E+07	.0000
YEAR	4244	0	11	0	-.1919E+07	.0000

SYSTEM TOTALS

	ENERGY CONSUMPTION					TOTAL INTERNAL	MAXIMUM
MONTH	HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	HEAT GAIN MILLION BTU	ELECTRIC DEMAND KW
JAN	721.14	.00	4.16	5.90	1.58	29.25	10.6
FEB	598.16	.00	3.76	5.33	1.40	26.32	10.6
MAR	520.15	.00	4.16	5.90	1.42	28.71	10.6
APR	235.79	.00	4.03	5.71	1.33	27.63	10.6
MAY	68.77	.00	4.16	5.90	1.19	27.92	10.6
JUN	3.20	.00	4.03	5.71	1.07	26.74	10.6
JUL	.91	.00	4.16	5.90	1.12	27.69	10.6
AUG	1.37	.00	4.16	5.90	1.18	27.88	10.6
SEP	68.33	.00	4.03	5.71	1.09	26.80	10.6
OCT	223.77	.00	4.16	5.90	1.33	28.39	10.6
NOV	402.10	.00	4.03	5.71	1.40	27.88	10.6
DEC	737.44	.00	4.16	5.90	1.52	29.05	10.6
YEAR	3581.12	.00	48.98	69.51	15.61	334.26	10.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 195243. BTU/(SQFT-YEAR)

BLDG 826 - GYMNASIUM OUTSIDE AIR (DAYTIME) (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.1897E+07
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.0000	-.1654E+07
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.0000	-.1423E+07
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.0000	-.9515E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.0000	-.6114E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.0000	-.1034E+06
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.0000	-.3945E+05
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.0000	-7507.
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.0000	-.4159E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.0000	-.7569E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.0000	-.1272E+07
DEC	883.	604.	1.000	35.	0.	0.	0	11	.0000	-.1919E+07

COMPUTER SIMULATIONS

BUILDING 1350

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 1350
BLDG. TYPE: RESERVE CENTER

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	610.9	447.4	373.8	373.8	34.6	54.8
COOLING (kWH)	21900	18495	16358	16243	21900	20193

SUPPLY AIR FAN	15286 CFM
FLOOR AREA	17677 FT²
CFMI	1188 CFM
UA	3851 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	500	2000	75 HR
SAT.	500	2000	15 HR
SUN.	500	2000	15 HR
	TOTAL OCCUPY HR.		105 HR/WK
	TOTAL UNOCC. HR.		63 HR/WK
	ANNUAL OCCUPY HR.		5475 HR/YR
	ANNUAL UNOCC. HR.		3285 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	2730 HR/YR
HR. ON COOLING	1830 HR/YR
HR. OFF HEATING	1638 HR/YR
HR. OFF COOLING	1098 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 2730 = 1638 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 1830 = 1098 HR/YR

HOAUHC	610.9 MBtu –	34.6 MBtu	=	1.48E+02 Btu/CFM-HR
	1188 CFM *	3285 HR/YR		
HOAUH	610.9 MBtu –	34.6 MBtu	=	2.96E+02 Btu/CFM-HR
	1188 CFM *	1638 HR/YR		
COAUHC	21900 kWH –	21900 kWH	=	0.00E+00 kWH/CFM-HR
	1188 CFM *	3285 HR/YR		
COAUC	21900 kWH –	21900 kWH	=	0.00E+00 kWH/CFM-HR
	1188 CFM *	1098 HR/YR		
HOAOHC	610.9 MBtu –	54.8 MBtu	=	8.55E+01 Btu/CFM-HR
	1188 CFM *	5475 HR/YR		
HOAOH	610.9 MBtu –	54.8 MBtu	=	1.71E+02 Btu/CFM-HR
	1188 CFM *	2730 HR/YR		
COAOHC	21900 kWH	20193 kWH	=	2.62E-04 kWH/CFM-HR
	1188 CFM *	5475 HR/YR		
COAOC	21900 kWH	20193 kWH	=	7.85E-04 kWH/CFM-HR
	1188 CFM *	1830 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 1350
BLDG. TYPE: RESERVE CENTER

ENERGY CONSTANT CALCULATIONS

ECC	16358 kWH	– 16243 kWH	=	4.11E-06 kWH/CFM-HR
	15286 CFM	* 1830 HR/YR		
ECHC	16358 kWH	– 16243 kWH	=	1.37E-06 kWH/CFM-HR
	15286 CFM	* 5475 HR/YR		
NSUCHC	21900 kWH	– 18495 kWH	=	6.78E-05 kWH/CFM-HR
	15286 CFM	* 3285 HR/YR		
NSUCC	21900 kWH	– 18495 kWH	=	2.03E-04 kWH/CFM-HR
	15286 CFM	* 1098 HR/YR		
DDCCHC	18495 kWH	– 16358 kWH	=	2.55E-05 kWH/CFM-HR
	15286 CFM	* 5475 HR/YR		
DDCCC	18495 kWH	– 16358 kWH	=	7.64E-05 kWH/CFM-HR
	15286 CFM	* 1830 HR/YR		
NSC	610.9 MBtu	– 447.4 MBtu	=	4.25E+04 Btu/UA
	3851 UA			
DSC	447.4 MBtu	– 373.8 MBtu	=	1.91E+04 Btu/UA
	3851 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	16-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	1350BLZ1

BUILDING HEATING LOAD CALCULATION SHEET

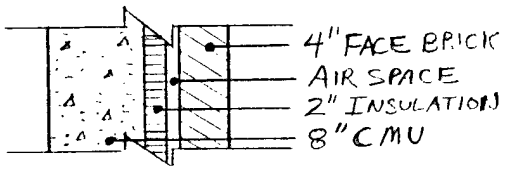
BLDG NO: 1350 BLDG NAME: RESERVE CENTER
BLDG FUNCTION: KITCHEN
FLOOR AREA: (SQ. FT) 648 # FLOORS 1
SLAB PERIMETER: (FT) 36

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	57	57	0	629	743
GLASS	(SQ. FT)	0	0	0	6	6
PERSONNEL DOOR	(SQ. FT)	0	0	0	22	22
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	57	57	0	601	715
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	648
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	22
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

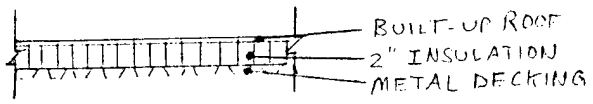
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	RIGID INSULATION	5.00
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.21
	U=1/R	0.109

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	2" RIGID INSULATION	6.68
4.	AIR SPACE	1.00
5.	BATT INSULATION	30.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	40.65
	U=1/R	0.025

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	743	X CFM / SQ.FT.	0.115	=	85
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		3	X CFM /OPENING /HR	1.600	=	5
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	=	0
			TOTAL INFILTRATION (CFM)		=	90

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	22	X DOOR "U"	0.391	=	8
UA WALL	= WALL AREA	715	X WALL "U"	0.109	=	78
UA ROOF	= ROOF AREA	648	X ROOF "U"	0.025	=	16
UA GLASS	= GLASS AREA	6	X GLASS "U"	0.621	=	4
UA SLAB	= SLAB PERIM.	36	X SLF	0.670	=	24
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	90	X A. T. F.	1.035	=	93
			TOTAL UA (BTU/HR°F)			223

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	24-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	1350BLZ2

BUILDING HEATING LOAD CALCULATION SHEET

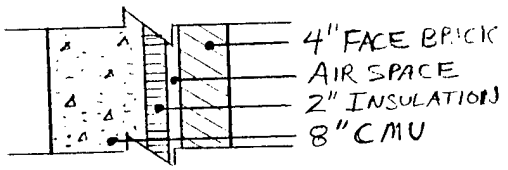
BLDG NO: 1350 BLDG NAME: RESERVE CENTER
BLDG FUNCTION: SHIPPING / SUPPLY
FLOOR AREA: (SQ. FT) 4,728 # FLOORS 1
SLAB PERIMETER: (FT) 259

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,834	672	560	560	3,626
GLASS	(SQ. FT)	12	0	12	12	36
PERSONNEL DOOR	(SQ. FT)	42	0	42	42	126
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	1,780	672	506	506	3,464
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	4,728
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	126
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

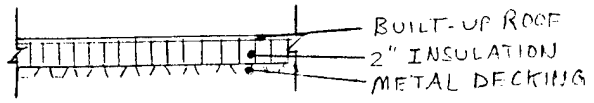
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	RIGID INSULATION	5.00
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.21
	U=1/R	0.109

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECK	0.00
5.		
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	7.87
	U=1/R	0.127

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M 3626	X CFM / SQ.FT.	0.115	=	417
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	15	X CFM /OPENING /HR	1.385	=	21
		TOTAL INFILTRATION (CFM)		=	438

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	126	X DOOR "U"	0.391	=	49
UA WALL	= WALL AREA	3,464	X WALL "U"	0.109	=	376
UA ROOF	= ROOF AREA	4,728	X ROOF "U"	0.127	=	601
UA GLASS	= GLASS AREA	36	X GLASS "U"	0.621	=	22
UA SLAB	= SLAB PERIM.	259	X SLF	0.670	=	174
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	438	X A. T. F.	1.035	=	453
			TOTAL UA (BTU/HR°F)			1,675

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	16-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	1350BLZ3

BUILDING HEATING LOAD CALCULATION SHEET

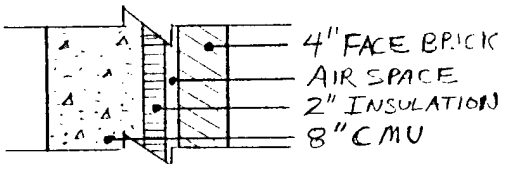
BLDG NO: 1350 BLDG NAME: RESERVE CENTER
BLDG FUNCTION: CLASSROOMS
FLOOR AREA: (SQ. FT) 4,357 # FLOORS 1
SLAB PERIMETER: (FT) 120

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	910	0	770	1,680
GLASS	(SQ. FT)	0	55	0	15	70
PERSONNEL DOOR	(SQ. FT)	0	21	0	21	42
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	834	0	734	1,568
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	4,357
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

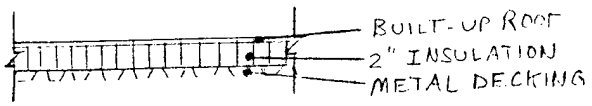
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	RIGID INSULATION	5.00
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.21
	U=1/R	0.109

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	2" RIGID INSULATION	6.68
4.	AIR SPACE	1.00
5.	BATT INSULATION	30.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	40.65
	U=1/R	0.025

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	1682	X CFM / SQ.FT.	0.115	=	193
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		15	X CFM /OPENING /HR	1.385	=	21
			TOTAL INFILTRATION (CFM)		=	214

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	1,568	X WALL "U"	0.109	=	170
UA ROOF	= ROOF AREA	4,357	X ROOF "U"	0.025	=	107
UA GLASS	= GLASS AREA	70	X GLASS "U"	0.621	=	43
UA SLAB	= SLAB PERIM.	120	X SLF	0.670	=	80
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	214	X A. T. F.	1.035	=	222
			TOTAL UA (BTU/HR°F)			639

E M C ENGINEERS, INC.

DATE:	16-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	1350BLZ4

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

BUILDING HEATING LOAD CALCULATION SHEET

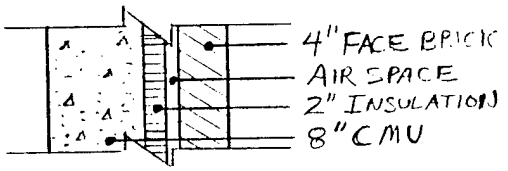
BLDG NO: 1350 BLDG NAME: RESERVE CENTER
BLDG FUNCTION: ASSEMBLY HALL
FLOOR AREA: (SQ. FT) 2,232 # FLOORS 1
SLAB PERIMETER: (FT) 37

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	186	186	629	0	1,001
GLASS	(SQ. FT)	0	0	6	0	6
PERSONNEL DOOR	(SQ. FT)	0	0	42	0	42
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	186	186	581	0	953
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	2,232
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

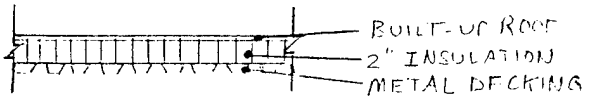
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	RIGID INSULATION	5.00
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.21
	U=1/R	0.109

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	2" RIGID INSULATION	6.68
4.	AIR SPACE	1.00
5.	BATT INSULATION	30.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	40.65
	U=1/R	0.025

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M 1001	X CFM / SQ.FT.	0.115	=	115
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	25	X CFM /OPENING /HR	1.385	=	35
		TOTAL INFILTRATION (CFM)		=	150

UA PANEL	= PANEL AREA	0	X PANEL 'U'	0.238	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR 'U'	0.391	=	16
UA WALL	= WALL AREA	953	X WALL 'U'	0.109	=	103
UA ROOF	= ROOF AREA	2,232	X ROOF 'U'	0.025	=	55
UA GLASS	= GLASS AREA	6	X GLASS 'U'	0.621	=	4
UA SLAB	= SLAB PERIM.	37	X SLF	0.670	=	25
UA BASEM.	=B-WALL AREA	0	X BASE. 'U'	0.000	=	0
INFILTRATION	= CFM	150	X A. T. F.	1.035	=	155
			TOTAL UA (BTU/HR°F)			358

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	16-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	1350BLZ5

BUILDING HEATING LOAD CALCULATION SHEET

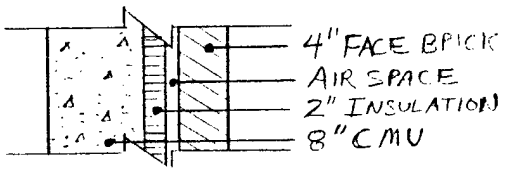
BLDG NO: 1350 BLDG NAME: RESERVE CENTER
BLDG FUNCTION: ADMINISTRATION
FLOOR AREA: (SQ. FT) 5,712 # FLOORS 1
SLAB PERIMETER: (FT) 169

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	336	910	1,120	0	2,366
GLASS	(SQ. FT)	0	102	146	0	248
PERSONNEL DOOR	(SQ. FT)	0	21	21	0	42
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	336	787	953	0	2,076
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	5,712
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

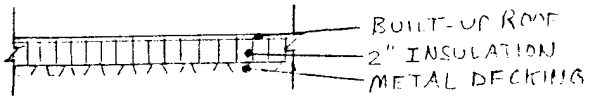
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	RIGID INSULATION	5.00
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.21
	U=1/R	0.109

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	2" RIGID INSULATION	6.68
4.	AIR SPACE	1.00
5.	BATT INSULATION	30.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	40.65
	U=1/R	0.025

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	2366	X CFM / SQ.FT.	0.115	=	272
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		15	X CFM /OPENING /HR	1.600	=	24
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	=	0
			TOTAL INFILTRATION (CFM)		=	296

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	2,076	X WALL "U"	0.109	=	225
UA ROOF	= ROOF AREA	5,712	X ROOF "U"	0.025	=	141
UA GLASS	= GLASS AREA	248	X GLASS "U"	0.621	=	154
UA SLAB	= SLAB PERIM.	169	X SLF	0.670	=	113
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	296	X A. T. F.	1.035	=	306
			TOTAL UA (BTU/HR°F)			956

E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z1
BLDG: 1350 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	4	7	Walking, 3mph, light machine work	Factory	375	625	1,500	2,500
TOTAL	4					TOTAL	1,500	2,500

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	7	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	588
	6	8	Fluorescent, 4 - 34w lamps, 2 - 16w ballasts (2x4 ft. fix.)	168	1,008
TOTAL	13			TOTAL	1,596

Peak Value for Internal Gains

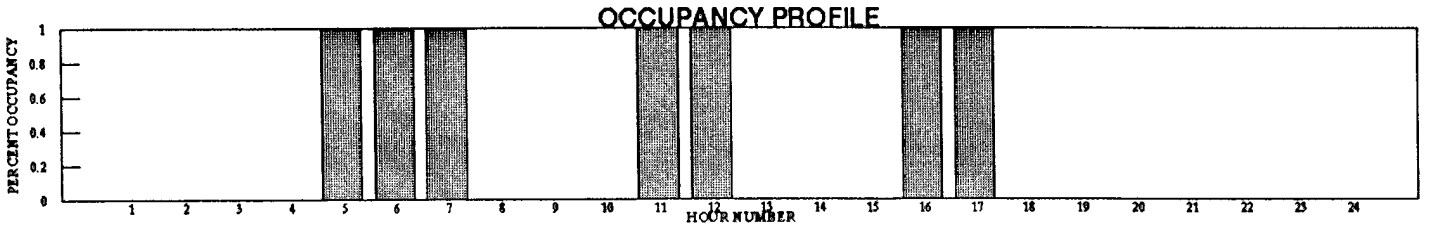
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space (%)	Total Wattage	Total (BTU)
1	1	101	Dishwasher (hood type chemical sanitizing), per 100 dish/h	510	41%	510	1,741
	1	83	Freezer (large)	1,340	40%	1,340	4,573
	1	84	Griddle/grill (large) per sq.ft. of cooking surface (4.6 to 11.8	2,696	10%	2,696	9,201
	1	87	Microwave oven (Heavy duty commercial)	2,628	100%	2,628	8,969
	1	81	Food Warmer (infrared buld), per lamp	249	100%	249	850
	2	97	Oven (large convection), per cu.ft. of oven space	1,304		2,608	8,901
	1	77	Coffee brewing Urn (large), per quart capacity	624	105%	624	2,130
	1	86	Ice maker	1,089	251%	1,089	3,717
	1	95	Fryer (deep fat), per lb. of fat capacity	372		372	1,270
	2	89	Refrigerator (large), per 100 cu.ft. of space	220	40%	440	1,502
				TOTAL	59%	12,556	42,854

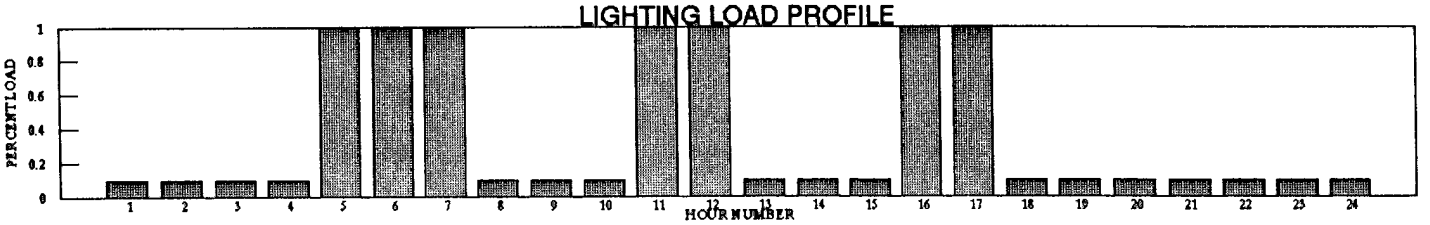
E M C Engineers, Inc.

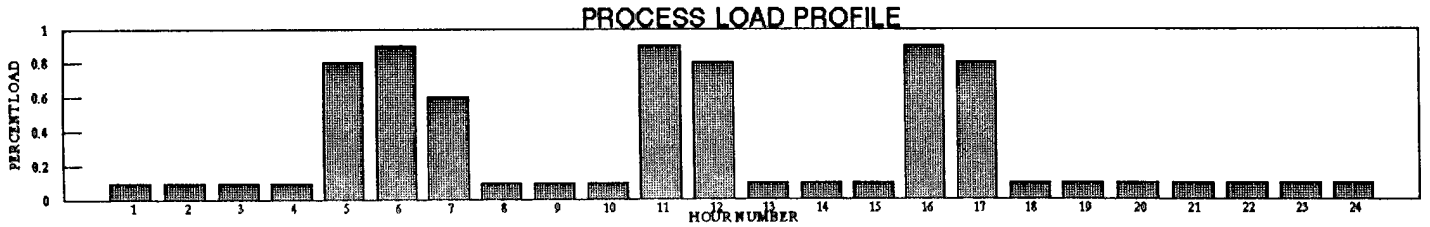
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z1
BLDG: 1350
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Kitchen	OCCUPANCY					1	1	1				1	1				1	1							
		LIGHTING	0.1	0.1	0.1	0.1	1	1	1	0.1	0.1	0.1	1	1	0.1	0.1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.8	0.9	0.6	0.1	0.1	0.1	0.9	0.8	0.1	0.1	0.1	0.9	0.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z2
BLDG: 1350 ZONE: 2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2	3	7	Walking, 3mph, light machine work	Factory	375	625	1,125	1,875
TOTAL	3					TOTAL	1,125	1,875

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2	57	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	4,788
	3	62	Exit Light	20	60
TOTAL	60			TOTAL	4,848

Peak Value for Internal Gains

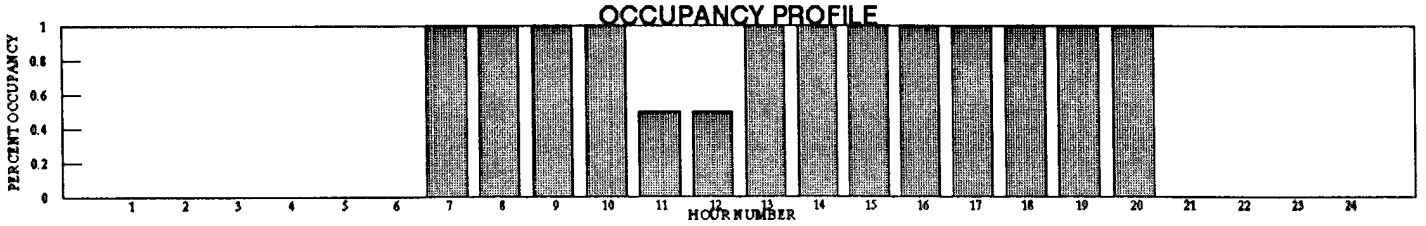
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
2	1	45	Micro Fiche Machine	250	50%	250	853
	1	10	Copy Machine	1,570	20%	1,570	5,358
				TOTAL	24%	1,820	6,212

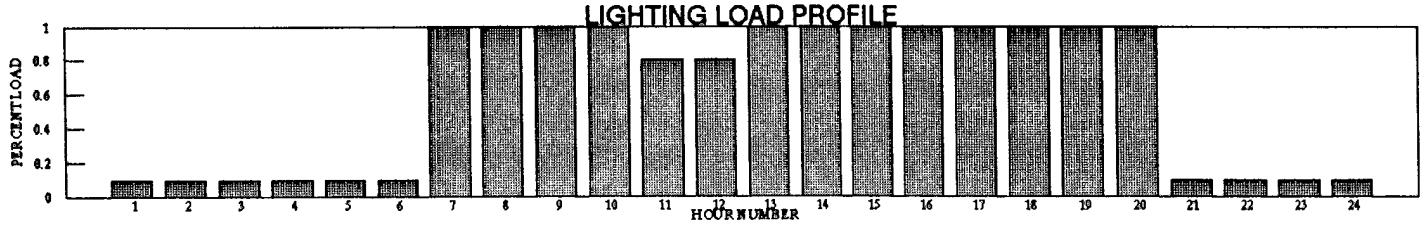
E M C Engineers, Inc.

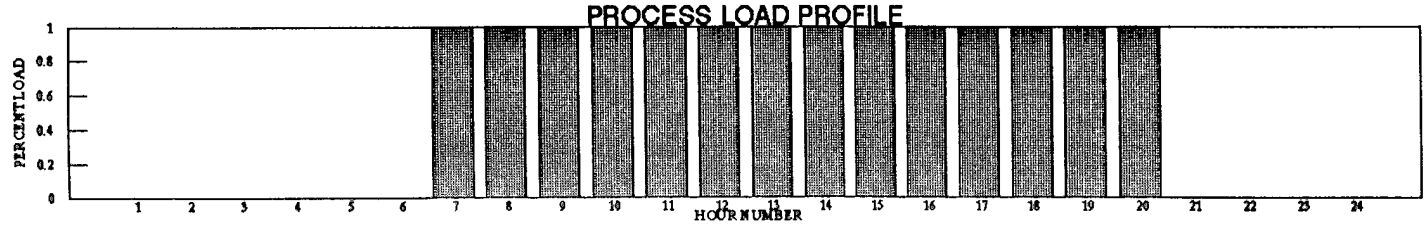
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z2
BLDG: 1350
ZONE: 2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	1	1	1	1	1				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.8	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1
		PROCESS							1	1	1	1	1	1	1	1	1	1	1	1	1	1				







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 17-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z3
BLDG: 1350 ZONE: 3

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
3	48	2	Seated very light work (writing)	Offices, hotels, apts	245	155	11,760	7,440
TOTAL	48					TOTAL	11,760	7,440

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
3	13	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,092
	58	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	6,844
TOTAL	71			TOTAL	7,936

Peak Value for Internal Gains

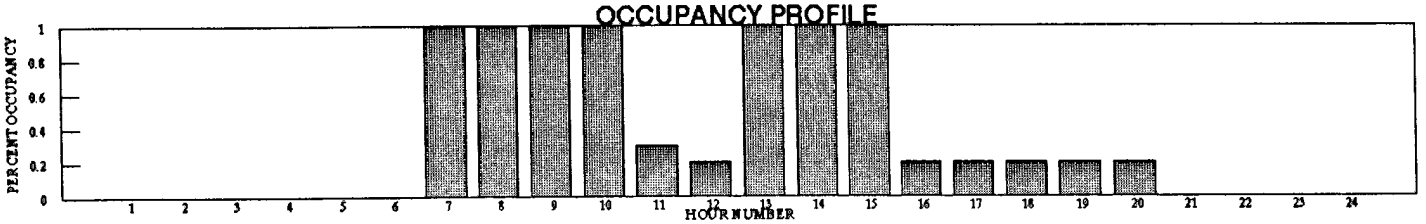
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
3	1	116	Pop Machine	321	35%	321	1,096
				TOTAL	35%	321	1,096

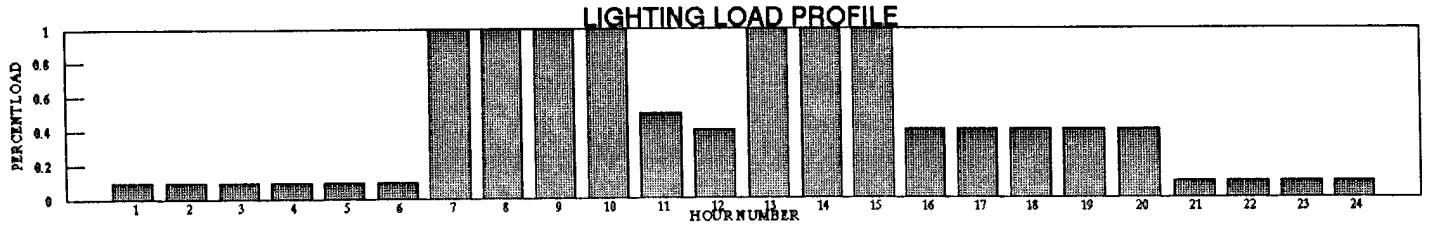
E M C Engineers, Inc.

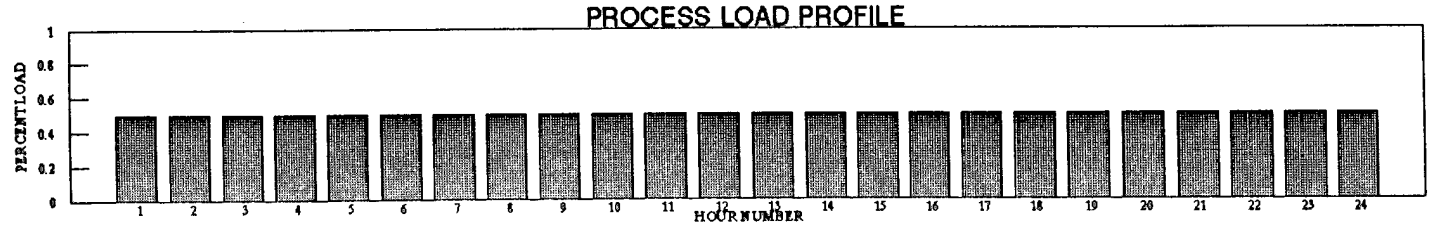
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 17-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z3
BLDG: 1350
ZONE: 3

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.3	0.2	1	1	1	0.2	0.2	0.2	0.2	0.2				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.5	0.4	1	1	1	0.4	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.1
		PROCESS	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z4
BLDG: 1350 ZONE: 4

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4	40	4	Seated, light work, typing	Offices, hotels, apts	250	200	10,000	8,000
TOTAL	40					TOTAL	10,000	8,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4	2	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	168
	12	42	Metal Halide – 175w with 40w ballast	215	2,580
	3	62	Exit Light	20	60
TOTAL	17			TOTAL	2,808

Peak Value for Internal Gains

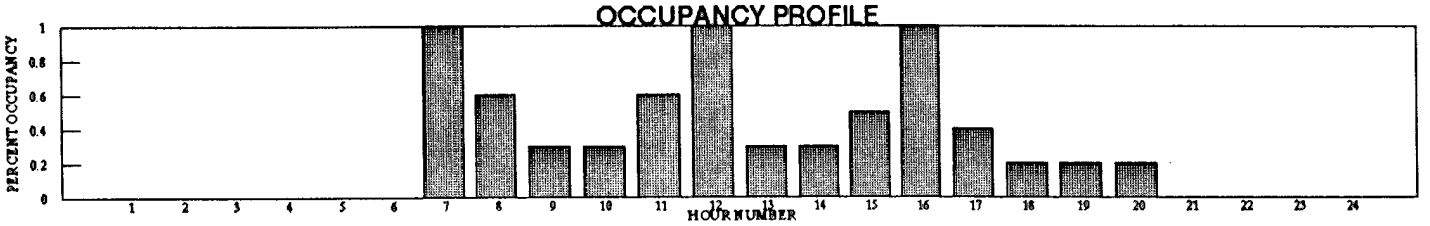
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4	3	116	Pop Machine	326	20%	978	3,338
	1	24	Coffee Maker	1,500	30%	1,500	5,120
	1	77	Coffee brewing Urn (large), per quart capacity	624	105%	624	2,130
				TOTAL	42%	3,102	10,587

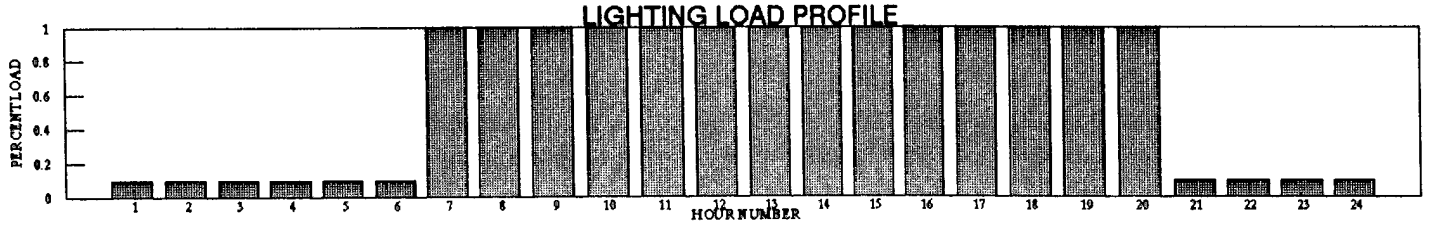
E M C Engineers, Inc.

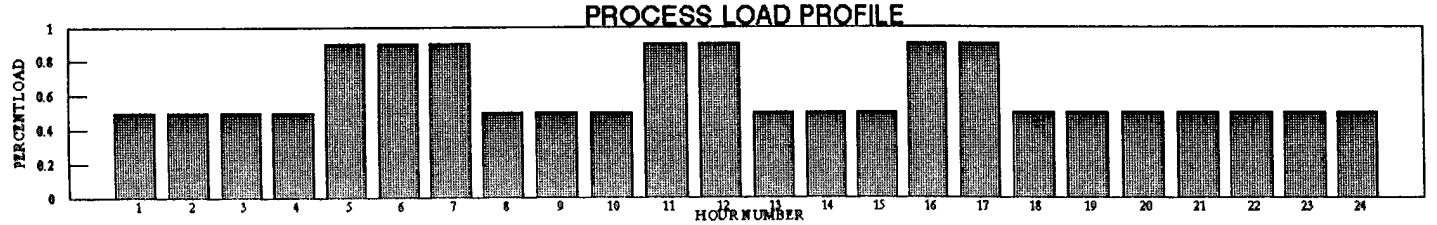
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z4
BLDG: 1350
ZONE: 4

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	0.6	0.3	0.3	0.6	1	0.3	0.3	0.5	1	0.4	0.2	0.2	0.2				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1
		PROCESS	0.5	0.5	0.5	0.5	0.9	0.9	0.9	0.5	0.5	0.5	0.9	0.9	0.5	0.5	0.5	0.9	0.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z5
BLDG: 1350 ZONE: 5

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
5	50	4	Seated, light work, typing	Offices, hotels, apts	250	200	12,500	10,000
TOTAL	50					TOTAL	12,500	10,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
5	89	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	14,952
	1	62	Exit Light	20	20
TOTAL	90			TOTAL	14,972

Peak Value for Internal Gains

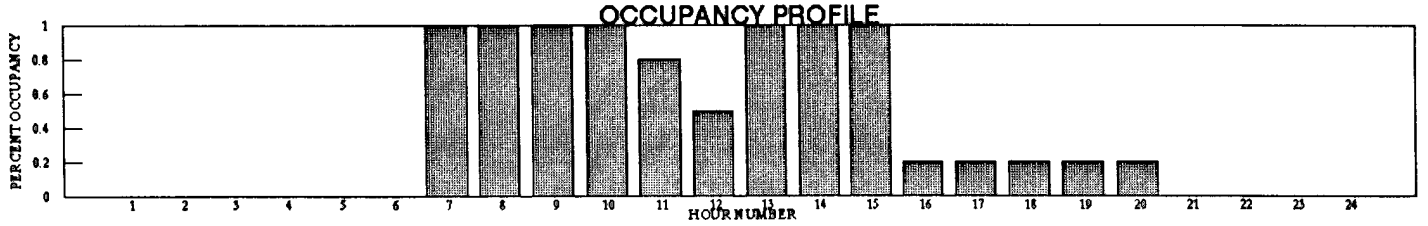
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
5	4	12	Typewriter	100	10%	400	1,365
	1	45	Micro Fiche Machine	250	50%	250	853
	6	49	Radio	71	10%	426	1,454
	1	46	Microwave Oven	600	65%	600	2,048
	1	24	Coffee Maker	1,500	30%	1,500	5,120
	1	116	Pop Machine	326	20%	326	1,113
	4	3	Microcomputer	350	91%	1,400	4,778
	4	5	Printer (laser)	870	34%	3,480	11,877
	2	10	Copy Machine	1,570	20%	3,140	10,717
				TOTAL	37%	11,522	39,325

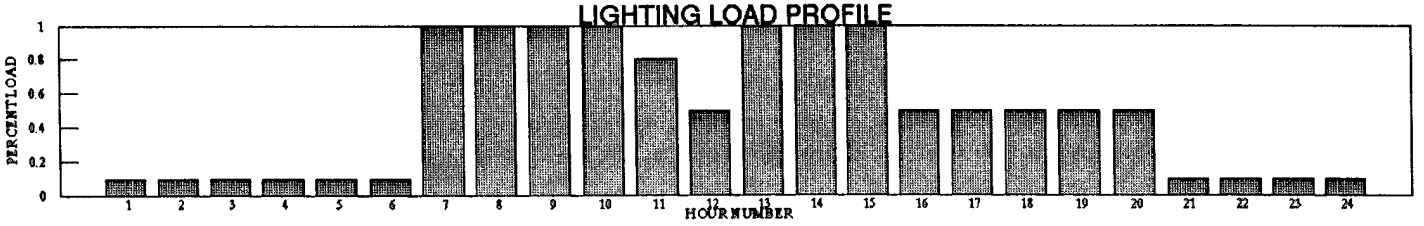
E M C Engineers, Inc.

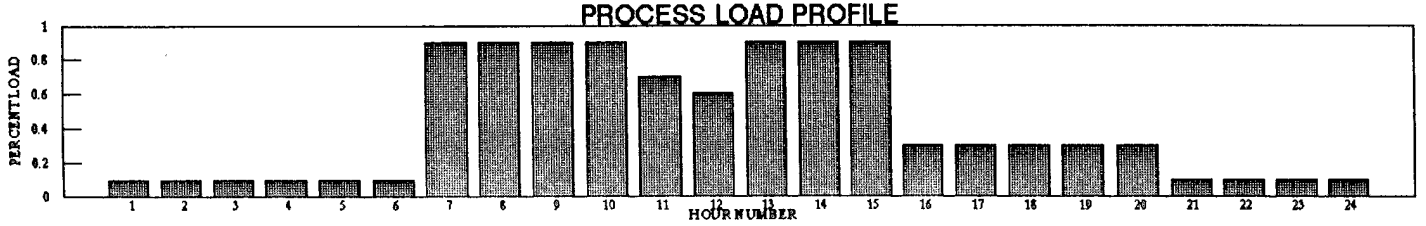
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 16-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1350Z5
BLDG: 1350
ZONE: 5

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.8	0.5	1	1	1	0.2	0.2	0.2	0.2	0.2				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.5	1	1	1	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.9	0.9	0.9	0.7	0.6	0.9	0.9	0.9	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1







01 Card - Job Information

Project: EEAP STUDY, EXPANSION OF EMCS
Location: FT. LEONARD WOOD, MO
Client: US ARMY
Program User: E M C ENGINEERS, INC.

-----CARD 08-- Climatic Information

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
SPRINGFM	.97	.97	94	78	3			

-----CARD 09-- Load Simulation Periods

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
MAY	SEP		JUN	SEP	APR	OCT

-----CARD 10 -- Load Simulation Parameters

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
TETD-TA1	TETD-TA1	OADB	ACTUAL	ACTUAL	MED-RCR	NO

-----CARD 11-- Energy Simulation Parameters

1st Month Energy Simulation	Last Month Energy Simulation	Level Of Calculation	Holiday Code	Calendar Code	Building Floor Area
JAN	DEC	ROOM	1978	1978	17677

---------- Load Section Alternative #1 ----------

---- Load Alternative ----

Number	Description
1	BLDG 1350 BASERUN FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	KITCHEN	36	18	2	0		17			
2	2	WAREHOUSE SUPPLY	131	36.092	2	0		14			
3	3	CLASSROOMS	67.031	65	2	0		14			
4	4	ASSEMBLY HALL	60.324	37	2	0		17			
5	5	ADMINISTRATION	87.877	65	2	0		14			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	75			CLG75SUM	70		HTG70WNT	ROOM	LIGHT30	NO
1										
2					67		HTG67WNT			
3										
4										
5										

-----CARD 22-- Roof Parameters ----------

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
M	1				.025	50			.67
1	1	YES							
2	1	YES			.127				
3	1	YES							
4	1	YES							
5	1	YES							

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
M	1			.109	89			.68	
1	1	10	5.7			0			
1	2	10	5.7			180			
1	3	65.1	10	.119		270			
2	1	187.6	10	.115		0			
2	2	67.2	10			180			
2	3	60.2	10	.129					
2	4	60.2	10	.129		270			
3	1	93.1	10	.115		180			
3	2	79.1	10	.116		270			

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
4	1	18.6	10			0			
4	2	18.6	10			180			
4	3	67.1	10	.127		90			
5	1	33.6	10			0			
5	2	93.1	10	.115		180			
5	3	114.1	10	.114		90			

-----CARD 25-- Wall/Glass Parameters ----------

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
M	1				.62	.58				.8	
1	3	3	2	1							
2	1	6	2	1							
2	3	6	2	1							
2	4	6	2	1							
3	1	11	5	1				3			
3	2	5	3	1							
4	3	3	2	1							
5	2	12.75	8	1				3			
5	3	18.25	8	1				3			

-----CARD 26-- Schedules ----------

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	P-1350Z1	L-1350Z1	AVAIL	AVAIL		AVAIL	AVAIL			
2	P-1350Z2	L-1350Z2	AVAIL	AVAIL		AVAIL	AVAIL			
3	P-1350Z3	L-1350Z3	AVAIL	AVAIL		AVAIL	AVAIL			
4	P-1350Z4	L-1350Z4	AVAIL	AVAIL		AVAIL	AVAIL			
5	P-1350Z5	L-1350Z5	AVAIL	AVAIL		AVAIL	AVAIL			

-----CARD 27-- People and Lights ----------

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting ---- Reference Point 1	Reference Point 2
M		PEOPLE				WATTS	RECFL-NV				
1	4		375	625	1596						
2	3		375	625	4848						
3	48		245	155	7936						
4	40		250	200	2808		INCAND				
5	50		250	200	14972						

-----CARD 28--- Miscellaneous Equipment ----------

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
M	1	PROCESS EQUIP		WATTS		ELEC					SAME-RA
1	1		12556		E-1350Z1			5			
2	1		1820		E-1350Z2			24			
3	1		321		E-1350Z3			35			
4	1		3102		E-1350Z4			42			
5	1		11522		E-1350Z5			37			

-----CARD 29--- Room Airflows ----------

Room Number	Ventilation -----Cooling----- Value	Ventilation -----Cooling----- Units	Ventilation -----Heating----- Value	Ventilation -----Heating----- Units	Infiltration -----Cooling----- Value	Infiltration -----Cooling----- Units	Infiltration -----Heating----- Value	Infiltration -----Heating----- Units	--Reheat Minimum-- Value	--Reheat Minimum-- Units
M		CFM		CFM		CFM		CFM		
1			3036				90			
2							438			
3	600		600		214		214			
4			660				150			
5	380		380		296		296			

-----CARD 30- Fan Airflows ----------

Room Number	Main ----Cooling---- Value	Main ----Cooling---- Units	Main ----Heating---- Value	Main ----Heating---- Units	Auxiliary ----Cooling---- Value	Auxiliary ----Cooling---- Units	Auxiliary ----Heating---- Value	Auxiliary ----Heating---- Units	--Room Exhaust-- Value	--Room Exhaust-- Units
M		CFM		CFM						
1	0		4686							
2	0		1480							
3	3080		3080							
4	0		3720							
5	3800		3800							

-----CARD 31-- Partition Parameters ----------

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
M	1				101	CONSTANT			
2	1	100	57						
3	1	100	75.2						
4	1	100	16.1						
5	1	100	104.9						

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,896	68	1,360	3
Feb	24,306	68	1,254	3
March	27,659	68	967	3
April	25,190	68	257	1
May	25,059	69	0	0
June	26,135	73	0	0
July	27,253	75	0	0
Aug	27,290	73	0	0
Sept	24,024	70	0	0
Oct	26,703	68	378	1
Nov	25,906	68	613	2
Dec	26,515	68	1,280	3
Total	312,936	75	6,109	3

Building Energy Consumption = 94,977 (Btu/Sq Ft/Year)
Source Energy Consumption = 217,655 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	712	1253	1866	1384	805	0	0	0	6,019
	PK	0.0	0.0	0.0	0.0	5.3	6.9	8.1	6.9	5.6	0.0	0.0	0.0	8.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	96	172	252	188	108	0	0	0	816
	PK	0.0	0.0	0.0	0.0	0.8	1.0	1.1	0.9	0.8	0.0	0.0	0.0	1.1
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	114	125	195	158	99	0	0	0	691
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1783	2537	3091	2652	1854	0	0	0	11,917
	PK	0.0	0.0	0.0	0.0	8.9	10.8	12.0	10.8	9.3	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	228	341	413	355	239	0	0	0	1,576

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.3	1.5	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	150	169	223	195	144	0	0	0	881
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1360	1254	967	257	0	0	0	0	0	378	613	1280	6,109
	PK	3.4	3.2	2.6	0.9	0.0	0.0	0.0	0.0	0.0	1.2	1.7	2.8	3.4
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	1110	1003	1110	671	0	0	0	0	0	786	1074	1110	6,865
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

1	EQ5240	BOILER FORCED DRAFT FAN											
	ELEC	490	442	490	296	0	0	0	0	0	347	474	490	3,027
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1	EQ5307	BOILER CONTROLS											
	ELEC	372	336	372	225	0	0	0	0	0	263	360	372	2,301
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 NIGHT SETBACK FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,814	68	1,019	6
Feb	24,232	68	963	6
March	27,495	68	728	5
April	24,634	68	148	2
May	26,596	69	0	0
June	26,032	73	0	0
July	26,357	75	0	0
Aug	26,962	73	0	0
Sept	24,370	70	0	0
Oct	26,210	68	228	2
Nov	25,667	68	406	3
Dec	26,433	68	983	5
Total	311,801	75	4,474	6

Building Energy Consumption = 85,513 (Btu/Sq Ft/Year)
Source Energy Consumption = 207,266 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 NIGHT SETBACK FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	573	1117	1540	1197	723	0	0	0	5,150
	PK	0.0	0.0	0.0	0.0	5.3	6.9	8.1	6.9	5.6	0.0	0.0	0.0	8.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	77	151	206	160	96	0	0	0	689
	PK	0.0	0.0	0.0	0.0	0.8	1.0	1.1	0.9	0.8	0.0	0.0	0.0	1.1
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	82	101	118	109	80	0	0	0	490
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1501	2218	2574	2311	1643	0	0	0	10,248
	PK	0.0	0.0	0.0	0.0	8.9	10.8	12.0	10.8	9.3	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	189	293	341	305	208	0	0	0	1,337

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 NIGHT SETBACK FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.3	1.5	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	115	117	121	121	107	0	0	0	581
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1318	0	0	0	0	1665	1611	1665	12,705
	PK	2.2	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	763	497	244	401	739	1665	1611	1665	14,030
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1019	963	728	148	0	0	0	0	0	228	406	983	4,474
	PK	6.1	5.9	4.9	1.6	0.0	0.0	0.0	0.0	0.0	1.6	2.7	4.7	6.1
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	1064	961	1018	358	0	0	0	0	0	509	940	1064	5,913
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 NIGHT SETBACK FT LEONARD WOOD

1	EQ5240	BOILER FORCED DRAFT FAN											
	ELEC	469	424	449	158	0	0	0	0	0	224	415	469	2,608
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1	EQ5307	BOILER CONTROLS											
	ELEC	356	322	341	120	0	0	0	0	0	170	315	356	1,981
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 1350 DDC CONTROL FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,814	68	837	5
Feb	24,232	68	790	4
March	27,495	68	583	3
April	24,634	68	128	1
May	26,296	70	0	0
June	25,302	72	0	0
July	25,608	75	0	0
Aug	26,145	72	0	0
Sept	23,523	69	0	0
Oct	26,210	68	203	1
Nov	25,588	68	345	2
Dec	26,433	68	852	3
Total	308,280	75	3,738	5

Building Energy Consumption = 80,668 (Btu/Sq Ft/Year)
Source Energy Consumption = 200,841 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 1350 DDC CONTROL FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	436	919	1271	978	578	0	0	0	4,182
	PK	0.0	0.0	0.0	0.0	4.6	6.4	7.5	6.4	5.1	0.0	0.0	0.0	7.5
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	59	125	170	131	77	0	0	0	562
	PK	0.0	0.0	0.0	0.0	0.7	0.9	1.0	0.9	0.7	0.0	0.0	0.0	1.0
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	71	86	108	97	72	0	0	0	434
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1332	2047	2406	2143	1471	0	0	0	9,399
	PK	0.0	0.0	0.0	0.0	8.6	10.2	12.0	10.8	9.0	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	170	272	320	284	189	0	0	0	1,235

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 1350 DDC CONTROL FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.2	1.4	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	101	112	121	118	93	0	0	0	546
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1388	0	0	0	0	1665	1611	1665	12,774
	PK	2.2	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	763	201	0	36	269	1665	1611	1665	12,656
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	837	790	583	128	0	0	0	0	0	203	345	852	3,738
	PK	4.7	3.9	2.8	1.1	0.0	0.0	0.0	0.0	0.0	1.3	1.9	3.1	4.7
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	1064	961	1018	358	0	0	0	0	0	509	895	1064	5,868
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 1350 DDC CONTROL FT LEONARD WOOD

1 EQ5240	BOILER FORCED DRAFT FAN												
ELEC	469	424	449	158	0	0	0	0	0	224	395	469	2,588
PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1 EQ5307	BOILER CONTROLS												
ELEC	356	322	341	120	0	0	0	0	0	170	300	356	1,967
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 4

BLDG 1350 ECONOMIZER FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,814	68	837	5
Feb	24,232	68	790	4
March	27,495	68	583	3
April	24,634	68	128	1
May	26,276	70	0	0
June	25,300	72	0	0
July	25,602	75	0	0
Aug	26,104	72	0	0
Sept	23,478	69	0	0
Oct	26,210	68	203	1
Nov	25,588	68	345	2
Dec	26,433	68	852	3
Total	308,165	75	3,738	5

Building Energy Consumption = 80,645 (Btu/Sq Ft/Year)

Source Energy Consumption = 200,775 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 1350 ECONOMIZER FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	422	886	1256	954	537	0	0	0	4,055
	PK	0.0	0.0	0.0	0.0	4.6	6.4	7.5	6.4	5.1	0.0	0.0	0.0	7.5
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	58	121	168	129	73	0	0	0	549
	PK	0.0	0.0	0.0	0.0	0.7	0.9	1.0	0.9	0.7	0.0	0.0	0.0	1.0
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	71	86	108	97	72	0	0	0	434
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1327	2079	2415	2129	1470	0	0	0	9,421
	PK	0.0	0.0	0.0	0.0	8.6	10.2	12.0	10.8	9.0	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	169	276	321	283	189	0	0	0	1,238

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 1350 ECONOMIZER FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.2	1.4	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	101	112	121	118	93	0	0	0	546
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1388	0	0	0	0	1665	1611	1665	12,774
	PK	2.2	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	763	201	0	36	269	1665	1611	1665	12,656
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	837	790	583	128	0	0	0	0	0	203	345	852	3,738
	PK	4.7	3.9	2.8	1.1	0.0	0.0	0.0	0.0	0.0	1.3	1.9	3.1	4.7
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	1064	961	1018	358	0	0	0	0	0	509	895	1064	5,868
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 1350 ECONOMIZER FT LEONARD WOOD

1	EQ5240	BOILER FORCED DRAFT FAN											
	ELEC	469	424	449	158	0	0	0	0	0	224	395	469	2,588
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1	EQ5307	BOILER CONTROLS											
	ELEC	356	322	341	120	0	0	0	0	0	170	300	356	1,967
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 OA NIGHTIME FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	25,958	68	141	1
Feb	23,556	68	127	1
March	26,258	68	60	0
April	23,406	65	5	0
May	25,209	69	0	0
June	26,273	73	0	0
July	26,915	75	0	0
Aug	27,336	73	0	0
Sept	24,249	70	0	0
Oct	24,563	65	2	0
Nov	23,951	65	0	0
Dec	24,676	65	12	0
Total	302,349	75	346	1

Building Energy Consumption = 60,334 (Btu/Sq Ft/Year)
Source Energy Consumption = 177,207 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 OA NIGHTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	111,203
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2
1	MISC LD													
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	90,948
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	740	1303	1722	1399	875	0	0	0	6,039
	PK	0.0	0.0	0.0	0.0	5.3	6.9	8.1	6.9	5.6	0.0	0.0	0.0	8.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	97	174	231	186	114	0	0	0	803
	PK	0.0	0.0	0.0	0.0	0.8	1.0	1.1	0.9	0.8	0.0	0.0	0.0	1.1
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	158	188	223	207	153	0	0	0	929
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1170S	AIR-CLD COND COMP <20 TONS												
	ELEC	0	0	0	0	1809	2519	2914	2615	1912	0	0	0	11,769
	PK	0.0	0.0	0.0	0.0	8.9	10.8	12.0	10.8	9.3	0.0	0.0	0.0	12.0
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	227	334	388	348	242	0	0	0	1,540

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 OA NIGHTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.3	1.5	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	202	216	223	223	177	0	0	0	1,041
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	940	0	0	0	0	0	895	1564	1665	9,899
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	141	127	60	5	0	0	0	0	0	2	0	12	346
	PK	0.7	0.7	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.7
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	582	580	321	45	0	0	0	0	0	15	0	75	1,617
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0	1.5	1.5

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 OA NIGHTIME FT LEONARD WOOD

1	EQ5240	BOILER FORCED DRAFT FAN											
	ELEC	257	256	141	20	0	0	0	0	0	7	0	33	713
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.7	0.7
1	EQ5307	BOILER CONTROLS											
	ELEC	195	194	108	15	0	0	0	0	0	5	0	25	542
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 OA DAYTIME FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	25,958	68	206	1
Feb	23,532	68	174	1
March	26,308	68	88	1
April	23,406	65	5	0
May	25,085	67	0	0
June	25,755	70	0	0
July	26,342	71	0	0
Aug	26,886	69	0	0
Sept	23,984	67	0	0
Oct	24,563	65	2	0
Nov	24,009	65	6	0
Dec	25,134	65	66	0
Total	300,963	71	548	1

Building Energy Consumption = 61,207 (Btu/Sq Ft/Year)
Source Energy Consumption = 177,605 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 OA DAYTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													111,203
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	32.2
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
1	MISC LD													90,948
	ELEC	7878	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	24.1
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1	EQ1170S	AIR-CLD COND COMP <20 TONS												5,318
	ELEC	0	0	0	0	702	1090	1544	1222	761	0	0	0	5.6
	PK	0.0	0.0	0.0	0.0	4.5	5.0	5.6	5.1	4.6	0.0	0.0	0.0	
1	EQ5200	CONDENSER FANS												710
	ELEC	0	0	0	0	93	147	206	163	100	0	0	0	0.7
	PK	0.0	0.0	0.0	0.0	0.6	0.7	0.7	0.7	0.7	0.0	0.0	0.0	
1	EQ5313	CONTROLS												710
	ELEC	0	0	0	0	123	125	195	158	108	0	0	0	0.3
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	
2	EQ1170S	AIR-CLD COND COMP <20 TONS												10,984
	ELEC	0	0	0	0	1766	2331	2615	2439	1833	0	0	0	10.0
	PK	0.0	0.0	0.0	0.0	8.1	9.2	10.0	9.3	8.4	0.0	0.0	0.0	
2	EQ5200	CONDENSER FANS												1,427
	ELEC	0	0	0	0	220	308	347	322	230	0	0	0	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 OA DAYTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	1.2	1.3	1.3	1.3	1.2	0.0	0.0	0.0	1.3
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	205	216	223	223	177	0	0	0	1,044
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	940	0	0	0	0	0	895	1564	1665	9,899
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	206	174	88	5	0	0	0	0	0	2	6	66	548
	PK	1.1	0.8	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	1.1
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	582	567	349	45	0	0	0	0	0	15	33	333	1,923
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 1350 OA DAYTIME FT LEONARD WOOD

1	EQ5240	BOILER FORCED DRAFT FAN											
	ELEC	257	250	154	20	0	0	0	0	0	7	14	147	848
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1	EQ5307	BOILER CONTROLS											
	ELEC	195	190	117	15	0	0	0	0	0	5	11	111	645
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

COMPUTER SIMULATIONS

BUILDING 1720

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 1720
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	1070.3	1024.2	980.2			
COOLING (kWH)	40300	39310	36970			

SUPPLY AIR FAN	37800 CFM
FLOOR AREA	22876 FT²
CFMI	1348 CFM
UA	5819 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	0	2400	120 HR
SAT.	0	2400	24 HR
SUN.	0	2400	24 HR
	TOTAL OCCUPY HR.		168 HR/WK
	TOTAL UNOCC. HR.		0 HR/WK
	ANNUAL OCCUPY HR.		8760 HR/YR
	ANNUAL UNOCC. HR.		0 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	4368 HR/YR
HR. ON COOLING	2928 HR/YR
HR. OFF HEATING	0 HR/YR
HR. OFF COOLING	0 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	4368	=	0 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	2928	=	0 HR/YR

HOAUHC	1070.3 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	1348 CFM	* 0 HR/YR		
HOAUH	1070.3 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	1348 CFM	* 0 HR/YR		
COAUHC	40300 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	1348 CFM	* 0 HR/YR		
COAUC	40300 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	1348 CFM	* 0 HR/YR		
HOAOHC	1070.3 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	1348 CFM	* 8760 HR/YR		
HOAOH	1070.3 MBtu	– 0 MBtu	=	0.00E+00 Btu/CFM-HR
	1348 CFM	* 4368 HR/YR		
COAOHC	40300 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	1348 CFM	* 8760 HR/YR		
COAOC	40300 kWH	0 kWH	=	0.00E+00 kWH/CFM-HR
	1348 CFM	* 2928 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 1720
BLDG. TYPE: BARRACKS

ENERGY CONSTANT CALCULATIONS

ECC	36970 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	37800 CFM	* 2928 HR/YR		
ECHC	36970 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	37800 CFM	* 8760 HR/YR		
NSUCHC	40300 kWH	– 39310 kWH	=	0.00E+00 kWH/CFM-HR
	37800 CFM	* 0 HR/YR		
NSUCC	40300 kWH	– 39310 kWH	=	0.00E+00 kWH/CFM-HR
	37800 CFM	* 0 HR/YR		
DDCCHC	39310 kWH	– 36970 kWH	=	7.07E-06 kWH/CFM-HR
	37800 CFM	* 8760 HR/YR		
DDCCC	39310 kWH	– 36970 kWH	=	2.11E-05 kWH/CFM-HR
	37800 CFM	* 2928 HR/YR		
NSC	1070.3 MBtu	– 1024.22 MBtu	=	7.92E+03 Btu/UA
	5819 UA			
DSC	1024.22 MBtu	– 980.18 MBtu	=	7.57E+03 Btu/UA
	5819 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR	=	0 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	1720BHL

BUILDING HEATING LOAD CALCULATION SHEET

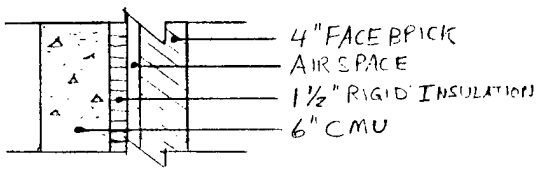
BLDG NO: 1720 BLDG NAME: EM BARRACKS
BLDG FUNCTION: BARRACKS
FLOOR AREA: (SQ. FT) 22,876 # FLOORS 3
SLAB PERIMETER: (FT) 600

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	4,236	4,236	5,343	5,171	18,986
GLASS	(SQ. FT)	0	0	1,179	1,148	2,327
PERSONNEL DOOR	(SQ. FT)	0	0	126	126	252
INSULATED PANEL	(SQ. FT)	0	0	888	864	1,752
WALLS, NET	(SQ. FT)	4,236	4,236	3,150	3,033	14,655
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	7,721
INSULATED PANEL	(SQ. FT)	1,752	PERSONNEL DOOR		(SQ. FT)	252
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

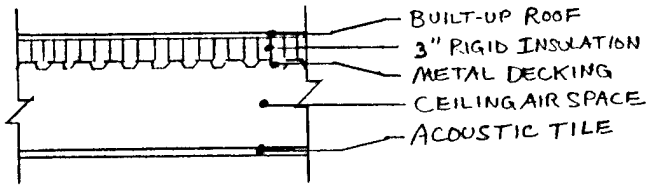
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	1.5" RIGID INSULATION	4.98
5.	6" CONCRETE BLOCK	1.89
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.06
	U=1/R	0.110

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	3" INSULATION	10.03
4.	CEILING AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.01
	U=1/R	0.071

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.49
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:		R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)	M	18986	X CFM / SQ.FT.	0.069	=	1,310
AVG. WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		24	X CFM /OPENING /HR	1.600	=	38
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	=	0
			TOTAL INFILTRATION (CFM)		=	1348

UA PANEL	= PANEL AREA	1,752	X PANEL "U"	0.238	=	417
UA PDOOR	= PDOOR AREA	252	X DOOR "U"	0.391	=	98
UA WALL	= WALL AREA	14,655	X WALL "U"	0.110	=	1,617
UA ROOF	= ROOF AREA	7,721	X ROOF "U"	0.071	=	551
UA GLASS	= GLASS AREA	2,327	X GLASS "U"	0.621	=	1,445
UA SLAB	= SLAB PERIM.	600	X SLF	0.490	=	294
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	1348	X A. T. F.	1.035	=	1,396
			TOTAL UA (BTU/HR°F)			5,819

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 04-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1720Z1
BLDG: 1720 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	96	1	Seated at rest	Theater, Movie	225	105	21,600	10,080
TOTAL	96					TOTAL	21,600	10,080

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	3	17	Incandescent - 40w	40	120
	192	18	Incandescent - 60w	60	11,520
	24	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	2,016
	48	5	Fluorescent, 1 - 34w lamp, 16w ballast (1x4 ft. fixture)	50	2,400
TOTAL	267			TOTAL	16,056

Peak Value for Internal Gains

Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	96	50	Radio/Record Player	109	15%	10,464	35,714
	48	53	Refrigerator (small)	138	20%	6,624	22,608
	48	31	Fan (Circulating)	88	20%	4,224	14,417
				TOTAL	18%	21,312	72,738

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
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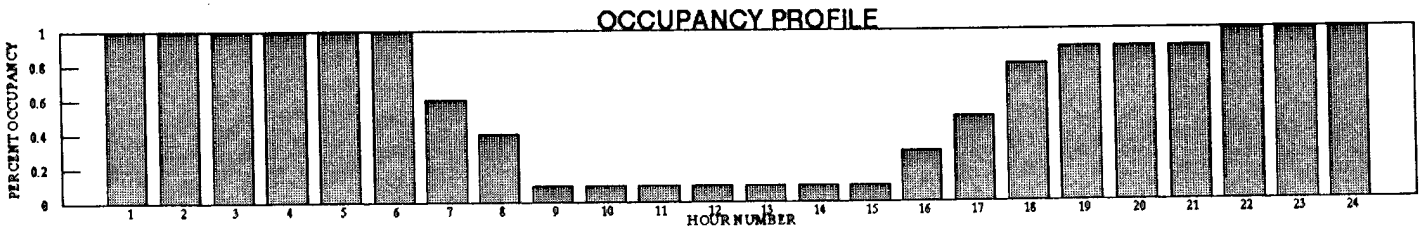
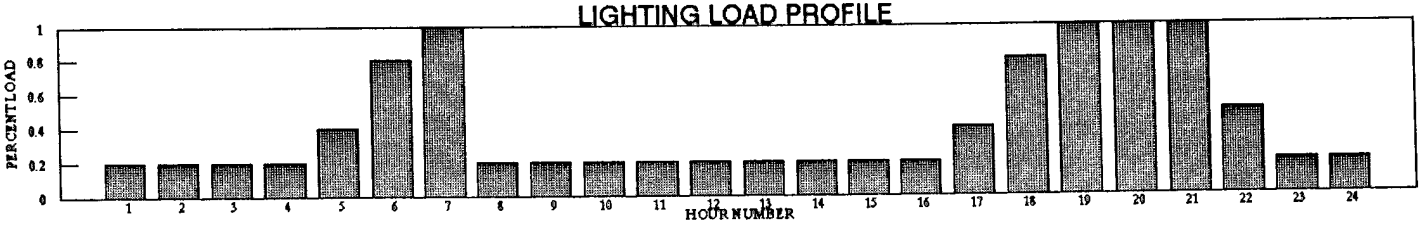
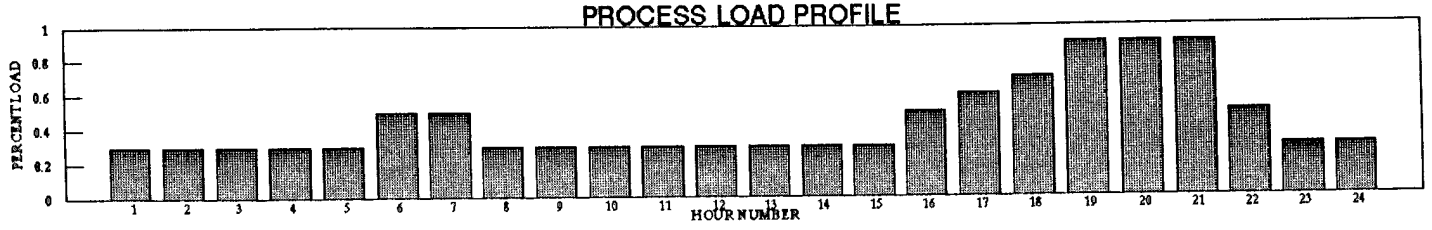
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 1720Z1
BLDG: 1720
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Barracks	OCCUPANCY	1	1	1	1	1	1	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.8	0.9	0.9	0.9	1	1	1
		LIGHTING	0.2	0.2	0.2	0.2	0.4	0.8	1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.8	1	1	1	0.5	0.2	0.2
		PROCESS	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.7	0.9	0.9	0.9	0.5	0.3	0.3







BLDG 1720 - E.M. BARRACKS BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 8.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 2.900000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 190625.000000
FLOOR AREA (SQFT) 22876.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 620930.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -725350.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 228760.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 1348.000000
INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA) 4.240000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 23702.360000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 294.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 98.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	4236.0	4069.0	4236.0	4038.0
WINDOW AREA SQFT (AWND)	.0	1148.0	.0	1179.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	114.8	.0	117.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.137	.110	.138
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00405	.00505	.00405	.00508
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00056	.00070	.00056	.00071
N=3	.00223	.00278	.00223	.00280
N=4	.00116	.00144	.00116	.00145
N=5	.00009	.00011	.00009	.00011
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7721.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 3.441956E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.193E-02 .199E-01 .120E-01 .540E-03 771. 771.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	16.	13093.	21600.	10080.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.300	1.000	1.000	70.0	75.0
2	.200	.300	1.000	1.000	70.0	75.0
3	.200	.300	1.000	1.000	70.0	75.0
4	.200	.300	1.000	1.000	70.0	75.0
5	.400	.300	1.000	1.000	70.0	75.0
6	.800	.500	1.000	1.000	70.0	75.0
7	1.000	.500	.600	.600	70.0	75.0
8	.200	.300	.400	.400	70.0	75.0
9	.200	.300	.100	.100	70.0	75.0
10	.200	.300	.100	.100	70.0	75.0
11	.200	.300	.100	.100	70.0	75.0
12	.200	.300	.100	.100	70.0	75.0

13	.200	.300	.100	.100	70.0	75.0
14	.200	.300	.100	.100	70.0	75.0
15	.200	.300	.100	.100	70.0	75.0
16	.200	.500	.300	.300	70.0	75.0
17	.400	.600	.500	.500	70.0	75.0
18	.800	.700	.800	.800	70.0	75.0
19	1.000	.900	.900	.900	70.0	75.0
20	1.000	.900	.900	.900	70.0	75.0
21	1.000	.900	.900	.900	70.0	75.0
22	.500	.500	1.000	1.000	70.0	75.0
23	.200	.300	1.000	1.000	70.0	75.0
24	.200	.300	1.000	1.000	70.0	75.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 37800.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 620930.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 776162.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 725350.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 134096.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1720 - E.M. BARRACKS BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	33.	0.	0.	0.	0.	0.	0.	0.
	-169.	LOSS		-16.	-10.	0.	-40.	-32.	-137.	0.
FEB	0.	GAIN	44.	0.	0.	0.	0.	0.	0.	0.
	-123.	LOSS		-14.	-9.	0.	-29.	-28.	-119.	0.
MAR	7.	GAIN	54.	0.	0.	0.	2.	0.	0.	1.
	-93.	LOSS		-12.	-8.	0.	-21.	-26.	-109.	0.
APR	35.87	GAIN	57.65	.57	.06	.00	8.01	.19	.66	3.78
	-32.76	LOSS		-7.60	-4.88	.00	-9.00	-15.29	-63.50	.00
MAY	79.47	GAIN	63.66	1.36	.21	.00	15.53	.63	1.89	13.11
	-5.95	LOSS		-4.89	-2.81	.00	-2.33	-8.51	-38.00	.00
JUN	162.	GAIN	63.	2.	1.	0.	24.	2.	5.	55.
	0.	LOSS		-3.	-1.	0.	0.	-4.	-14.	0.
JUL	207.	GAIN	65.	3.	1.	0.	30.	4.	14.	69.
	0.	LOSS		-2.	-1.	0.	0.	-2.	-8.	0.
AUG	189.	GAIN	58.	3.	1.	0.	26.	3.	10.	69.
	0.	LOSS		-2.	-1.	0.	0.	-2.	-8.	0.
SEP	116.	GAIN	49.	1.	1.	0.	15.	2.	6.	43.
	-9.	LOSS		-4.	-2.	0.	-3.	-7.	-26.	0.
OCT	29.36	GAIN	40.12	.29	.08	.00	4.05	.25	.81	7.17
	-32.58	LOSS		-7.94	-4.61	.00	-10.85	-14.08	-52.21	.00
NOV	6.88	GAIN	31.42	.02	.00	.00	.84	.00	.02	1.12
	-79.01	LOSS		-10.96	-6.66	.00	-22.08	-20.37	-78.08	.00
DEC	0.	GAIN	29.	0.	0.	0.	0.	0.	0.	0.
	-167.	LOSS		-16.	-10.	0.	-41.	-31.	-130.	0.
TOT	833.	GAIN	587.	12.	4.	0.	125.	12.	38.	261.
	-711.	LOSS		-101.	-61.	0.	-178.	-190.	-784.	0.

MAX HEATING LOAD= -620930. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 572715. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 4135.5

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 1720 - E.M. BARRACKS BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	76.		5	15	64.	4.93	23.68	2.56	33.68
			69.	29	4	11.				
FEB	70.	76.		17	12	57.	4.45	21.38	2.31	30.42
			69.	2	3	15.				
MAR	71.	76.		12	12	74.	4.93	23.68	2.56	33.68
			69.	3	4	17.				
APR	73.	76.		30	12	80.	4.77	22.91	2.48	32.60
			70.	9	4	31.				
MAY	75.	76.		28	12	85.	4.93	23.68	2.56	33.68
			70.	11	4	38.				
JUN	76.	77.		27	13	88.	4.77	22.91	2.48	32.60
			70.	17	5	56.				
JUL	76.	77.		3	12	86.	4.93	23.68	2.56	33.68
			70.	10	5	57.				
AUG	76.	77.		12	12	86.	4.93	23.68	2.56	33.68
			70.	25	5	52.				
SEP	74.	77.		3	12	89.	4.77	22.91	2.48	32.60
			70.	15	4	41.				
OCT	73.	76.		5	13	80.	4.93	23.68	2.56	33.68
			70.	28	4	30.				
NOV	71.	76.		7	14	73.	4.77	22.91	2.48	32.60
			69.	3	4	17.				
DEC	70.	76.		23	14	70.	4.93	23.68	2.56	33.68
			68.	18	8	1.				
YEAR							58.02	278.77	30.15	396.61

BLDG 1720 - E.M. BARRACKS BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	700	13	0	0	-.5722E+06	.0000
FEB	569	44	0	0	-.4927E+06	.1076E+06
MAR	529	119	0	0	-.4902E+06	.2729E+06
APR	281	291	0	0	-.2903E+06	.3136E+06
MAY	88	504	0	0	-.1771E+06	.3875E+06
JUN	7	657	0	0	-.2836E+05	.5044E+06
JUL	0	712	0	0	.0000	.5727E+06
AUG	6	702	0	0	-.4310E+05	.5347E+06
SEP	116	528	0	0	-.1565E+06	.5375E+06
OCT	325	271	0	0	-.2611E+06	.3777E+06
NOV	517	96	0	0	-.3915E+06	.2429E+06
DEC	703	11	3	0	-.6209E+06	.1034E+06
YEAR	3841	3948	3	0	-.6209E+06	.5727E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	242.52	.00	4.93	23.68	.75	33.68	17.1
FEB	182.39	.01	4.45	21.38	.68	30.42	17.1
MAR	146.89	.47	4.93	23.68	.75	33.68	26.7
APR	61.38	2.14	4.77	22.91	.73	32.60	28.7
MAY	15.38	4.32	4.93	23.68	.75	33.68	32.9
JUN	1.04	8.69	4.77	22.91	.73	32.60	38.9
JUL	.00	10.83	4.93	23.68	.75	33.68	41.4
AUG	.89	10.02	4.93	23.68	.75	33.68	36.2
SEP	20.26	6.44	4.77	22.91	.73	32.60	35.4
OCT	65.43	1.95	4.93	23.68	.75	33.68	29.0
NOV	131.57	.52	4.77	22.91	.73	32.60	25.5
DEC	240.18	.03	4.93	23.68	.75	33.68	17.1
YEAR	1107.91	45.42	58.02	278.77	8.83	396.61	41.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 77368. BTU/(SQFT-YEAR)

BLDG 1720 - E.M. BARRACKS BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.5722E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.1076E+06	-.4927E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.2729E+06	-.4902E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.3136E+06	-.2903E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.3875E+06	-.1771E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.5044E+06	-.2836E+05
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.5727E+06	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.5347E+06	-.4310E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.5375E+06	-.1565E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.3777E+06	-.2611E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.2429E+06	-.3915E+06
DEC	883.	604.	1.000	35.	0.	0.	0	3	.1034E+06	-.6209E+06

BLDG 1720 - E.M. BARRACKS NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	1.000000
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO	
STATION 13995 YEAR 1955	
SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	8.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	2.900000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	190625.000000
FLOOR AREA (SQFT)	22876.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	620930.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-725350.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	228760.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	1348.000000

INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA)	4.240000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	23702.360000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	294.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	98.000000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

	1	2	3	4
WALL NUMBER				
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	4236.0	4069.0	4236.0	4038.0
WINDOW AREA SQFT (AWND)	.0	1148.0	.0	1179.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	114.8	.0	117.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.137	.110	.138
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00405	.00505	.00405	.00508
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00056	.00070	.00056	.00071
N=3	.00223	.00278	.00223	.00280
N=4	.00116	.00144	.00116	.00145
N=5	.00009	.00011	.00009	.00011
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7721.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 3.441956E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.193E-02 .199E-01 .120E-01 .540E-03 771. 771.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	16.	13093.	21600.	10080.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.300	1.000	1.000	69.0	76.0
2	.200	.300	1.000	1.000	69.0	76.0
3	.200	.300	1.000	1.000	69.0	76.0
4	.200	.300	1.000	1.000	69.0	76.0
5	.400	.300	1.000	1.000	69.0	76.0
6	.800	.500	1.000	1.000	69.0	76.0
7	1.000	.500	.600	.600	69.0	76.0
8	.200	.300	.400	.400	69.0	76.0
9	.200	.300	.100	.100	69.0	76.0
10	.200	.300	.100	.100	69.0	76.0
11	.200	.300	.100	.100	69.0	76.0
12	.200	.300	.100	.100	69.0	76.0

13	.200	.300	.100	.100	69.0	76.0
14	.200	.300	.100	.100	69.0	76.0
15	.200	.300	.100	.100	69.0	76.0
16	.200	.500	.300	.300	69.0	76.0
17	.400	.600	.500	.500	69.0	76.0
18	.800	.700	.800	.800	69.0	76.0
19	1.000	.900	.900	.900	69.0	76.0
20	1.000	.900	.900	.900	69.0	76.0
21	1.000	.900	.900	.900	69.0	76.0
22	.500	.500	1.000	1.000	69.0	76.0
23	.200	.300	1.000	1.000	69.0	76.0
24	.200	.300	1.000	1.000	69.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 37800.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 620930.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 776162.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 725350.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 134096.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1720 - E.M. BARRACKS NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	33.	0.	0.	0.	0.	0.	0.	0.
	-162.	LOSS		-16.	-10.	0.	-39.	-31.	-133.	0.
FEB	0.	GAIN	44.	0.	0.	0.	0.	0.	0.	0.
	-117.	LOSS		-13.	-9.	0.	-28.	-27.	-115.	0.
MAR	7.	GAIN	54.	0.	0.	0.	2.	0.	0.	1.
	-88.	LOSS		-12.	-8.	0.	-20.	-25.	-106.	0.
APR	34.33	GAIN	57.65	.51	.04	.00	7.66	.14	.47	3.67
	-30.09	LOSS		-7.55	-4.87	.00	-8.64	-15.26	-62.02	.00
MAY	76.93	GAIN	63.66	1.25	.16	.00	14.73	.48	1.42	13.04
	-5.18	LOSS		-5.01	-2.93	.00	-2.39	-8.87	-37.45	.00
JUN	157.	GAIN	63.	2.	0.	0.	22.	1.	5.	54.
	0.	LOSS		-3.	-1.	0.	0.	-4.	-14.	0.
JUL	201.	GAIN	65.	3.	1.	0.	29.	4.	12.	69.
	0.	LOSS		-2.	-1.	0.	0.	-3.	-9.	0.
AUG	183.	GAIN	58.	3.	1.	0.	24.	3.	9.	68.
	0.	LOSS		-2.	-1.	0.	0.	-3.	-9.	0.
SEP	111.	GAIN	49.	1.	0.	0.	14.	1.	5.	43.
	-8.	LOSS		-4.	-2.	0.	-3.	-7.	-27.	0.
OCT	27.71	GAIN	40.12	.25	.06	.00	3.77	.20	.64	6.95
	-29.78	LOSS		-7.89	-4.58	.00	-10.50	-13.99	-50.80	.00
NOV	6.47	GAIN	31.42	.01	.00	.00	.78	.00	.00	1.12
	-74.14	LOSS		-10.73	-6.49	.00	-21.18	-19.88	-75.34	.00
DEC	0.	GAIN	29.	0.	0.	0.	0.	0.	0.	0.
	-159.	LOSS		-16.	-10.	0.	-39.	-30.	-126.	0.
TOT	806.	GAIN	587.	11.	3.	0.	119.	10.	33.	260.
	-674.	LOSS		-101.	-61.	0.	-172.	-189.	-765.	0.

MAX HEATING LOAD= -620930. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 562842. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 4135.5

BLDG 1720 - E.M. BARRACKS NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	69.	77.		5	15	64.	4.93	23.68	2.56	33.68
			68.	29	4	11.				
FEB	70.	77.		17	13	59.	4.45	21.38	2.31	30.42
			68.	2	3	15.				
MAR	71.	77.		12	12	74.	4.93	23.68	2.56	33.68
			68.	3	4	17.				
APR	73.	77.		30	12	80.	4.77	22.91	2.48	32.60
			69.	9	4	31.				
MAY	75.	77.		28	12	85.	4.93	23.68	2.56	33.68
			69.	11	4	38.				
JUN	76.	78.		27	13	88.	4.77	22.91	2.48	32.60
			69.	17	5	56.				
JUL	77.	78.		3	12	86.	4.93	23.68	2.56	33.68
			70.	10	5	57.				
AUG	76.	78.		12	12	86.	4.93	23.68	2.56	33.68
			69.	25	5	52.				
SEP	75.	78.		3	12	89.	4.77	22.91	2.48	32.60
			69.	15	4	41.				
OCT	73.	77.		5	13	80.	4.93	23.68	2.56	33.68
			69.	28	4	30.				
NOV	70.	77.		7	14	73.	4.77	22.91	2.48	32.60
			68.	3	4	17.				
DEC	69.	77.		23	14	70.	4.93	23.68	2.56	33.68
			68.	18	8	1.				
YEAR							58.02	278.77	30.15	396.61

-----CARD 32-- Exposed Floor Parameters----------

Room Number	Exposed Floor Number	-----Slab------ Perimeter Length	Loss Coefficient	Exposed Floor Area	Floor U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	36	.67							
2	1	259	.67							
3	1	120	.67							
4	1	37	.67							
5	1	169	.67							

-----CARD 34-- Internal Shading ----------

Shading Type	Overall U-Value	Overall Shading Coefficent	Schedule Code	Shade Location	Visible Transmittance	Lockouts Min OADB	Max Solar	Solar Ctrl Prob	Max Glare	Glare Ctrl Prob
3	.452	.58	FL-INSHD							

---------- System Section Alternative #1 ----------

-----CARD 39-- System Alternative -----

Number	Description
1	BLDG 1350 BASERUN FT LEONARD WOOD

-----CARD 40--- System Type ----------

System Set Number	System Type	OPTIONAL VENTILATION SYSTEM Ventil Deck Location	Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	UV						
2	UH						
3	SZ						
4	SZ						
5	SZ						

-----CARD 41-- Zone Assignment ----------

System Set Number	Ref #1 Begin	Ref #1 End	Ref #2 Begin	Ref #2 End	Ref #3 Begin	Ref #3 End	Ref #4 Begin	Ref #4 End	Ref #5 Begin	Ref #5 End	Ref #6 Begin	Ref #6 End
1	1	1										
2	2	2										
3	3	3										
4	4	4										
5	5	5										

-----CARD 42--- Fan SP and Duct Parameters----------

System Set Number	Cool Fan SP	Heat Fan SP	Return Fan SP	Mn Exh Fan SP	Aux Fan SP	Rm Exh Fan SP	Cool Fan Mtr Loc	Return Fan Mtr Loc	Supply Duct Ht Gn	Supply Duct Loc	Return Air Path
1	1.75	1.75		2.25			OMIT			OTHER	ROOMDK
2	0.6	0.6								OTHER	ROOMDK
3	2.5	2.5					OMIT			OTHER	DUCTED
4	2.0	2.0					OMIT			OTHER	ROOMDK
5	3.0	3.0					OMIT			OTHER	DUCTED

-----CARD 43-- Airflow Design Temperatures ----------

System Set Number	Minimum Cooling SADB	Maximum Cooling SADB	Minimum Heating SADB	Maximum Heating SADB	Minimum Cooling Lv DB	Maximum Cooling Lv DB	Minimum Preheat Lv DB	Maximum Preheat Lv DB	Minimum Room RH	Design Ht Rec Diff
1										
2										
3										
4										
5	49.8	49.8								

-----CARD 44-- System Options ----------

System Set Number	Econ Type Flag	Econ On Point	Max Pct Outside Air	Direct Evap Cooling	Indirect Evap Cooling	1st Stage Evap Cooling	Fan Cycling	--- Exhaust Air Heat Recovery --- Effectiveness --- System	Room	--- Control Method --- System	Room
1											
2											
3	DRY-BULB	65	100								
4											
5	DRY-BULB	65	100								

-----CARD 45--- Equipment Schedules ----------

System Set Number	Main Cooling Coil	Economizer	Direct Evap Coil	Indirect Evap Coil	Auxiliary Cooling Coil	Main Heating Coil	Main Preheat Coil	Reheat Coil	Mech. Humidity	Auxiliary Heating Coil
1	OFF	OFF	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF
3	AVAIL	AVAIL	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF
5	AVAIL	AVAIL	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF

-----CARD 47-- Fan Overrides ----------

Sys Set Num	Clg Fan Eff	Htg Fan Eff	Ret Fan Eff	Mn Exh Fan Eff	Aux Fan Eff	Rm Exh Fan Eff	Opt Vnt Sys Fan Eff	Mech Eff	----------MAIN COOLING FAN---------- Air Value	Air Units	Size Meth	Confg
1												
2												
3												

-----CARD 47-- Fan Overrides ----------

Sys Set Num	Clg Fan Eff	Htg Fan Eff	Ret Fan Eff	Mn Exh Fan Eff	Aux Fan Eff	Rm Exh Fan Eff	Opt Vnt Sys Fan Eff	Mech Eff	MAIN COOLING FAN Air Value	MAIN COOLING FAN Air Units	MAIN COOLING FAN Size Meth	MAIN COOLING FAN Confg
4												
5												

-----CARD 48-- Cooling Capacity Overrides ----------

System Set Number	People Variance	Lights Variance	Misc Loads Variance	MAIN COOLING Capacity Value	MAIN COOLING Capacity Units	MAIN COOLING Capacity Sizing	MAIN COOLING Capacity Location	AUX COOLING Capacity Value	AUX COOLING Capacity Units
1				0	MBH				
2				0	MBH				
3				120.7	MBH				
4				0	MBH				
5									

-----CARD 49-- Heating Capacity Overrides ----------

System Set Number	MAIN HEATING Capacity Value	MAIN HEATING Capacity Units	PREHEAT Capacity Value	PREHEAT Capacity Units	REHEAT Capacity Value	REHEAT Capacity Units	HUMIDIFICATION Capacity Value	HUMIDIFICATION Capacity Units	AUX HEATING Capacity Value	AUX HEATING Capacity Units
1	278.9	MBH	0	MBH	0	MBH				
2			0	MBH	0	MBH				
3	87.15	MBH	0	MBH	0	MBH				
4			0	MBH	0	MBH				
5	113.15	MBH	0	MBH	0	MBH				

---------- Equipment Section Alternative #1 ----------

-----CARD 59-- Equipment Description / TOD Schedules ----------

Alternative Number	Elec Consump Time of Day Schedule	Elec Demand Time of Day Schedule	Demand Limit Max KW	Alternative Description
1				BLDG 1350 BASERUN FT LEONARD WOOD

-----CARD 60--- Cooling Load Assignment----------

Load Asgn Ref	All Coil Loads To Cool Ref	Cooling Equipment Sizing	-Group 1- Begin	-Group 1- End	-Group 2- Begin	-Group 2- End	-Group 3- Begin	-Group 3- End	-Group 4- Begin	-Group 4- End	-Group 5- Begin	-Group 5- End	-Group 6- Begin	-Group 6- End	-Group 7- Begin	-Group 7- End	-Group 8- Begin	-Group 8- End	-Group 9- Begin	-Group 9- End
1	1		3	3																
2	2		5	5																

-----CARD 62-- Cooling Equipment Parameters ----------

Cool Ref Num	Equip Code Name	Num Of Units	COOLING --Capacity-- Value	Units	COOLING ----Energy---- Value	Units	HEAT RECOVERY --Capacity-- Value	Units	HEAT RECOVERY ----Energy---- Value	Units	Seq Order Num	Seq Type	Demand Limit Number
1	EQ1170S	1	10	TONS	.93	KW-TON							
2	EQ1170S	1	15	TONS	.94	KW-TON							

-----CARD 65-- Heating Load Assignment ----------

Load Assignment Reference	All Coil Loads To Heating Ref	-Group 1- Begin	End	-Group 2- Begin	End	-Group 3- Begin	End	-Group 4- Begin	End	-Group 5- Begin	End	-Group 6- Begin	End	-Group 7- Begin	End	-Group 8- Begin	End	-Group 9- Begin	End
1	1	1	5																

-----CARD 67-- Heating Equipment Parameters ----------

Heat Ref Number	Equip Code Name	Number Of Units	HW Pmp Full Ld Value	Units	Cap'y Value	Units	Energy Rate Value	Units	Seq Order Number	Switch over Control	Hot Strg	Misc. Acc.	Cogen	Demand Limit Number
1	EQ2001	1	1.492	KW	658	MBH	80	PCTEFF						

-----CARD 69-- Fan Equipment Parameters ----------

System Set Number	Cooling Fan	Heating Fan	Return Fan	Exhaust Fan	Auxiliary Supply	Room Exhaust	Optional Ventilation
1	EQ4003	EQ4003					
2	EQ4381	EQ4381					
3	EQ4003	EQ4003					
4	EQ4003	EQ4003					
5	EQ4003	EQ4003					

-----CARD 70-- Fan Equipment KW Overrides ----------

System Set Number	MAIN SYSTEM Cool Fan KW	Heat Fan KW	Ret Fan KW	Exh Fan KW	OTHER SYSTEM Aux Sup KW	Room Exh KW	Opt Vent KW	DEMAND LIMIT PRIORITY Cool Fan	Heat Fan	Aux Fan	Room Exh Fan	Opt Vent Fan
1	2.238	2.238										
2	.187	.187										
3	2.238	2.238										
4	2.238	2.238										
5	3.73	3.73										

Utility Description Reference Table

Schedules:

AVAIL AVAILABLE (100%)
CDDC78SM CLG DDC T-STAT AT 78 (MAY THRU SEPT)
CLG75SUM COOLING TSTAT AT 75 (MAY THRU SEPT)
CSB75SUM COOLING SB TSTAT AT 75 (MAY THRU SEPT)
E-1350Z1 EQUIPMENT SCHEDULE - BLDG 1350 ZONE 1
E-1350Z2 EQUIPMENT SCHEDULE - BLDG 1350 ZONE 2
E-1350Z3 EQUIPMENT SCHEDULE - BLDG 1350 ZONE 3
E-1350Z4 EQUIPMENT SCHEDULE - BLDG 1350 ZONE 4
E-1350Z5 EQUIPMENT SCHEDULE - BLDG 1350 ZONE 5
FL-INSHD INTERNAL SHADING: VENITIAN BLINDS
HDDC65WT HEATING DDC T-STAT AT 65 (OCT TO APR)
HDDC68WT HEATING DDC T-STAT AT 68 (OCT TO APR)
HSB67WNT HEATING SB T-STAT AT 67 (OCT TO APR)
HSB70WNT HEATING SB T-STAT AT 70 (OCT TO APR)
HTG67WNT HEATING T-STAT AT 67 (OCT TO APR)
HTG70WNT HEATING T-STAT AT 70 (OCT TO APR)
L-1350Z1 LIGHTING SCHEDULE - BLDG 1350 ZONE 1
L-1350Z2 LIGHTING SCHEDULE - BLDG 1350 ZONE 2
L-1350Z3 LIGHTING SCHEDULE - BLDG 1350 ZONE 3
L-1350Z4 LIGHTING SCHEDULE - BLDG 1350 ZONE 4
L-1350Z5 LIGHTING SCHEDULE - BLDG 1350 ZONE 5
OFF ALWAYS OFF
P-1350Z1 LIGHTING SCHEDULE - BLDG 1350 ZONE 1
P-1350Z2 PEOPLE SCHEDULE - BLDG 1350 ZONE 2
P-1350Z3 PEOPLE SCHEDULE - BLDG 1350 ZONE 3
P-1350Z4 PEOPLE SCHEDULE - BLDG 1350 ZONE 4
P-1350Z5 PEOPLE SCHEDULE - BLDG 1350 ZONE 5

System:

SZ SINGLE ZONE
UH UNIT HEATERS
UV UNIT VENTILATOR

Equipment:

Cooling:

EQ1170S AIR-CLD COND COMP <20 TONS

Heating:

EQ2001 GAS FIRE TUBE HOT WATER

Fan:

EQ4003 FC CENTRIF. FAN C.V.
EQ4381 PROPELLER FAN

Schedule Name: AVAIL
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: CDDC78SM
Project: CLG DDC T-STAT AT 78 (MAY THRU
Location:
Client:
Program User:
Comments: CLG DDC T-STAT AT 78 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	78
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CLG75SUM
Project: COOLING TSTAT AT 75 (MAY THRU S
Location:
Client:
Program User:
Comments: COOLING TSTAT AT 75 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CSB75SUM
Project: COOLING SB TSTAT AT 75 (MAY THR
Location:
Client:
Program User:
Comments: COOLING SB TSTAT AT 75 (MAY TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	75
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: E-1350Z1
Project: EQUIPMENT SCHEDULE - BLDG 1350
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - KITCHEN

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
5	80
6	90
7	60
8	10
11	90
12	80
13	10
16	90
17	80
18	10
24	

Schedule Name: E-1350Z2
Project: EQUIPMENT SCHEDULE - BLDG 1350
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - SHIPPING

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
21	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: E-1350Z3
Project: EQUIPMENT SCHEDULE - BLDG 1350
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - CLASSROO

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	50
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	50
24	

Schedule Name: E-1350Z4
Project: EQUIPMENT SCHEDULE - BLDG 1350
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ASSEMBLY

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	50
5	90
8	50
11	90
13	50
16	90
18	50
24	

Schedule Name: E-1350Z5
Project: EQUIPMENT SCHEDULE - BLDG 1350
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ADMIN. OF

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	90
11	70
12	60
13	90
16	30
21	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: FL-INSED
Project: INTERNAL SHADING: VENITIAN BLIN
Location: FT LEONARD WOOD
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: INTERNAL SHADING SCHEDULE

Starting Month: JAN Ending Month: APR
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	25
24	

Schedule Name: HDDC65WT
Project: HEATING DDC T-STAT AT 65 (OCT T
Location:
Client:
Program User:
Comments: HEATING DDC T-STAT AT 65 (OCT

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	65
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	65
19	55
24	

Schedule Name: HDDC68WT
Project: HEATING DDC T-STAT AT 68 (OCT T
Location:
Client:
Program User:
Comments: HEATING DDC T-STAT AT 68 (OCT

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Schedule Name: HSB67WNT
Project: HEATING SB T-STAT AT 67 (OCT TO
Location:
Client:
Program User:
Comments: HEATING SB T-STAT AT 67 (OCT T

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	67
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	67
19	55
24	

Schedule Name: HSB70WNT
Project: HEATING SB T-STAT AT 70 (OCT TO
Location:
Client:
Program User:
Comments: HEATING SB T-STAT AT 70 (OCT T

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Schedule Name: HTG67WNT
Project: HEATING T-STAT AT 67 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 67 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	67
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	67
24	

Schedule Name: HTG70WNT
Project: HEATING T-STAT AT 70 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 70 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Schedule Name: L-1350Z1
Project: LIGHTING SCHEDULE - BLDG 1350 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - KITCHEN

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
5	100
8	10
11	100
13	10
16	100
18	10
24	

Schedule Name: L-1350Z2
Project: LIGHTING SCHEDULE - BLDG 1350 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - SHIPPING

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
11	80
13	100
21	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: L-1350Z3
Project: LIGHTING SCHEDULE - BLDG 1350 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - CLASSROOM

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
11	50
12	40
13	100
16	40
21	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: L-1350Z4
Project: LIGHTING SCHEDULE - BLDG 1350 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - ASSEMBLY H

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
7	100
20	10
24	

Schedule Name: L-1350Z5
Project: LIGHTING SCHEDULE - BLDG 1350 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - ADMIN. OFF

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
11	80
12	50
13	100
16	50
21	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: OFF
Project: ALWAYS OFF
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P-1350Z1
Project: PEOPLE SCHEDULE - BLDG 1350 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - KITCHEN

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
5	100
8	0
11	100
13	0
16	100
18	0
24	

Schedule Name: P-1350Z2
Project: PEOPLE SCHEDULE - BLDG 1350 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - SHIPPING

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
11	50
13	100
21	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P-1350Z3
Project: PEOPLE SCHEDULE - BLDG 1350 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - CLASSROOMS

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
11	30
12	20
13	100
16	20
21	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P-1350Z4
Project: PEOPLE SCHEDULE - BLDG 1350 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - ASSEMBLY HAL

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
7	100
8	60
9	30
11	60
12	100
13	30
15	50
16	100
17	40
18	20
21	0
24	

Schedule Name: P-1350Z5
Project: PEOPLE SCHEDULE - BLDG 1350 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - ADMINISTRATI

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
11	80
12	50
13	100
16	20
21	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

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**
** TRACE 600 ANALYSIS **
**
** by **
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****
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EEAP STUDY, EXPANSION OF EMCS
FT. LEONARD WOOD, MO
US ARMY
E M C ENGINEERS, INC.

Weather File Code:	SPRINGFM	
Location:	SPRINGFIELD, MISSOURI	
Latitude:	37.0	(deg)
Longitude:	93.0	(deg)
Time Zone:	6	
Elevation:	1,265	(ft)
Barometric Pressure:	28.5	(in. Hg)
Summer Clearness Number:	0.97	
Winter Clearness Number:	0.97	
Summer Design Dry Bulb:	94	(F)
Summer Design Wet Bulb:	78	(F)
Winter Design Dry Bulb:	3	(F)
Summer Ground Relectance:	0.20	
Winter Ground Relectance:	0.20	
Air Density:	0.0724	(Lbm/cuft)
Air Specific Heat:	0.2444	(Btu/lbm/F)
Density-Specific Heat Prod:	1.0621	(Btu-min./hr/cuft/F)
Latent Heat Factor:	4,675.1	(Btu-min./hr/cuft)
Enthalpy Factor:	4.3449	(Lb-min./hr/cuft)

Design Simulation Period: May To September
System Simulation Period: January To December
Cooling Load Methodology: TETD/Time Averaging

Time/Date Program was Run: 13:24: 7 3/16/93
Dataset Name: 1350 .TM

AIRFLOW - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Airflow Quantities)

System Number	System Type	Main Outside Airflow (Cfm)	Main Cooling Airflow (Cfm)	Main Heating Airflow (Cfm)	Main Return Airflow (Cfm)	Main Exhaust Airflow (Cfm)	Auxil. Supply Airflow (Cfm)	Room Exhaust Airflow (Cfm)
1	UV	3,036	0	4,686	4,776	3,126	0	0
2	UH	0	0	1,480	0	438	0	0
3	SZ	600	3,080	3,080	3,294	3,080	0	0
4	SZ	660	0	3,720	3,870	810	0	0
5	SZ	380	3,800	3,800	4,096	3,800	0	0
Totals		4,676	6,880	16,766	16,036	11,254	0	0

CAPACITY - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Capacity Quantities)

		Cooling				Heating						
System Number	System Type	Main Sys. Capacity (Tons)	Aux. Sys. Capacity (Tons)	Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Main Sys. Capacity (Btuh)	Aux. Sys. Capacity (Btuh)	Preheat Capacity (Btuh)	Reheat Capacity (Btuh)	Humidif. Capacity (Btuh)	Opt. Vent Capacity (Btuh)	Heating Totals (Btuh)
1	UV	0.0	0.0	0.0	0.0	-278,900	0	0	0	0	0	-278,900
2	UH	0.0	0.0	0.0	0.0	-108,332	0	0	0	0	0	-108,332
3	SZ	10.1	0.0	0.0	10.1	-87,150	0	0	0	0	0	-87,150
4	SZ	0.0	0.0	0.0	0.0	-67,708	0	0	0	0	0	-67,708
5	SZ	13.0	0.0	0.0	13.0	-113,150	0	0	0	0	0	-113,150
Totals		23.1	0.0	0.0	23.1	-655,240	0	0	0	0	0	-655,240

The building peaked at hour 15 month 7 with a capacity of 22.1 tons

ENGINEERING CHECKS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

E N G I N E E R I N G C H E C K S

System Number	Main/ Auxiliary	System Type	Percent Outside Air	Cooling Cfm/ Sq Ft	Cooling Cfm/ Ton	Cooling Sq Ft /Ton	Cooling Btuh/ Sq Ft	Heating Cfm/ Sq Ft	Heating Btuh/ Sq Ft	Floor Area Sq Ft
1	Main	UV	64.79	0.00	0.0	0.0	0.00	7.23	-430.40	648
2	Main	UH	0.00	0.00	0.0	0.0	0.00	0.31	-22.91	4,728
3	Main	SZ	19.48	0.71	306.2	433.2	27.70	0.71	-20.00	4,357
4	Main	SZ	17.74	0.00	0.0	0.0	0.00	1.67	-30.34	2,232
5	Main	SZ	10.00	0.67	291.9	438.8	27.35	0.67	-19.81	5,712

System 1 Block UV - UNIT VENTILATOR

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 0/ 0					Mo/Hr: 0/ 0		Mo/Hr: 13/ 1	
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0					OADB: 0		OADB: 3	
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	-1,085	-1,085	0.48
Glass Solar	0	0		0	0.00	0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00	0	0.00	-263	-263	0.12
Wall Cond	0	0		0	0.00	0	0.00	-5,975	-5,975	2.63
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-1,616	-1,616	0.71
Infiltration	0			0	0.00	0	0.00	-6,404	-6,404	2.82
Sub Total==>	0	0		0	0.00	0	0.00	-15,343	-15,343	6.76
Internal Loads										
Lights	0	0		0	0.00	0	0.00	0	0	0.00
People	0			0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00	0	0.00	0	-216,038	95.22
Sup. Fan Heat				0	0.00		0.00		4,499	-1.98
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	0	0	0	0	0.00	0	0.00	-15,343	-226,883	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering HR Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving HR Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	648		
Part	0		
ExFlr	36		
Roof	648	0	0
Wall	765	6	1

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-278.9	4,686	17.0	73.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	4,686	27.5	0.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-278.9			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	3,036
Infil	0	90
Supply	0	4,686
Mincfm	0	0
Return	0	4,686
Exhaust	0	3,036
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	64.8
Htg Cfm/SqFt	7.23
Htg Btuh/SqFt	-430.40

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	73.1
Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	26.6
Runarnd	0.0	70.0
Fn MtrTD	0.3	0.3
Fn BldTD	0.2	0.2
Fn Frict	0.7	0.7

System 2 Block UH - UNIT HEATERS

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 0/ 0					Mo/Hr: 0/ 0		Mo/Hr: 13/ 1	
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0					OADB: 0		OADB: 3	
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	-38,430	-38,430	35.47
Glass Solar	0	0		0	0.00	0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00	0	0.00	-1,507	-1,507	1.39
Wall Cond	0	0		0	0.00	0	0.00	-28,149	-28,149	25.98
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-11,106	-11,106	10.25
Infiltration	0			0	0.00	0	0.00	-29,772	-29,772	27.48
Sub Total==>	0	0		0	0.00	0	0.00	-108,963	-108,963	100.58
Internal Loads										
Lights	0	0		0	0.00	0	0.00	0	0	0.00
People	0			0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00	0	0.00	0	0	0.00
Sup. Fan Heat				0	0.00		0.00		631	-0.58
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	0	0	0	0	0.00	0	0.00	-108,963	-108,332	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	4,728		
Part	5,700		
ExFlr	259		
Roof	4,728	0	0
Wall	3,752	36	1

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-108.3	1,480	67.4	136.3
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-108.3			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	0
Infil	0	438
Supply	0	1,480
Mincfm	0	0
Return	0	1,480
Exhaust	0	0
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	0.0
Htg Cfm/SqFt	0.31
Htg Btuh/SqFt	-22.91

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	136.3
Plenum	0.0	67.0
Return	0.0	67.0
Ret/OA	0.0	67.0
Runarnd	0.0	67.0
Fn MtrTD	0.1	0.1
Fn BldTD	0.1	0.1
Fn Frict	0.2	0.2

System 3 Peak SZ - SINGLE ZONE

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15			Mo/Hr: 13/ 1	
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94			OADB: 3	
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot	Space Peak Space Sens	Coil Peak Tot Sens	Percnt Of Tot
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	7,418	0		7,418	6.81	7,418	12.95	-7,298	-7,298	8.86
Glass Solar	3,360	0		3,360	3.09	3,360	5.87	0	0	0.00
Glass Cond	799	0		799	0.73	799	1.39	-3,064	-3,064	3.72
Wall Cond	2,346	0		2,346	2.15	2,346	4.10	-12,781	-12,781	15.52
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-5,387	-5,387	6.54
Infiltration	11,673			11,673	10.72	4,318	7.54	-15,228	-15,228	18.49
Sub Total==>	25,596	0		25,596	23.50	18,241	31.85	-43,757	-43,757	53.14
Internal Loads										
Lights	27,086	0		27,086	24.87	27,086	47.29	0	0	0.00
People	19,200			19,200	17.63	11,760	20.53	0	0	0.00
Misc	192	0	0	192	0.18	192	0.33	0	0	0.00
Sub Total==>	46,477	0	0	46,477	42.68	39,037	68.15	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	32,728	30.05	0	0.00	0	-42,695	51.85
Sup. Fan Heat				4,107	3.77		0.00		4,107	-4.99
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	-0.00	0	-0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	72,073	0	0	108,907	100.00	57,278	100.00	-43,757	-82,346	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB F	Entering WB F	Entering Grains	Leaving DB F	Leaving WB F	Leaving Grains
Main Clg	10.1	120.7	81.5	3,080	78.7	66.4	82.6	56.2	53.6	60.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	10.1	120.7								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	4,357		
Part	7,520		
ExFlr	120		
Roof	4,357	0	0
Wall	1,722	70	4

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-87.2	3,080	55.5	82.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	3,080	56.9	56.2
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-87.2			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	600	600
Infil	214	214
Supply	3,080	3,080
Mincfm	0	0
Return	3,080	3,080
Exhaust	600	600
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	19.5
Clg Cfm/Sqft	0.71
Clg Cfm/Ton	306.21
Clg Sqft/Ton	433.17
Clg Btuh/Sqft	27.70
No. People	48
Htg % OA	19.5
Htg Cfm/SqFt	0.71
Htg Btuh/SqFt	-20.00

TEMPERATURES (F)

Type	Clg	Htg
SADB	57.5	83.4
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	78.7	56.9
Runarnd	75.0	70.0
Fn MtrTD	0.4	0.4
Fn BldTD	0.3	0.3
Fn Frict	0.9	0.9

System 4 Peak SZ - SINGLE ZONE

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK		
Peaked at Time ==>		Mo/Hr: 0/ 0				Mo/Hr: 0/ 0		Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 0/ 0/ 0.0				OADB: 0		OADB: 3		
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot	Space Peak Space Sens	Coil Peak Tot Sens	Percnt Of Tot
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	-3,739	-3,739	5.52
Glass Solar	0	0		0	0.00	0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00	0	0.00	-263	-263	0.39
Wall Cond	0	0		0	0.00	0	0.00	-8,375	-8,375	12.37
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-1,661	-1,661	2.45
Infiltration	0			0	0.00	0	0.00	-10,674	-10,674	15.76
Sub Total==>	0	0		0	0.00	0	0.00	-24,711	-24,711	36.50
Internal Loads										
Lights	0	0		0	0.00	0	0.00	0	0	0.00
People	0			0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00	0	0.00	0	-46,965	69.36
Sup. Fan Heat				0	0.00		0.00		3,968	-5.86
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	-0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	0	0	0	0	0.00	0	0.00	-24,711	-67,708	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	2,232		
Part	1,610		
ExFlr	37		
Roof	2,232	0	0
Wall	1,043	6	1

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-67.7	3,720	58.1	75.3
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	3,720	58.1	-1.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-67.7			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	660
Infil	0	150
Supply	0	3,720
Mincfm	0	0
Return	0	3,720
Exhaust	0	660
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	17.7
Htg Cfm/SqFt	1.67
Htg Btuh/SqFt	-30.34

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	76.3
Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	58.1
Runarnd	0.0	70.0
Fn MtrTD	0.3	0.3
Fn BldTD	0.3	0.3
Fn Frict	0.8	0.8

System 5 Peak SZ - SINGLE ZONE

********** COOLING COIL PEAK **********						*	CLG SPACE PEAK **********		*	HEATING COIL PEAK ********		
Peaked at Time ==>		Mo/Hr: 7/15				*	Mo/Hr: 7/15		*	Mo/Hr: 13/ 1		
Outside Air ==>		OADB/WB/HR: 94/ 78/124.0				*	OADB: 94		*	OADB: 3		
						*			*			
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	*	Space Sensible (Btuh)	Percnt Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	9,725	0		9,725	6.23	*	9,725	9.56	*	-9,568	-9,568	11.06
Glass Solar	7,688	0		7,688	4.92	*	7,688	7.56	*	0	0	0.00
Glass Cond	2,829	0		2,829	1.81	*	2,829	2.78	*	-10,855	-10,855	12.55
Wall Cond	5,030	0		5,030	3.22	*	5,030	4.95	*	-16,441	-16,441	19.01
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	-7,586	-7,586	8.77
Infiltration	19,445			19,445	12.45	*	5,973	5.87	*	-21,063	-21,063	24.36
Sub Total==>	44,717	0		44,717	28.62	*	31,245	30.72	*	-65,514	-65,514	75.76
Internal Loads						*			*			
Lights	51,099	0		51,099	32.71	*	51,099	50.24	*	0	0	0.00
People	22,500			22,500	14.40	*	12,500	12.29	*	0	0	0.00
Misc	12,950	0	0	12,950	8.29	*	12,950	12.73	*	0	0	0.00
Sub Total==>	86,549	0	0	86,549	55.40	*	76,549	75.27	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	24,963	15.98	*	0	0.00	*	0	-27,040	31.27
Sup. Fan Heat				6,080	3.89	*		0.00	*		6,080	-7.03
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	-6,090			-6,090	-3.90	*	-6,090	-5.99	*	0	0	-0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	125,176	0	0	156,219	100.00	*	101,704	100.00	*	-65,514	-86,474	100.00

----------COOLING COIL SELECTION----------

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	13.0	156.2	115.5	3,800	76.9	61.8	62.7	48.3	46.6	46.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	13.0	156.2								

----------AREAS----------

	Gross Total	Glass (sf)	(%)
Floor	5,712		
Part	10,490		
ExFlr	169		
Roof	5,712	0	0
Wall	2,408	248	10

----------HEATING COIL SELECTION----------

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-113.2	3,800	56.7	84.7
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	3,800	63.3	48.3
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-113.2			

--------AIRFLOWS (cfm)--------

Type	Cooling	Heating
Vent	380	380
Infil	296	296
Supply	3,800	3,800
Mincfm	0	0
Return	3,800	3,800
Exhaust	380	380
Rm Exh	0	0
Auxil	0	0

--ENGINEERING CHECKS--

Clg % OA	10.0
Clg Cfm/Sqft	0.67
Clg Cfm/Ton	291.90
Clg Sqft/Ton	438.77
Clg Btuh/Sqft	27.35
No. People	50
Htg % OA	10.0
Htg Cfm/SqFt	0.67
Htg Btuh/SqFt	-19.81

--TEMPERATURES (F)---

Type	Clg	Htg
SADB	49.8	86.2
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	76.9	63.3
Runarnd	75.0	70.0
Fn MtrTD	0.5	0.5
Fn BldTD	0.4	0.4
Fn Frict	1.1	1.1

MAIN SYSTEM COOLING - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

P E A K C O O L I N G L O A D S
(Main System)

Room Number	Description	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Space Lat. Load (Btuh)	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)	Coil Lat. Load (Btuh)
3	CLASSROOMS	7/15	94	78	75	57.5	3,080	57,278	14,795	7/15	94	78	75	57.5	3,080	73,493	35,415
Zone 3	Total/Ave.		94	78	75	57.5	3,080	57,278	14,795		94	78	75	57.5	3,080	73,493	35,415
Zone 3	Block	7/15	94	78	75	57.5	3,080	57,278	14,795	7/15	94	78	75	57.5	3,080	73,493	35,415
System 3	Total/Ave.		94	78	75	57.5	3,080	57,278	14,795		94	78	75	57.5	3,080	73,493	35,415
System 3	Block	7/15	94	78	75	57.5	3,080	57,278	14,795	7/15	94	78	75	57.5	3,080	73,493	35,415
5	ADMINISTRATION	7/15	94	78	75	49.8	3,800	101,704	23,472	7/15	94	78	75	49.8	3,800	115,452	40,767
Zone 5	Total/Ave.		94	78	75	49.8	3,800	101,704	23,472		94	78	75	49.8	3,800	115,452	40,767
Zone 5	Block	7/15	94	78	75	49.8	3,800	101,704	23,472	7/15	94	78	75	49.8	3,800	115,452	40,767
System 5	Total/Ave.		94	78	75	49.8	3,800	101,704	23,472		94	78	75	49.8	3,800	115,452	40,767
System 5	Block	7/15	94	78	75	49.8	3,800	101,704	23,472	7/15	94	78	75	49.8	3,800	115,452	40,767

MAIN SYSTEM HEATING - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

P E A K H E A T I N G L O A D S
(Main System)

Room Number	Description	Floor Area (Sq Ft)	Space: Peak Time Mo/Hr	Space: OA Cond. DB/WB (F)	Space: Rm Dry Blb (F)	Space: Supp. Dry Bulb (F)	Space: Space Air Flow (Cfm)	Space: Space Sens. Load (Btuh)	Coil: Peak Time Mo/Hr	Coil: OA Cond. DB/WB (F)	Coil: Rm Dry Blb (F)	Coil: Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)
1	KITCHEN	648	13/ 1	3	1 70	73.1	4,686	-15,343	13/ 1	3	1 70	73.1	4,686	-226,883
Zone 1	Total/Ave.	648		3	1 70	73.1	4,686	-15,343		3	1 70	73.1	4,686	-226,883
Zone 1	Block	648	13/ 1	3	1 70	73.1	4,686	-15,343	13/ 1	3	1 70	73.1	4,686	-226,883
System 1	Total/Ave.	648		3	1 70	73.1	4,686	-15,343		3	1 70	73.1	4,686	-226,883
System 1	Block	648	13/ 1	3	1 70	73.1	4,686	-15,343	13/ 1	3	1 70	73.1	4,686	-226,883
2	WAREHOUSE SUPPLY	4,728	13/ 1	3	1 67	136.3	1,480	-108,963	13/ 1	3	1 67	136.3	1,480	-108,332
Zone 2	Total/Ave.	4,728		3	1 67	136.3	1,480	-108,963		3	1 67	136.3	1,480	-108,332
Zone 2	Block	4,728	13/ 1	3	1 67	136.3	1,480	-108,963	13/ 1	3	1 67	136.3	1,480	-108,332
System 2	Total/Ave.	4,728		3	1 67	136.3	1,480	-108,963		3	1 67	136.3	1,480	-108,332
System 2	Block	4,728	13/ 1	3	1 67	136.3	1,480	-108,963	13/ 1	3	1 67	136.3	1,480	-108,332
3	CLASSROOMS	4,357	13/ 1	3	1 70	83.4	3,080	-43,757	13/ 1	3	1 70	83.4	3,080	-82,346
Zone 3	Total/Ave.	4,357		3	1 70	83.4	3,080	-43,757		3	1 70	83.4	3,080	-82,346
Zone 3	Block	4,357	13/ 1	3	1 70	83.4	3,080	-43,757	13/ 1	3	1 70	83.4	3,080	-82,346
System 3	Total/Ave.	4,357		3	1 70	83.4	3,080	-43,757		3	1 70	83.4	3,080	-82,346
System 3	Block	4,357	13/ 1	3	1 70	83.4	3,080	-43,757	13/ 1	3	1 70	83.4	3,080	-82,346
4	ASSEMBLY HALL	2,232	13/ 1	3	1 70	76.3	3,720	-24,711	13/ 1	3	1 70	76.3	3,720	-67,708
Zone 4	Total/Ave.	2,232		3	1 70	76.3	3,720	-24,711		3	1 70	76.3	3,720	-67,708
Zone 4	Block	2,232	13/ 1	3	1 70	76.3	3,720	-24,711	13/ 1	3	1 70	76.3	3,720	-67,708
System 4	Total/Ave.	2,232		3	1 70	76.3	3,720	-24,711		3	1 70	76.3	3,720	-67,708
System 4	Block	2,232	13/ 1	3	1 70	76.3	3,720	-24,711	13/ 1	3	1 70	76.3	3,720	-67,708
5	ADMINISTRATION	5,712	13/ 1	3	1 70	86.2	3,800	-65,514	13/ 1	3	1 70	86.2	3,800	-86,474
Zone 5	Total/Ave.	5,712		3	1 70	86.2	3,800	-65,514		3	1 70	86.2	3,800	-86,474
Zone 5	Block	5,712	13/ 1	3	1 70	86.2	3,800	-65,514	13/ 1	3	1 70	86.2	3,800	-86,474
System 5	Total/Ave.	5,712		3	1 70	86.2	3,800	-65,514		3	1 70	86.2	3,800	-86,474
System 5	Block	5,712	13/ 1	3	1 70	86.2	3,800	-65,514	13/ 1	3	1 70	86.2	3,800	-86,474

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	Misc. CLF	Total (Btuh)
3	CLASSROOMS	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
Zone 3	Total/Ave.	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
Zone 3	Block	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
System 3	Total/Ave.	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
System 3	Block	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
5	ADMINISTRATION	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
Zone 5	Total/Ave.	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
Zone 5	Block	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
System 5	Total/Ave.	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
System 5	Block	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	Misc. CLF	Total (Btuh)
3	CLASSROOMS	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
Zone 3	Total/Ave.	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
Zone 3	Block	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
System 3	Total/Ave.	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
System 3	Block	27,086	0	1.000	11,760	7,440	1.000	192	0	0	0.500	46,477
5	ADMINISTRATION	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
Zone 5	Total/Ave.	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
Zone 5	Block	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
System 5	Total/Ave.	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549
System 5	Block	51,099	0	1.000	12,500	10,000	1.000	12,950	0	0	0.890	86,549

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	CLASSROOMS	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
Zone	3 Total/Ave.	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
Zone	3 Block	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
System	3 Total/Ave.	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
System	3 Block	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
5	ADMINISTRATION	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
Zone	5 Total/Ave.	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
Zone	5 Block	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
System	5 Total/Ave.	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
System	5 Block	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	CLASSROOMS	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
Zone	3 Total/Ave.	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
Zone	3 Block	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
System	3 Total/Ave.	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
System	3 Block	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
5	ADMINISTRATION	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
Zone	5 Total/Ave.	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
Zone	5 Block	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
System	5 Total/Ave.	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
System	5 Block	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	CLASSROOMS	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
Zone	3 Total/Ave.	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
Zone	3 Block	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
System	3 Total/Ave.	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
System	3 Block	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
5	ADMINISTRATION	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
Zone	5 Total/Ave.	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
Zone	5 Block	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
System	5 Total/Ave.	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
System	5 Block	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	CLASSROOMS	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	7,418	68.1	0	0	0.000	0	0.0	0	0.0
5	ADMINISTRATION	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
Zone 5	Total/Ave.	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
Zone 5	Block	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
System 5	Total/Ave.	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0
System 5	Block	0	0.0	9,725	68.1	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	CLASSROOMS	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
Zone 3	Total/Ave.	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
Zone 3	Block	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
System 3	Total/Ave.	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
System 3	Block	0	0.0	2,346	12.3	3,360	0	0.700	799	18.4	0	0.0
5	ADMINISTRATION	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
Zone 5	Total/Ave.	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
Zone 5	Block	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
System 5	Total/Ave.	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0
System 5	Block	0	0.0	5,030	20.5	7,688	0	0.340	2,829	18.4	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	CLASSROOMS	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
Zone 3	Total/Ave.	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
Zone 3	Block	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
System 3	Total/Ave.	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
System 3	Block	0	0.0	0	0.0	214	4,318	7,355	75.0	0	25,596
5	ADMINISTRATION	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
Zone 5	Total/Ave.	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
Zone 5	Block	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
System 5	Total/Ave.	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717
System 5	Block	0	0.0	0	0.0	296	5,973	13,472	75.0	0	44,717

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	KITCHEN	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
2	WAREHOUSE SUPPLY	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
3	CLASSROOMS	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
4	ASSEMBLY HALL	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
5	ADMINISTRATION	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Block	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
System 5	Total/Ave.	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
System 5	Block	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	KITCHEN	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 1	Block	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 1	Block	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
2	WAREHOUSE SUPPLY	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
Zone 2	Block	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
System 2	Total/Ave.	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
System 2	Block	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
3	CLASSROOMS	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
Zone 3	Block	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
System 3	Total/Ave.	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
System 3	Block	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
4	ASSEMBLY HALL	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 4	Block	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 4	Total/Ave.	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 4	Block	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
5	ADMINISTRATION	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
Zone 5	Block	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
System 5	Total/Ave.	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
System 5	Block	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	KITCHEN	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
Zone 1	Total/Ave.	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
Zone 1	Block	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
System 1	Total/Ave.	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
System 1	Block	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
2	WAREHOUSE SUPPLY	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
Zone 2	Total/Ave.	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
Zone 2	Block	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
System 2	Total/Ave.	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
System 2	Block	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
3	CLASSROOMS	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
Zone 3	Total/Ave.	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
Zone 3	Block	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
System 3	Total/Ave.	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
System 3	Block	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
4	ASSEMBLY HALL	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
Zone 4	Total/Ave.	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
Zone 4	Block	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
System 4	Total/Ave.	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
System 4	Block	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
5	ADMINISTRATION	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
Zone 5	Total/Ave.	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
Zone 5	Block	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
System 5	Total/Ave.	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
System 5	Block	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	KITCHEN	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-1,085	-67.0	0	0	0.000	0	0.0	0	0.0
2	WAREHOUSE SUPPLY	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-38,430	-64.0	0	0	0.000	0	0.0	0	0.0
3	CLASSROOMS	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	-7,298	-67.0	0	0	0.000	0	0.0	0	0.0
4	ASSEMBLY HALL	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-3,739	-67.0	0	0	0.000	0	0.0	0	0.0
5	ADMINISTRATION	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Block	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
System 5	Total/Ave.	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0
System 5	Block	0	0.0	-9,568	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	KITCHEN	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone 1	Block	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
System 1	Block	0	0.0	-5,975	-67.0	0	0	0.000	-263	-67.0	0	0.0
2	WAREHOUSE SUPPLY	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
Zone 2	Block	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
System 2	Total/Ave.	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
System	2 Block	0	0.0	-28,149	-64.0	0	0	0.000	-1,507	-64.0	0	0.0
3	CLASSROOMS	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
Zone	3 Block	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
System	3 Total/Ave.	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
System	3 Block	0	0.0	-12,781	-67.0	0	0	0.000	-3,064	-67.0	0	0.0
4	ASSEMBLY HALL	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone	4 Total/Ave.	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
Zone	4 Block	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
System	4 Total/Ave.	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
System	4 Block	0	0.0	-8,375	-67.0	0	0	0.000	-263	-67.0	0	0.0
5	ADMINISTRATION	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
Zone	5 Total/Ave.	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
Zone	5 Block	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
System	5 Total/Ave.	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0
System	5 Block	0	0.0	-16,441	-67.0	0	0	0.000	-10,855	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	KITCHEN	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
Zone	1 Total/Ave.	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
Zone	1 Block	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
System	1 Total/Ave.	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
System	1 Block	-1,616	-67.0	0	0.0	90	-6,404	0	70.0	0	-15,343
2	WAREHOUSE SUPPLY	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
Zone	2 Total/Ave.	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
Zone	2 Block	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
System	2 Total/Ave.	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
System	2 Block	-11,106	-64.0	0	0.0	438	-29,772	0	67.0	0	-108,963
3	CLASSROOMS	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
Zone	3 Total/Ave.	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
Zone	3 Block	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
System	3 Total/Ave.	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
System	3 Block	-5,387	-67.0	0	0.0	214	-15,228	0	70.0	0	-43,757
4	ASSEMBLY HALL	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
Zone	4 Total/Ave.	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
Zone	4 Block	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Exposed Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
System 4	Total/Ave.	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
System 4	Block	-1,661	-67.0	0	0.0	150	-10,674	0	70.0	0	-24,711
5	ADMINISTRATION	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
Zone 5	Total/Ave.	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
Zone 5	Block	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
System 5	Total/Ave.	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514
System 5	Block	-7,586	-67.0	0	0.0	296	-21,063	0	70.0	0	-65,514

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

AIRFLOW COOLING LOADS
(At time of Coil Peak)

Room Number	Description	Ventilation Airflow (Cfm)	Ventilation Sensible (Btuh)	Ventilation Latent (Btuh)	Optional Ventilation Airflow (Cfm)	Optional Ventilation Sensible (Btuh)	Optional Ventilation Latent (Btuh)	Bypass Airflow (Cfm)	Bypass Sensible (Btuh)	Bypass Latent (Btuh)	Ov/Undr Sizing (Btuh)
3	CLASSROOMS	600	12,108	20,620	0	0	0	0	0	0	0
Zone	3 Total/Ave.	600	12,108	20,620	0	0	0	0	0	0	0
Zone	3 Block	600	12,108	20,620	0	0	0	0	0	0	0
System	3 Total/Ave.	600	12,108	20,620	0	0	0	0	0	0	0
System	3 Block	600	12,108	20,620	0	0	0	0	0	0	0
5	ADMINISTRATION	380	7,668	17,295	0	0	0	0	0	0	-6,090
Zone	5 Total/Ave.	380	7,668	17,295	0	0	0	0	0	0	-6,090
Zone	5 Block	380	7,668	17,295	0	0	0	0	0	0	-6,090
System	5 Total/Ave.	380	7,668	17,295	0	0	0	0	0	0	-6,090
System	5 Block	380	7,668	17,295	0	0	0	0	0	0	-6,090

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

AIRFLOW HEATING LOADS
(At time of Coil Peak)

Room Number	Description	--- Ventilation -- Airflow (Cfm)	Sensible (Btuh)	---- Op. Vent.---- Airflow (Cfm)	Sensible (Btuh)	----- Reheat ----- Airflow (Cfm)	Sensible (Btuh)	---- Humidif. ---- Airflow (Cfm)	Latent (Btuh)	Total (Btuh)
1	KITCHEN	3,036	-216,038	0	0	0	0	0	0	-216,038
Zone 1	Total/Ave.	3,036	-216,038	0	0	0	0	0	0	-216,038
Zone 1	Block	3,036	-216,038	0	0	0	0	0	0	-216,038
System 1	Total/Ave.	3,036	-216,038	0	0	0	0	0	0	-216,038
System 1	Block	3,036	-216,038	0	0	0	0	0	0	-216,038
2	WAREHOUSE SUPPLY	0	0	0	0	0	0	0	0	0
Zone 2	Total/Ave.	0	0	0	0	0	0	0	0	0
Zone 2	Block	0	0	0	0	0	0	0	0	0
System 2	Total/Ave.	0	0	0	0	0	0	0	0	0
System 2	Block	0	0	0	0	0	0	0	0	0
3	CLASSROOMS	600	-42,695	0	0	0	0	0	0	-42,695
Zone 3	Total/Ave.	600	-42,695	0	0	0	0	0	0	-42,695
Zone 3	Block	600	-42,695	0	0	0	0	0	0	-42,695
System 3	Total/Ave.	600	-42,695	0	0	0	0	0	0	-42,695
System 3	Block	600	-42,695	0	0	0	0	0	0	-42,695
4	ASSEMBLY HALL	660	-46,965	0	0	0	0	0	0	-46,965
Zone 4	Total/Ave.	660	-46,965	0	0	0	0	0	0	-46,965
Zone 4	Block	660	-46,965	0	0	0	0	0	0	-46,965
System 4	Total/Ave.	660	-46,965	0	0	0	0	0	0	-46,965
System 4	Block	660	-46,965	0	0	0	0	0	0	-46,965
5	ADMINISTRATION	380	-27,040	0	0	0	0	0	0	-27,040
Zone 5	Total/Ave.	380	-27,040	0	0	0	0	0	0	-27,040
Zone 5	Block	380	-27,040	0	0	0	0	0	0	-27,040
System 5	Total/Ave.	380	-27,040	0	0	0	0	0	0	-27,040
System 5	Block	380	-27,040	0	0	0	0	0	0	-27,040

COOLING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Coil Peak)

Room Number	Description	Cooling: Duct Heat Pickup (Btuh)	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
3	CLASSROOMS	0	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
Zone 3	Total/Ave.	0	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
Zone 3	Block	0	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
System 3	Total/Ave.	0	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
System 3	Block	0	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
5	ADMINISTRATION	0	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
Zone 5	Total/Ave.	0	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
Zone 5	Block	0	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
System 5	Total/Ave.	0	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
System 5	Block	0	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800

HEATING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS
(At time of Coil Peak)

Room Number	Description	Heating: Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	KITCHEN	4,499	0	0	4,499	3,036	0	0	0	0	0	4,686
Zone 1	Total/Ave.	4,499	0	0	4,499	3,036	0	0	0	0	0	4,686
Zone 1	Block	4,499	0	0	4,499	3,036	0	0	0	0	0	4,686
System 1	Total/Ave.	4,499	0	0	4,499	3,036	0	0	0	0	0	4,686
System 1	Block	4,499	0	0	4,499	3,036	0	0	0	0	0	4,686
2	WAREHOUSE SUPPLY	631	0	0	631	0	0	0	0	0	0	1,480
Zone 2	Total/Ave.	631	0	0	631	0	0	0	0	0	0	1,480
Zone 2	Block	631	0	0	631	0	0	0	0	0	0	1,480
System 2	Total/Ave.	631	0	0	631	0	0	0	0	0	0	1,480
System 2	Block	631	0	0	631	0	0	0	0	0	0	1,480
3	CLASSROOMS	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
Zone 3	Total/Ave.	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
Zone 3	Block	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
System 3	Total/Ave.	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
System 3	Block	4,107	0	0	4,107	600	0	3,080	0	0	0	3,080
4	ASSEMBLY HALL	3,968	0	0	3,968	660	0	0	0	0	0	3,720
Zone 4	Total/Ave.	3,968	0	0	3,968	660	0	0	0	0	0	3,720
Zone 4	Block	3,968	0	0	3,968	660	0	0	0	0	0	3,720
System 4	Total/Ave.	3,968	0	0	3,968	660	0	0	0	0	0	3,720
System 4	Block	3,968	0	0	3,968	660	0	0	0	0	0	3,720
5	ADMINISTRATION	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
Zone 5	Total/Ave.	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
Zone 5	Block	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
System 5	Total/Ave.	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800
System 5	Block	6,080	0	0	6,080	380	0	3,800	0	0	0	3,800

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 3

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	63.3	53.2	72.6	29.3	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	63.3	53.2	72.6	29.3	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	78.7	66.4	53.4	82.6	31.8	
Blow through Fan						0.0
Entering Coil	78.7	66.4	53.4	82.6	31.8	
Leaving Coil	56.2	55.0	92.6	65.7	23.7	
Draw Through Fan						0.3
Duct Frictional Heat						0.9
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	57.5	55.4	88.5	65.7	24.0	
Supply Air	57.5	55.4	88.5	65.7	24.0	

Percent Outside Air	19.48	(%)
Sensible Heat Ratio (SHR)	0.788	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	3,080	(Cfm)

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 5

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	59.7	41.1	55.9	26.7	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	59.7	41.1	55.9	26.7	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	76.9	61.8	43.2	62.7	28.3	
Blow through Fan						0.0
Entering Coil	76.9	61.8	43.2	62.7	28.3	
Leaving Coil	48.3	47.1	92.4	48.7	19.1	
Draw Through Fan						0.4
Duct Frictional Heat						1.1
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	49.8	47.8	87.3	48.7	19.5	
Supply Air	49.8	47.8	87.3	48.7	19.5	

Percent Outside Air	10.00	(%)
Sensible Heat Ratio (SHR)	0.829	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	3,800	(Cfm)

BUILDING U-VALUES - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

BUILDING U-VALUES

Room Number	Description	Room U-Values (Btu/hr/sqft/F) Part.	ExFlr	Summr Skylt	Wintr Skylt	Roof	Summr Windo	Wintr Windo	Wall	Ceil.	Room Mass (lb/ sqft)	Room Capac. (Btu/ sqft/F)
1	KITCHEN	0.000	0.670	0.000	0.000	0.025	0.620	0.654	0.117	0.000	70.3	14.71
Zone 1	Total/Ave.	0.000	0.670	0.000	0.000	0.025	0.620	0.654	0.117	0.000	70.3	14.71
System 1	Total/Ave.	0.000	0.670	0.000	0.000	0.025	0.620	0.654	0.117	0.000	70.3	14.71
2	WAREHOUSE SUPPLY	0.388	0.670	0.000	0.000	0.127	0.620	0.654	0.118	0.000	69.3	14.52
Zone 2	Total/Ave.	0.388	0.670	0.000	0.000	0.127	0.620	0.654	0.118	0.000	69.3	14.52
System 2	Total/Ave.	0.388	0.670	0.000	0.000	0.127	0.620	0.654	0.118	0.000	69.3	14.52
3	CLASSROOMS	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.115	0.000	58.9	12.43
Zone 3	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.115	0.000	58.9	12.43
System 3	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.115	0.000	58.9	12.43
4	ASSEMBLY HALL	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.121	0.000	49.9	10.63
Zone 4	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.121	0.000	49.9	10.63
System 4	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.121	0.000	49.9	10.63
5	ADMINISTRATION	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.114	0.000	60.2	12.70
Zone 5	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.114	0.000	60.2	12.70
System 5	Total/Ave.	0.388	0.670	0.000	0.000	0.025	0.620	0.654	0.114	0.000	60.2	12.70
Building		0.388	0.670	0.000	0.000	0.052	0.620	0.654	0.117	0.000	61.4	12.93

BUILDING AREAS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

B U I L D I N G A R E A S

Room Number	Description	Number of Duplicate Flr	Rm	Floor Area/Dupl Room (sqft)	Total Floor Area (sqft)	Partition Area (sqft)	Exposed Floor Area (sqft)	Skylight Area (sqft)	Skl /Rf (%)	Net Roof Area (sqft)	Window Area (sqft)	Win /Wl (%)	Net Wall Area (sqft)
1	KITCHEN	1	1	648	648	0	36	0	0	648	6	1	759
Zone 1	Total/Ave.				648	0	36	0	0	648	6	1	759
System 1	Total/Ave.				648	0	36	0	0	648	6	1	759
2	WAREHOUSE SUPPLY	1	1	4,728	4,728	5,700	259	0	0	4,728	36	1	3,716
Zone 2	Total/Ave.				4,728	5,700	259	0	0	4,728	36	1	3,716
System 2	Total/Ave.				4,728	5,700	259	0	0	4,728	36	1	3,716
3	CLASSROOMS	1	1	4,357	4,357	7,520	120	0	0	4,357	70	4	1,652
Zone 3	Total/Ave.				4,357	7,520	120	0	0	4,357	70	4	1,652
System 3	Total/Ave.				4,357	7,520	120	0	0	4,357	70	4	1,652
4	ASSEMBLY HALL	1	1	2,232	2,232	1,610	37	0	0	2,232	6	1	1,037
Zone 4	Total/Ave.				2,232	1,610	37	0	0	2,232	6	1	1,037
System 4	Total/Ave.				2,232	1,610	37	0	0	2,232	6	1	1,037
5	ADMINISTRATION	1	1	5,712	5,712	10,490	169	0	0	5,712	248	10	2,160
Zone 5	Total/Ave.				5,712	10,490	169	0	0	5,712	248	10	2,160
System 5	Total/Ave.				5,712	10,490	169	0	0	5,712	248	10	2,160
Building					17,677	25,320	621	0	0	17,677	366	4	9,324

ASHRAE 90 ANALYSIS - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

A S H R A E 9 0 A N A L Y S I S

Overall Roof U-Value = 0.052 (Btu/Hr/Sq Ft/F)
Overall Wall U-Value = 0.136 (Btu/Hr/Sq Ft/F)
Overall Building U-Value = 0.082 (Btu/Hr/Sq Ft/F)

Roof Overall Thermal Transfer Value (OTTVr) = 3.52 (Btu/Hr/Sq Ft)
Wall Overall Thermal Transfer Value (OTTVw) = 7.09 (Btu/Hr/Sq Ft)

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

Main System 1 UV UNIT VENTILATOR

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-13,945	1	61	234.3	0	0	0.0	0	0
5 - 10	0.0	0	0	-27,890	6	273	468.6	0	0	0.0	0	0
10 - 15	0.0	0	0	-41,835	6	303	702.9	0	0	0.0	0	0
15 - 20	0.0	0	0	-55,780	11	519	937.2	0	0	0.0	0	0
20 - 25	0.0	0	0	-69,725	12	578	1,171.5	0	0	0.0	0	0
25 - 30	0.0	0	0	-83,670	14	666	1,405.8	0	0	0.0	0	0
30 - 35	0.0	0	0	-97,615	12	577	1,640.1	0	0	0.0	0	0
35 - 40	0.0	0	0	-111,560	10	450	1,874.4	0	0	0.0	0	0
40 - 45	0.0	0	0	-125,505	10	481	2,108.7	0	0	0.0	0	0
45 - 50	0.0	0	0	-139,450	8	360	2,343.0	0	0	0.0	0	0
50 - 55	0.0	0	0	-153,395	8	394	2,577.3	0	0	0.0	0	0
55 - 60	0.0	0	0	-167,340	0	0	2,811.6	0	0	0.0	0	0
60 - 65	0.0	0	0	-181,285	0	0	3,045.9	0	0	0.0	0	0
65 - 70	0.0	0	0	-195,230	0	0	3,280.2	0	0	0.0	0	0
70 - 75	0.0	0	0	-209,175	0	0	3,514.5	0	0	0.0	0	0
75 - 80	0.0	0	0	-223,120	0	0	3,748.8	0	0	0.0	0	0
80 - 85	0.0	0	0	-237,065	0	0	3,983.1	0	0	0.0	0	0
85 - 90	0.0	0	0	-251,010	0	0	4,217.4	0	0	0.0	0	0
90 - 95	0.0	0	0	-264,955	0	0	4,451.7	0	0	0.0	0	0
95 - 100	0.0	0	0	-278,900	0	0	4,686.0	100	5,088	0.0	0	0
Hours Off	0.0	0	8,760	0	0	4,098	0.0	0	3,672	0.0	0	8,760

Main System 2 UH UNIT HEATERS

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-5,417	16	201	74.0	0	0	0.0	0	0
5 - 10												
10 - 15												
15 - 20												
20 - 25												
25 - 30												
30 - 35												
35 - 40												
40 - 45												
45 - 50												
50 - 55												
55 - 60												
60 - 65												
65 - 70												
70 - 75												
75 - 80												
80 - 85												
85 - 90												
90 - 95												
95 - 100												
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-10,833	12	159	148.0	0	0	0.0	0	0
5 - 10	0.0	0	0	-16,250	7	95	222.0	0	0	0.0	0	0
10 - 15	0.0	0	0	-21,666	15	195	296.0	0	0	0.0	0	0
15 - 20	0.0	0	0	-27,083	20	265	370.0	0	0	0.0	0	0
20 - 25	0.0	0	0	-32,499	15	198	444.0	0	0	0.0	0	0
25 - 30	0.0	0	0	-37,916	14	182	518.0	0	0	0.0	0	0
30 - 35	0.0	0	0	-43,333	0	0	592.0	0	0	0.0	0	0
35 - 40	0.0	0	0	-48,749	0	0	666.0	0	0	0.0	0	0
40 - 45	0.0	0	0	-54,166	0	0	740.0	0	0	0.0	0	0
45 - 50	0.0	0	0	-59,582	0	0	814.0	0	0	0.0	0	0
50 - 55	0.0	0	0	-64,999	0	0	888.0	0	0	0.0	0	0
55 - 60	0.0	0	0	-70,416	0	0	962.0	0	0	0.0	0	0
60 - 65	0.0	0	0	-75,832	0	0	1,036.0	0	0	0.0	0	0
65 - 70	0.0	0	0	-81,249	0	0	1,110.0	0	0	0.0	0	0
70 - 75	0.0	0	0	-86,665	0	0	1,184.0	0	0	0.0	0	0
75 - 80	0.0	0	0	-92,082	0	0	1,258.0	0	0	0.0	0	0
80 - 85	0.0	0	0	-97,498	0	0	1,332.0	0	0	0.0	0	0
85 - 90	0.0	0	0	-102,915	0	0	1,406.0	0	0	0.0	0	0
90 - 95	0.0	0	0	-108,332	0	0	1,480.0	100	8,760	0.0	0	0
95 - 100	0.0	0	8,760	0	0	7,465	0.0	0	0	0.0	0	8,760
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

Main System 3 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.5	11	266	-4,357	11	164	154.0	0	0	0.0	0	0
5 - 10	1.0	7	176	-8,715	12	180	308.0	0	0	0.0	0	0
10 - 15	1.5	10	246	-13,073	12	181	462.0	0	0	0.0	0	0
15 - 20	2.0	7	163	-17,430	7	105	616.0	0	0	0.0	0	0
20 - 25	2.5	9	208	-21,787	15	213	770.0	0	0	0.0	0	0
25 - 30	3.0	7	181	-26,145	30	437	924.0	0	0	0.0	0	0
30 - 35	3.5	8	206	-30,503	13	186	1,078.0	0	0	0.0	0	0
35 - 40	4.0	10	249	-34,860	0	0	1,232.0	0	0	0.0	0	0
40 - 45	4.5	8	203	-39,218	0	0	1,386.0	0	0	0.0	0	0
45 - 50	5.0	6	147	-43,575	0	0	1,540.0	0	0	0.0	0	0
50 - 55	5.5	4	107	-47,933	0	0	1,694.0	0	0	0.0	0	0
55 - 60	6.0	4	85	-52,290	0	0	1,848.0	0	0	0.0	0	0
60 - 65	6.5	2	40	-56,648	0	0	2,002.0	0	0	0.0	0	0
65 - 70	7.0	2	45	-61,005	0	0	2,156.0	0	0	0.0	0	0
70 - 75	7.5	2	43	-65,363	0	0	2,310.0	0	0	0.0	0	0
75 - 80	8.0	2	42	-69,720	0	0	2,464.0	0	0	0.0	0	0
80 - 85	8.5	1	20	-74,078	0	0	2,618.0	0	0	0.0	0	0
85 - 90	9.1	0	0	-78,435	0	0	2,772.0	0	0	0.0	0	0
90 - 95	9.6	0	0	-82,793	0	0	2,926.0	0	0	0.0	0	0
95 - 100	10.1	0	0	-87,150	0	0	3,080.0	100	8,760	0.0	0	0
Hours Off	0.0	0	6,333	0	0	7,294	0.0	0	0	0.0	0	8,760

Main System 4 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-3,385	11	266	186.0	0	0	0.0	0	0
5 - 10												
10 - 15												
15 - 20												
20 - 25												
25 - 30												
30 - 35												
35 - 40												
40 - 45												
45 - 50												
50 - 55												
55 - 60												
60 - 65												
65 - 70												
70 - 75												
75 - 80												
80 - 85												
85 - 90												
90 - 95												
95 - 100												
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-6,771	7	182	372.0	0	0	0.0	0	0
5 - 10	0.0	0	0	-10,156	10	245	558.0	0	0	0.0	0	0
10 - 15	0.0	0	0	-13,542	9	210	744.0	0	0	0.0	0	0
15 - 20	0.0	0	0	-16,927	9	210	930.0	0	0	0.0	0	0
20 - 25	0.0	0	0	-20,312	14	331	1,116.0	0	0	0.0	0	0
25 - 30	0.0	0	0	-23,698	5	121	1,302.0	0	0	0.0	0	0
30 - 35	0.0	0	0	-27,083	11	270	1,488.0	0	0	0.0	0	0
35 - 40	0.0	0	0	-30,469	10	242	1,674.0	0	0	0.0	0	0
40 - 45	0.0	0	0	-33,854	15	363	1,860.0	0	0	0.0	0	0
45 - 50	0.0	0	0	-37,239	0	0	2,046.0	0	0	0.0	0	0
50 - 55	0.0	0	0	-40,625	0	0	2,232.0	0	0	0.0	0	0
55 - 60	0.0	0	0	-44,010	0	0	2,418.0	0	0	0.0	0	0
60 - 65	0.0	0	0	-47,396	0	0	2,604.0	0	0	0.0	0	0
65 - 70	0.0	0	0	-50,781	0	0	2,790.0	0	0	0.0	0	0
70 - 75	0.0	0	0	-54,166	0	0	2,976.0	0	0	0.0	0	0
75 - 80	0.0	0	0	-57,552	0	0	3,162.0	0	0	0.0	0	0
80 - 85	0.0	0	0	-60,937	0	0	3,348.0	0	0	0.0	0	0
85 - 90	0.0	0	0	-64,323	0	0	3,534.0	0	0	0.0	0	0
90 - 95	0.0	0	0	-67,708	0	0	3,720.0	100	5,088	0.0	0	0
95 - 100	0.0	0	8,760	0	0	6,320	0.0	0	3,672	0.0	0	8,760
Hours Off												

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

Main System 5 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.7	5	147	-5,658	30	82	190.0	0	0	0.0	0	0
5 - 10	1.3	15	466	-11,315	7	19	380.0	0	0	0.0	0	0
10 - 15	2.0	10	288	-16,972	63	172	570.0	0	0	0.0	0	0
15 - 20	2.6	6	189	-22,630	0	0	760.0	0	0	0.0	0	0
20 - 25	3.3	6	180	-28,288	0	0	950.0	0	0	0.0	0	0
25 - 30	3.9	4	112	-33,945	0	0	1,140.0	0	0	0.0	0	0
30 - 35	4.6	6	195	-39,603	0	0	1,330.0	0	0	0.0	0	0
35 - 40	5.2	6	176	-45,260	0	0	1,520.0	0	0	0.0	0	0
40 - 45	5.9	4	131	-50,918	0	0	1,710.0	0	0	0.0	0	0
45 - 50	6.5	6	169	-56,575	0	0	1,900.0	0	0	0.0	0	0
50 - 55	7.2	1	42	-62,233	0	0	2,090.0	0	0	0.0	0	0
55 - 60	7.8	6	176	-67,890	0	0	2,280.0	0	0	0.0	0	0
60 - 65	8.5	3	102	-73,548	0	0	2,470.0	0	0	0.0	0	0
65 - 70	9.1	5	150	-79,205	0	0	2,660.0	0	0	0.0	0	0
70 - 75	9.8	4	133	-84,863	0	0	2,850.0	0	0	0.0	0	0
75 - 80	10.4	4	127	-90,520	0	0	3,040.0	0	0	0.0	0	0
80 - 85	11.1	4	127	-96,178	0	0	3,230.0	0	0	0.0	0	0
85 - 90	11.7	2	63	-101,835	0	0	3,420.0	0	0	0.0	0	0
90 - 95	12.4	1	22	-107,493	0	0	3,610.0	0	0	0.0	0	0
95 - 100	13.0	1	20	-113,150	0	0	3,800.0	100	8,760	0.0	0	0
Hours Off	0.0	0	5,745	0	0	8,487	0.0	0	0	0.0	0	8,760

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

SYSTEM LOAD PROFILE

System Totals

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	1.2	13	389	-32,762	10	456	838.3	0	0	0.0	0	0
5 - 10	2.3	12	365	-65,524	20	945	1,676.6	0	0	0.0	0	0
10 - 15	3.5	10	306	-98,286	26	1,201	2,514.9	0	0	0.0	0	0
15 - 20	4.6	5	158	-131,048	14	631	3,353.2	0	0	0.0	0	0
20 - 25	5.8	5	158	-163,810	11	512	4,191.5	0	0	0.0	0	0
25 - 30	6.9	7	210	-196,572	7	331	5,029.8	0	0	0.0	0	0
30 - 35	8.1	7	198	-229,334	7	349	5,868.1	0	0	0.0	0	0
35 - 40	9.2	5	144	-262,096	5	237	6,706.4	0	0	0.0	0	0
40 - 45	10.4	6	169	-294,858	0	0	7,544.7	0	0	0.0	0	0
45 - 50	11.5	5	149	-327,620	0	0	8,383.0	42	3,672	0.0	0	0
50 - 55	12.7	5	150	-360,382	0	0	9,221.3	0	0	0.0	0	0
55 - 60	13.8	5	150	-393,144	0	0	10,059.6	0	0	0.0	0	0
60 - 65	15.0	5	154	-425,906	0	0	10,897.9	0	0	0.0	0	0
65 - 70	16.2	2	60	-458,668	0	0	11,736.2	0	0	0.0	0	0
70 - 75	17.3	4	128	-491,430	0	0	12,574.5	0	0	0.0	0	0
75 - 80	18.5	1	42	-524,192	0	0	13,412.8	0	0	0.0	0	0
80 - 85	19.6	2	65	-556,954	0	0	14,251.1	0	0	0.0	0	0
85 - 90	20.8	0	0	-589,716	0	0	15,089.4	0	0	0.0	0	0
90 - 95	21.9	1	20	-622,478	0	0	15,927.7	0	0	0.0	0	0
95 - 100	23.1	0	0	-655,240	0	0	16,766.0	58	5,088	0.0	0	0
Hours Off	0.0	0	5,745	0	0	4,098	0.0	0	0	0.0	0	8,760

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

January			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	24.1	19.9	-225,746	0.0	-219,414	0.0	-227,618	0.0	-236,917	0.0	-236,917	0.0
2	23.4	19.5	-238,642	0.0	-238,998	0.0	-238,998	0.0	-254,911	0.0	-254,911	0.0
3	23.7	20.0	-255,278	0.0	-244,375	0.0	-244,375	0.0	-261,092	0.0	-261,092	0.0
4	24.7	21.1	-262,388	0.0	-240,062	0.0	-240,062	0.0	-256,021	0.0	-256,021	0.0
5	26.3	22.8	-268,040	0.0	-234,124	0.0	-234,124	0.0	-249,725	0.0	-249,725	0.0
6	28.3	25.0	-272,512	0.0	-230,472	0.0	-230,472	0.0	-243,735	0.0	-243,735	0.0
7	30.8	27.9	-258,088	0.0	-214,763	0.0	-216,186	0.0	-226,771	0.0	-226,771	0.0
8	33.5	30.8	-169,268	0.0	-142,683	0.0	-184,465	0.0	-184,465	0.0	-142,683	0.0
9	36.4	33.5	-145,341	0.0	-123,457	0.0	-162,359	0.0	-162,359	0.0	-123,457	0.0
10	39.3	35.6	-128,653	0.0	-114,164	0.0	-148,595	0.0	-148,595	0.0	-114,164	0.0
11	42.1	36.8	-110,019	0.0	-106,467	0.0	-137,073	0.0	-137,073	0.0	-106,467	0.0
12	44.6	37.5	-92,268	0.0	-100,312	0.0	-121,748	0.0	-121,748	0.0	-100,312	0.0
13	46.6	38.2	-63,306	0.0	-76,145	0.0	-93,989	0.0	-93,989	0.0	-76,145	0.0
14	48.2	38.3	-42,406	0.0	-55,017	0.0	-66,235	0.0	-66,235	0.0	-55,017	0.0
15	49.2	39.0	-47,585	0.0	-59,457	0.0	-67,020	0.0	-67,020	0.0	-59,457	0.0
16	49.5	39.1	-56,591	0.0	-65,240	0.0	-68,144	0.0	-68,144	0.0	-65,240	0.0
17	48.8	38.9	-70,418	0.0	-75,079	0.0	-76,938	0.0	-76,938	0.0	-75,079	0.0
18	47.0	38.5	-69,991	0.0	-70,953	0.0	-73,825	0.0	-73,825	0.0	-70,953	0.0
19	44.1	37.3	-67,641	0.0	-66,596	0.0	-74,409	0.0	-74,409	0.0	-66,596	0.0
20	40.5	34.8	-86,956	0.0	-86,198	0.0	-100,713	0.0	-100,713	0.0	-86,198	0.0
21	36.4	31.2	-109,873	0.0	-117,043	0.0	-139,972	0.0	-139,972	0.0	-117,043	0.0
22	32.4	27.7	-134,270	0.0	-141,771	0.0	-172,181	0.0	-172,181	0.0	-141,771	0.0
23	28.8	24.3	-145,427	0.0	-158,959	0.0	-196,554	0.0	-196,554	0.0	-158,959	0.0
24	25.9	21.7	-157,090	0.0	-171,590	0.0	-217,390	0.0	-217,390	0.0	-171,590	0.0

February			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	31.5	28.3	-200,058	0.0	-183,975	0.0	-181,401	0.0	-192,024	0.0	-192,024	0.0
2	29.8	26.8	-216,134	0.0	-200,025	0.0	-200,025	0.0	-200,025	0.0	-200,025	0.0
3	28.3	25.5	-224,754	0.0	-210,618	0.0	-210,618	0.0	-222,428	0.0	-222,428	0.0
4	27.1	24.4	-229,027	0.0	-220,025	0.0	-220,025	0.0	-232,757	0.0	-232,757	0.0
5	26.2	23.6	-233,770	0.0	-227,448	0.0	-227,448	0.0	-241,362	0.0	-241,362	0.0
6	25.6	23.5	-239,633	0.0	-237,778	0.0	-237,778	0.0	-252,171	0.0	-252,171	0.0
7	25.5	23.4	-246,182	0.0	-233,244	0.0	-233,244	0.0	-248,042	0.0	-248,042	0.0
8	26.2	24.4	-161,617	0.0	-176,974	0.0	-212,796	0.0	-221,455	0.0	-176,974	0.0
9	28.3	26.1	-139,326	0.0	-160,194	0.0	-207,144	0.0	-207,144	0.0	-160,194	0.0
10	31.5	28.7	-128,454	0.0	-150,083	0.0	-192,073	0.0	-192,073	0.0	-150,083	0.0
11	35.2	31.3	-114,888	0.0	-137,522	0.0	-173,407	0.0	-173,407	0.0	-137,522	0.0
12	39.0	33.9	-99,144	0.0	-124,208	0.0	-152,972	0.0	-152,972	0.0	-124,208	0.0
13	42.2	35.9	-75,702	0.0	-93,600	0.0	-115,256	0.0	-115,256	0.0	-93,600	0.0
14	44.3	36.9	-56,790	0.0	-68,429	0.0	-85,358	0.0	-85,358	0.0	-68,429	0.0
15	45.0	36.8	-62,381	0.0	-73,819	0.0	-83,699	0.0	-83,699	0.0	-73,819	0.0
16	44.8	36.3	-71,026	0.0	-82,715	0.0	-90,762	0.0	-90,762	0.0	-82,715	0.0
17	44.3	35.8	-82,809	0.0	-89,954	0.0	-98,740	0.0	-98,740	0.0	-89,954	0.0
18	43.4	35.6	-80,347	0.0	-83,026	0.0	-89,875	0.0	-89,875	0.0	-83,026	0.0
19	42.2	36.1	-75,075	0.0	-72,881	0.0	-83,245	0.0	-83,245	0.0	-72,881	0.0
20	40.7	35.9	-91,418	0.0	-90,110	0.0	-107,183	0.0	-107,183	0.0	-90,110	0.0
21	39.0	34.5	-123,206	0.0	-112,091	0.0	-135,258	0.0	-135,258	0.0	-112,091	0.0
22	37.1	33.2	-134,084	0.0	-122,416	0.0	-150,094	0.0	-150,094	0.0	-122,416	0.0
23	35.2	31.5	-143,151	0.0	-132,499	0.0	-164,681	0.0	-164,681	0.0	-132,499	0.0
24	33.3	29.9	-149,882	0.0	-146,278	0.0	-177,386	0.0	-177,386	0.0	-146,278	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

March			------ Design -----		----- Weekday -----		-----Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	40.0	36.8	-155,866	0.0	-112,069	0.0	-112,069	0.0	-123,877	0.0	-123,877	0.0
2	37.3	34.5	-175,470	0.0	-123,738	0.0	-123,739	0.0	-149,995	0.0	-149,995	0.0
3	34.9	32.2	-185,559	0.0	-134,475	0.0	-134,475	0.0	-164,856	0.0	-164,856	0.0
4	32.9	30.3	-191,809	0.0	-148,438	0.0	-149,982	0.0	-177,163	0.0	-177,163	0.0
5	31.4	28.8	-193,971	0.0	-180,701	0.0	-192,060	0.0	-192,060	0.0	-192,060	0.0
6	30.4	28.0	-205,107	0.0	-208,459	0.0	-208,459	0.0	-208,459	0.0	-208,459	0.0
7	30.1	27.6	-191,606	0.0	-205,799	0.0	-205,799	0.0	-205,799	0.0	-205,799	0.0
8	30.7	28.0	-125,368	0.0	-146,772	0.0	-177,970	0.0	-183,393	0.0	-146,772	0.0
9	32.5	28.9	-100,557	0.0	-136,231	0.0	-170,220	0.0	-174,058	0.0	-136,231	0.0
10	35.4	30.6	-83,535	0.0	-126,918	0.0	-161,922	0.0	-161,922	0.0	-126,918	0.0
11	38.9	32.6	-67,719	0.0	-114,841	0.0	-145,414	0.0	-145,414	0.0	-114,841	0.0
12	42.9	35.4	-61,798	0.0	-101,061	0.0	-123,841	0.0	-123,841	0.0	-101,061	0.0
13	46.8	38.5	-41,557	0.0	-73,065	0.0	-86,366	0.0	-86,366	0.0	-73,065	0.0
14	50.4	41.3	-20,864	0.0	-47,403	0.0	-51,804	0.0	-51,804	0.0	-47,403	0.0
15	53.2	43.6	-25,778	0.0	-45,776	0.0	-45,776	0.0	-45,776	0.0	-45,776	0.0
16	55.0	45.1	-35,073	0.0	-46,700	0.0	-46,700	0.0	-46,700	0.0	-46,700	0.0
17	55.6	45.4	-48,407	0.0	-52,263	0.0	-52,263	0.0	-52,263	0.0	-52,263	0.0
18	55.3	45.9	-47,854	0.0	-43,320	0.0	-43,320	0.0	-43,320	0.0	-43,320	0.0
19	54.4	46.1	-45,165	0.0	-32,314	0.0	-32,314	0.0	-32,314	0.0	-32,314	0.0
20	52.8	46.3	-64,138	0.0	-45,399	0.0	-45,399	0.0	-45,399	0.0	-45,399	0.0
21	50.8	45.5	-80,772	0.0	-58,952	0.0	-58,952	0.0	-58,952	0.0	-58,952	0.0
22	48.4	43.7	-89,550	0.0	-66,876	0.0	-66,876	0.0	-66,876	0.0	-66,876	0.0
23	45.7	41.6	-96,473	0.0	-75,705	0.0	-75,705	0.0	-75,705	0.0	-75,705	0.0
24	42.9	39.2	-121,310	0.0	-92,022	0.0	-92,627	0.0	-92,627	0.0	-92,022	0.0

April			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	56.3	50.9	-48,394	0.0	-39,687	0.0	-39,687	0.0	-39,687	0.0	-39,687	0.0
2	54.2	48.9	-53,415	0.0	-46,691	0.0	-46,691	0.0	-46,691	0.0	-46,691	0.0
3	52.3	47.7	-58,375	0.0	-53,248	0.0	-53,248	0.0	-53,248	0.0	-53,248	0.0
4	50.7	46.4	-61,723	0.0	-58,650	0.0	-58,650	0.0	-58,650	0.0	-58,650	0.0
5	49.5	45.4	-69,256	0.0	-69,236	0.0	-69,236	0.0	-69,236	0.0	-69,236	0.0
6	48.8	44.7	-62,082	0.0	-66,069	0.0	-66,069	0.0	-66,069	0.0	-66,069	0.0
7	48.5	44.7	-38,717	0.0	-54,757	0.0	-54,757	0.0	-54,757	0.0	-54,757	0.0
8	49.2	44.5	-30,494	0.0	-51,088	0.0	-51,088	0.0	-51,088	0.0	-51,088	0.0
9	51.2	44.6	-28,951	0.0	-52,661	0.0	-52,661	0.0	-52,661	0.0	-52,661	0.0
10	54.2	46.1	-22,929	0.0	-48,305	0.0	-48,305	0.0	-48,305	0.0	-48,305	0.0
11	57.8	48.8	-18,093	0.0	-44,348	0.0	-44,348	0.0	-44,348	0.0	-44,348	0.0
12	61.8	51.6	0	0.0	-21,546	0.0	-21,546	0.0	-21,546	0.0	-21,546	0.0
13	65.4	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	68.4	56.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.4	58.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	71.0	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	70.8	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	70.1	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	68.9	58.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	67.3	58.5	-8,247	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	65.4	57.9	-21,656	0.0	-8,509	0.0	-8,509	0.0	-8,509	0.0	-8,509	0.0
22	63.3	56.3	-29,138	0.0	-16,133	0.0	-16,133	0.0	-16,133	0.0	-16,133	0.0
23	61.0	54.8	-35,413	0.0	-23,800	0.0	-23,800	0.0	-23,800	0.0	-23,800	0.0
24	58.6	53.0	-40,404	0.0	-31,884	0.0	-31,884	0.0	-31,884	0.0	-31,884	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

May			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	63.3	59.6	0	11.0	0	0.0	0	0.0	0	0.0	0	0.0
2	61.3	57.9	0	2.5	0	0.0	0	0.0	0	0.0	0	0.0
3	59.7	56.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	58.4	55.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	57.6	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	57.4	54.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	57.9	55.2	-1,705	2.4	0	1.6	0	0.0	0	0.0	0	1.6
8	59.4	55.6	0	6.7	0	3.8	0	0.0	0	0.0	0	3.8
9	61.7	56.5	0	12.7	0	6.9	0	0.3	0	0.3	0	6.9
10	64.6	57.7	0	13.1	0	8.5	0	1.1	0	1.1	0	8.5
11	67.8	59.7	0	11.9	0	10.0	0	1.8	0	1.8	0	10.0
12	71.0	62.0	0	11.0	0	8.3	0	2.0	0	2.0	0	8.3
13	73.9	63.9	0	14.0	0	11.4	0	2.0	0	2.0	0	11.4
14	76.3	65.3	0	15.6	0	12.8	0	2.1	0	2.1	0	12.8
15	77.7	66.4	0	17.4	0	14.9	0	3.6	0	3.6	0	14.9
16	78.2	66.4	0	12.6	0	10.8	0	4.1	0	4.1	0	10.8
17	78.0	66.3	0	10.4	0	9.2	0	4.2	0	4.2	0	9.2
18	77.2	66.2	0	8.0	0	7.3	0	3.8	0	3.8	0	7.3
19	76.0	66.5	0	7.5	0	7.0	0	3.4	0	3.4	0	7.0
20	74.3	66.4	0	6.5	0	6.7	0	2.9	0	2.9	0	6.7
21	72.3	66.5	0	3.5	0	3.8	0	2.3	0	2.3	0	3.8
22	70.1	64.9	0	2.1	0	2.5	0	1.8	0	1.8	0	2.5
23	67.8	63.2	0	0.7	0	1.2	0	1.2	0	1.2	0	1.2
24	65.5	61.4	0	0.3	0	0.2	0	0.2	0	0.2	0	0.2

June			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	66.2	65.3	0	1.6	0	0.8	0	0.8	0	0.8	0	0.8
2	65.3	63.9	0	1.0	0	0.1	0	0.1	0	0.1	0	0.1
3	64.5	62.4	0	0.9	0	0.0	0	0.0	0	0.0	0	0.0
4	64.0	61.3	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0
5	63.8	60.8	0	0.1	0	0.0	0	0.0	0	0.0	0	0.0
6	64.2	61.2	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
7	65.1	61.7	0	9.5	0	5.5	0	0.1	0	0.1	0	5.5
8	66.8	62.3	0	12.7	0	11.2	0	1.2	0	1.2	0	11.3
9	69.3	63.3	0	15.1	0	13.9	0	2.2	0	2.2	0	13.9
10	72.1	65.2	0	16.5	0	14.8	0	2.9	0	2.9	0	14.8
11	75.4	67.5	0	15.1	0	13.7	0	3.4	0	3.4	0	13.7
12	78.4	69.8	0	14.1	0	12.6	0	5.0	0	5.0	0	12.6
13	80.7	71.6	0	17.5	0	16.4	0	6.7	0	6.7	0	16.4
14	82.2	72.7	0	19.5	0	17.5	0	7.0	0	7.0	0	17.5
15	82.8	72.8	0	20.9	0	19.4	0	7.7	0	7.7	0	19.4
16	82.2	73.1	0	16.1	0	14.4	0	7.3	0	7.3	0	14.4
17	80.9	72.7	0	13.7	0	12.2	0	6.7	0	6.7	0	12.2
18	78.8	71.6	0	11.5	0	9.6	0	5.7	0	5.7	0	9.6
19	76.3	71.3	0	10.7	0	8.7	0	4.6	0	4.6	0	8.7
20	73.8	72.0	0	9.8	0	7.9	0	3.6	0	3.6	0	7.9
21	71.8	71.8	0	6.3	0	4.4	0	2.8	0	2.8	0	4.4
22	69.9	71.0	0	4.2	0	2.9	0	2.0	0	2.0	0	2.9
23	68.3	68.9	0	2.6	0	1.3	0	1.4	0	1.4	0	1.3
24	67.2	66.8	0	2.2	0	0.9	0	0.9	0	0.9	0	0.9

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

July			------ Design -----		----- Weekday -----		-----Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	70.9	71.0	0	3.9	0	2.4	0	2.3	0	2.4	0	2.4
2	69.8	68.8	0	2.9	0	1.5	0	1.5	0	1.6	0	1.6
3	68.9	67.0	0	2.6	0	1.3	0	1.3	0	1.3	0	1.3
4	68.2	65.9	0	1.9	0	1.1	0	1.1	0	1.1	0	1.1
5	68.0	65.2	0	1.9	0	1.0	0	1.0	0	1.0	0	1.0
6	68.4	64.9	0	2.0	0	0.4	0	0.4	0	0.4	0	0.4
7	69.6	65.3	0	11.8	0	10.0	0	1.2	0	1.2	0	10.0
8	71.6	65.6	0	14.6	0	12.7	0	2.3	0	2.3	0	12.7
9	74.5	65.7	0	17.7	0	15.7	0	3.7	0	3.7	0	15.7
10	77.9	66.5	0	18.2	0	17.0	0	5.8	0	5.8	0	17.0
11	81.7	67.9	0	17.0	0	15.6	0	7.0	0	7.0	0	15.6
12	85.3	69.9	0	15.8	0	14.3	0	8.0	0	8.0	0	14.3
13	88.0	71.3	0	19.8	0	18.2	0	8.8	0	8.8	0	18.2
14	89.8	72.5	0	20.8	0	19.2	0	9.1	0	9.1	0	19.2
15	90.5	73.9	0	21.9	0	20.9	0	9.7	0	9.7	0	20.9
16	89.8	75.3	0	18.1	0	16.2	0	9.5	0	9.5	0	16.2
17	88.2	75.5	0	15.2	0	13.7	0	8.5	0	8.5	0	13.7
18	85.8	76.2	0	13.0	0	11.4	0	7.9	0	7.9	0	11.4
19	82.8	76.7	0	11.9	0	10.6	0	6.9	0	6.9	0	10.6
20	79.9	78.6	0	11.8	0	9.8	0	5.9	0	5.9	0	9.8
21	77.4	78.8	0	8.4	0	6.6	0	5.1	0	5.1	0	6.6
22	75.2	78.0	0	6.9	0	5.2	0	4.4	0	4.4	0	5.2
23	73.4	75.4	0	4.8	0	3.1	0	3.2	0	3.2	0	3.1
24	72.0	73.0	0	4.3	0	2.6	0	2.7	0	2.7	0	2.6

August			------ Design -----		----- Weekday -----		-----Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.0	65.3	0	2.2	0	0.9	0	0.9	0	0.9	0	0.9
2	67.0	63.5	0	1.9	0	0.8	0	0.8	0	0.8	0	0.8
3	66.2	62.2	0	1.2	0	0.7	0	0.7	0	0.7	0	0.7
4	65.6	61.1	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
5	65.4	60.7	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
6	65.8	60.7	0	1.0	0	0.0	0	0.0	0	0.0	0	0.0
7	66.8	61.2	0	9.0	0	6.4	0	0.4	0	0.4	0	6.4
8	68.6	61.6	0	12.0	0	10.7	0	1.1	0	1.1	0	10.7
9	71.2	62.5	0	15.9	0	13.5	0	1.9	0	1.9	0	13.5
10	74.3	63.6	0	16.7	0	14.4	0	2.7	0	2.7	0	14.4
11	77.7	65.1	0	15.2	0	13.3	0	3.8	0	3.8	0	13.3
12	80.9	66.8	0	13.8	0	12.4	0	6.2	0	6.2	0	12.4
13	83.4	68.2	0	17.1	0	16.3	0	7.2	0	7.2	0	16.3
14	85.0	69.7	0	19.1	0	17.3	0	7.4	0	7.4	0	17.3
15	85.6	70.7	0	20.3	0	18.7	0	7.6	0	7.6	0	18.7
16	85.0	70.5	0	16.0	0	13.9	0	7.1	0	7.1	0	13.9
17	83.6	70.4	0	13.1	0	11.6	0	6.5	0	6.5	0	11.6
18	81.3	70.7	0	10.8	0	9.5	0	5.9	0	5.9	0	9.5
19	78.7	70.7	0	10.0	0	8.4	0	4.7	0	4.7	0	8.4
20	76.1	71.9	0	9.3	0	7.7	0	3.8	0	3.8	0	7.7
21	73.9	72.4	0	6.2	0	4.7	0	3.1	0	3.1	0	4.7
22	71.8	71.1	0	4.8	0	3.3	0	2.6	0	2.6	0	3.3
23	70.2	69.3	0	3.4	0	1.5	0	1.6	0	1.6	0	1.5
24	69.0	67.2	0	2.5	0	1.3	0	1.3	0	1.3	0	1.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

September			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.8	61.5	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
2	60.8	59.7	0	0.3	0	0.0	0	0.0	0	0.0	0	0.0
3	60.0	58.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
4	59.4	57.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
5	59.2	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
6	59.6	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	60.6	56.7	0	3.1	0	1.6	0	0.0	0	0.0	0	1.5
8	62.4	57.9	0	9.6	0	5.7	0	0.0	0	0.0	0	5.7
9	65.1	58.6	0	13.2	0	12.3	0	0.0	0	0.0	0	12.1
10	68.1	59.6	0	14.2	0	12.9	0	1.3	0	1.3	0	12.9
11	71.6	61.1	0	13.1	0	11.4	0	2.6	0	2.6	0	11.4
12	74.8	62.7	0	11.9	0	10.2	0	2.9	0	2.9	0	10.2
13	77.2	64.6	0	15.7	0	13.6	0	3.1	0	3.1	0	13.6
14	78.9	66.0	0	16.9	0	15.4	0	5.4	0	5.4	0	15.4
15	79.5	67.1	0	18.2	0	16.8	0	5.9	0	5.9	0	16.8
16	78.9	67.5	0	14.1	0	12.2	0	5.4	0	5.4	0	12.2
17	77.4	67.9	0	12.0	0	9.8	0	4.7	0	4.7	0	9.8
18	75.2	68.0	0	9.2	0	7.3	0	3.7	0	3.7	0	7.3
19	72.6	69.3	0	8.4	0	6.7	0	2.8	0	2.8	0	6.7
20	69.9	70.0	0	7.6	0	6.0	0	1.9	0	1.9	0	6.0
21	67.7	69.0	0	4.0	0	2.9	0	1.2	0	1.2	0	2.9
22	65.7	67.3	0	2.5	0	1.5	0	0.8	0	0.8	0	1.5
23	64.0	65.4	0	1.2	0	0.5	0	0.5	0	0.5	0	0.5
24	62.8	63.6	0	0.8	0	0.0	0	0.0	0	0.0	0	0.0

October			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	50.7	45.9	-3,267	0.0	-57,888	0.0	-57,888	0.0	-57,888	0.0	-57,888	0.0
2	48.4	44.0	0	0.0	-65,664	0.0	-65,664	0.0	-65,664	0.0	-65,664	0.0
3	46.3	42.0	-23,212	0.0	-72,779	0.0	-72,779	0.0	-72,779	0.0	-72,779	0.0
4	44.6	40.8	-69,043	0.0	-78,453	0.0	-78,453	0.0	-78,453	0.0	-78,453	0.0
5	43.4	39.7	-83,172	0.0	-89,149	0.0	-89,149	0.0	-89,149	0.0	-89,149	0.0
6	42.6	39.1	-76,048	0.0	-97,763	0.0	-97,512	0.0	-97,512	0.0	-97,512	0.0
7	42.3	38.9	-59,062	0.0	-76,677	0.0	-76,677	0.0	-76,677	0.0	-76,677	0.0
8	43.4	39.8	-49,553	0.0	-69,859	0.0	-69,859	0.0	-69,859	0.0	-69,859	0.0
9	46.3	41.5	-45,651	0.0	-68,868	0.0	-68,868	0.0	-68,868	0.0	-68,868	0.0
10	50.7	43.0	-37,446	0.0	-60,123	0.0	-60,123	0.0	-60,123	0.0	-60,123	0.0
11	56.0	45.7	-29,909	0.0	-50,719	0.0	-50,719	0.0	-50,719	0.0	-50,719	0.0
12	61.2	49.1	-5,554	0.0	-23,934	0.0	-23,934	0.0	-23,934	0.0	-23,934	0.0
13	65.6	52.3	-1,930	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	68.5	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	69.6	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.3	54.0	0	0.0	-3,256	0.0	-3,256	0.0	-3,256	0.0	-3,256	0.0
17	68.5	54.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.3	54.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	65.6	55.9	-1,410	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	63.5	55.7	-26,557	0.0	-14,967	0.0	-14,967	0.0	-14,967	0.0	-14,967	0.0
21	61.2	54.5	-36,553	0.0	-23,148	0.0	-23,148	0.0	-23,148	0.0	-23,148	0.0
22	58.6	52.4	-45,707	0.0	-31,653	0.0	-31,653	0.0	-31,653	0.0	-31,653	0.0
23	56.0	50.0	-53,278	0.0	-40,247	0.0	-40,247	0.0	-40,247	0.0	-40,247	0.0
24	53.3	48.0	-58,918	0.0	-49,243	0.0	-49,243	0.0	-49,243	0.0	-49,243	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

November			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	43.8	40.3	-80,616	0.0	-81,938	0.0	-81,938	0.0	-81,938	0.0	-81,938	0.0
2	42.0	38.9	-84,470	0.0	-101,127	0.0	-98,298	0.0	-98,298	0.0	-98,298	0.0
3	40.5	37.5	-87,345	0.0	-109,622	0.0	-109,622	0.0	-109,622	0.0	-109,622	0.0
4	39.4	36.3	-99,662	0.0	-114,568	0.0	-114,568	0.0	-123,975	0.0	-123,975	0.0
5	38.7	35.8	-109,077	0.0	-118,319	0.0	-118,319	0.0	-128,798	0.0	-128,798	0.0
6	38.4	35.6	-114,762	0.0	-126,387	0.0	-126,387	0.0	-137,465	0.0	-137,465	0.0
7	39.1	36.3	-103,836	0.0	-124,644	0.0	-124,888	0.0	-127,627	0.0	-127,627	0.0
8	41.0	38.2	-71,041	0.0	-85,135	0.0	-97,217	0.0	-97,217	0.0	-85,135	0.0
9	43.8	40.6	-57,218	0.0	-71,502	0.0	-80,782	0.0	-80,782	0.0	-71,502	0.0
10	47.3	42.8	-54,279	0.0	-66,653	0.0	-72,117	0.0	-72,117	0.0	-66,653	0.0
11	51.1	45.4	-47,630	0.0	-59,611	0.0	-60,278	0.0	-60,278	0.0	-59,611	0.0
12	54.6	47.5	-43,657	0.0	-55,951	0.0	-55,951	0.0	-55,951	0.0	-55,951	0.0
13	57.4	49.2	-25,539	0.0	-36,985	0.0	-36,985	0.0	-36,985	0.0	-36,985	0.0
14	59.3	50.0	-5,544	0.0	-16,940	0.0	-16,940	0.0	-16,940	0.0	-16,940	0.0
15	59.9	50.3	-11,165	0.0	-22,576	0.0	-22,576	0.0	-22,576	0.0	-22,576	0.0
16	59.7	50.1	-19,895	0.0	-30,001	0.0	-30,001	0.0	-30,001	0.0	-30,001	0.0
17	59.0	50.0	-32,542	0.0	-39,989	0.0	-39,989	0.0	-39,989	0.0	-39,989	0.0
18	57.9	50.8	-30,821	0.0	-33,832	0.0	-33,832	0.0	-33,832	0.0	-33,832	0.0
19	56.4	51.0	-26,546	0.0	-24,991	0.0	-24,991	0.0	-24,991	0.0	-24,991	0.0
20	54.6	49.7	-43,863	0.0	-38,794	0.0	-38,794	0.0	-38,794	0.0	-38,794	0.0
21	52.5	48.2	-59,095	0.0	-52,924	0.0	-52,924	0.0	-52,924	0.0	-52,924	0.0
22	50.3	46.2	-66,224	0.0	-60,174	0.0	-60,174	0.0	-60,174	0.0	-60,174	0.0
23	48.1	44.0	-72,103	0.0	-67,474	0.0	-67,474	0.0	-67,474	0.0	-67,474	0.0
24	45.9	42.4	-76,653	0.0	-74,821	0.0	-74,821	0.0	-74,821	0.0	-74,821	0.0

December			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	32.1	29.4	-136,328	0.0	-166,613	0.0	-160,491	0.0	-166,613	0.0	-166,613	0.0
2	30.2	27.8	-161,049	0.0	-177,030	0.0	-177,030	0.0	-181,344	0.0	-181,344	0.0
3	28.5	25.9	-164,651	0.0	-185,700	0.0	-185,700	0.0	-198,494	0.0	-198,494	0.0
4	27.1	24.9	-193,542	0.0	-193,674	0.0	-193,674	0.0	-207,565	0.0	-207,565	0.0
5	26.1	24.0	-197,038	0.0	-199,215	0.0	-199,215	0.0	-214,075	0.0	-214,075	0.0
6	25.4	23.6	-201,640	0.0	-210,725	0.0	-210,725	0.0	-227,142	0.0	-227,142	0.0
7	25.2	23.3	-190,448	0.0	-208,067	0.0	-205,049	0.0	-221,401	0.0	-221,401	0.0
8	25.8	24.0	-134,303	0.0	-156,351	0.0	-193,484	0.0	-195,120	0.0	-156,351	0.0
9	27.5	25.7	-117,511	0.0	-142,741	0.0	-182,054	0.0	-182,054	0.0	-142,741	0.0
10	30.2	27.9	-113,058	0.0	-139,248	0.0	-169,079	0.0	-169,079	0.0	-139,248	0.0
11	33.4	30.3	-105,387	0.0	-134,317	0.0	-154,807	0.0	-154,807	0.0	-134,317	0.0
12	36.9	32.7	-98,301	0.0	-127,081	0.0	-143,697	0.0	-143,697	0.0	-127,081	0.0
13	40.2	35.1	-75,638	0.0	-100,194	0.0	-110,182	0.0	-110,182	0.0	-100,194	0.0
14	42.8	36.9	-56,419	0.0	-75,166	0.0	-81,476	0.0	-81,476	0.0	-75,166	0.0
15	44.6	38.1	-61,946	0.0	-77,004	0.0	-81,730	0.0	-81,730	0.0	-77,004	0.0
16	45.2	38.5	-70,771	0.0	-81,940	0.0	-85,798	0.0	-85,798	0.0	-81,940	0.0
17	44.9	38.7	-83,056	0.0	-88,123	0.0	-93,306	0.0	-93,306	0.0	-88,123	0.0
18	44.3	39.6	-80,729	0.0	-80,242	0.0	-84,017	0.0	-84,017	0.0	-80,242	0.0
19	43.3	39.6	-75,683	0.0	-69,615	0.0	-75,136	0.0	-75,136	0.0	-69,615	0.0
20	41.9	38.6	-97,730	0.0	-87,039	0.0	-94,808	0.0	-94,808	0.0	-87,039	0.0
21	40.2	37.1	-124,541	0.0	-108,635	0.0	-117,817	0.0	-117,817	0.0	-108,635	0.0
22	38.3	35.3	-136,468	0.0	-119,652	0.0	-131,075	0.0	-131,075	0.0	-119,652	0.0
23	36.2	33.4	-145,370	0.0	-130,087	0.0	-143,110	0.0	-143,110	0.0	-130,087	0.0
24	34.1	31.4	-154,771	0.0	-139,095	0.0	-156,919	0.0	-156,919	0.0	-139,095	0.0

BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

B U I L D I N G T E M P E R A T U R E P R O F I L E S

Temperature Range (F)	Room Number 1	2	3	4	5
Max. Temp.	120.2	365.1	80.4	95.3	86.3
Mo./Hr.	8 19	12 21	4 17	7 19	4 16
Day Type	1	5	1	1	1
	Number of Hours				
Above 100	2,924	5,880	0	0	0
95 - 100	31	0	0	0	0
90 - 95	343	0	0	1,555	0
85 - 90	338	0	0	1,842	0
80 - 85	36	0	0	305	849
75 - 80	30	192	770	730	1,863
70 - 75	396	570	6,421	1,711	5,692
65 - 70	4,662	2,118	1,569	2,617	356
60 - 65	0	0	0	0	0
55 - 60	0	0	0	0	0
50 - 55	0	0	0	0	0
Below 50	0	0	0	0	0
Min. Temp.	61.4	67.0	70.0	69.9	70.0
Mo./Hr.	5 5	1 1	1 1	1 23	1 1
Day Type	1	1	1	2	1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	26,896	68	1,360	3
Feb	24,306	68	1,254	3
March	27,659	68	967	3
April	25,190	68	257	1
May	25,059	69	0	0
June	26,135	73	0	0
July	27,253	75	0	0
Aug	27,290	73	0	0
Sept	24,024	70	0	0
Oct	26,703	68	378	1
Nov	25,906	68	613	2
Dec	26,515	68	1,280	3
Total	312,936	75	6,109	3

Building Energy Consumption = 94,977 (Btu/Sq Ft/Year)
Source Energy Consumption = 217,655 (Btu/Sq Ft/Year)

Floor Area = 17,677 (Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													111,203
	ELEC	9337	8442	9872	8950	9604	9484	9070	9872	8950	9604	8950	9070	32.2
	PK	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	32.2	
1	MISC LD													90,948
	ELEC	7678	6939	7907	7394	7793	7622	7564	7907	7394	7793	7394	7564	24.1
	PK	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	24.1	
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1	EQ1170S	AIR-CLD COND COMP <20 TONS												6,019
	ELEC	0	0	0	0	712	1253	1866	1384	805	0	0	0	8.1
	PK	0.0	0.0	0.0	0.0	5.3	6.9	8.1	6.9	5.6	0.0	0.0	0.0	
1	EQ5200	CONDENSER FANS												816
	ELEC	0	0	0	0	96	172	252	188	108	0	0	0	1.1
	PK	0.0	0.0	0.0	0.0	0.8	1.0	1.1	0.9	0.8	0.0	0.0	0.0	
1	EQ5313	CONTROLS												691
	ELEC	0	0	0	0	114	125	195	158	99	0	0	0	0.3
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	
2	EQ1170S	AIR-CLD COND COMP <20 TONS												11,917
	ELEC	0	0	0	0	1783	2537	3091	2652	1854	0	0	0	12.0
	PK	0.0	0.0	0.0	0.0	8.9	10.8	12.0	10.8	9.3	0.0	0.0	0.0	
2	EQ5200	CONDENSER FANS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 1350 BASERUN FT LEONARD WOOD

	ELEC	0	0	0	0	228	341	413	355	239	0	0	0	1,576
	PK	0.0	0.0	0.0	0.0	1.3	1.5	1.6	1.5	1.3	0.0	0.0	0.0	1.6
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	150	169	223	195	144	0	0	0	881
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ4381			PROPELLER FAN										
	ELEC	139	126	139	135	139	135	139	139	135	139	135	139	1,638
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
2	EQ4381			PROPELLER FAN										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	1665	1611	1665	1665	1611	1665	1611	1665	19,605
	PK	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	1665	1504	1665	1611	0	0	0	0	0	1665	1611	1665	11,387
	PK	2.2	2.2	2.2	2.2	0.0	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
5	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1360	1254	967	257	0	0	0	0	0	378	613	1280	6,109
	PK	3.4	3.2	2.6	0.9	0.0	0.0	0.0	0.0	0.0	1.2	1.7	2.8	3.4
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1

BLDG 1350 BASERUN FT LEONARD WOOD

	ELEC	1110	1003	1110	671	0	0	0	0	0	786	1074	1110	6,865
	PK	1.5	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	1.5	1.5	1.5	1.5
1	EQ5240			BOILER FORCED DRAFT FAN										
	ELEC	490	442	490	296	0	0	0	0	0	347	474	490	3,027
	PK	0.7	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
1	EQ5307			BOILER CONTROLS										
	ELEC	372	336	372	225	0	0	0	0	0	263	360	372	2,301
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

BLDG 1720 - E.M. BARRACKS NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	696	9	0	0	-.5598E+06	.0000
FEB	560	34	0	0	-.4808E+06	.1025E+06
MAR	516	110	0	0	-.4780E+06	.2656E+06
APR	262	270	0	0	-.2802E+06	.3054E+06
MAY	79	482	0	0	-.1698E+06	.3786E+06
JUN	4	636	0	0	-.2159E+05	.4953E+06
JUL	0	703	0	0	.0000	.5628E+06
AUG	5	696	0	0	-.3783E+05	.5253E+06
SEP	112	515	0	0	-.1492E+06	.5268E+06
OCT	298	244	0	0	-.2520E+06	.3688E+06
NOV	505	79	0	0	-.3812E+06	.2352E+06
DEC	698	7	1	0	-.6209E+06	.9568E+05
YEAR	3735	3785	1	0	-.6209E+06	.5628E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	234.59	.00	4.93	23.68	.75	33.68	17.1
FEB	175.39	.01	4.45	21.38	.68	30.42	17.1
MAR	140.25	.45	4.93	23.68	.75	33.68	26.5
APR	56.76	2.07	4.77	22.91	.73	32.60	28.5
MAY	13.74	4.23	4.93	23.68	.75	33.68	32.4
JUN	.59	8.46	4.77	22.91	.73	32.60	38.4
JUL	.00	10.60	4.93	23.68	.75	33.68	40.8
AUG	.74	9.79	4.93	23.68	.75	33.68	35.7
SEP	19.11	6.23	4.77	22.91	.73	32.60	34.8
OCT	59.38	1.87	4.93	23.68	.75	33.68	28.8
NOV	125.78	.50	4.77	22.91	.73	32.60	25.3
DEC	232.07	.03	4.93	23.68	.75	33.68	17.1
YEAR	1058.40	44.24	58.02	278.77	8.83	396.61	40.8

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 75027. BTU/(SQFT-YEAR)

BLDG 1720 - E.M. BARRACKS NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DRIFT DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.5598E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.1025E+06	-.4808E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.2656E+06	-.4780E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.3054E+06	-.2802E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.3786E+06	-.1698E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.4953E+06	-.2159E+05
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.5628E+06	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.5253E+06	-.3783E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.5268E+06	-.1492E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.3688E+06	-.2520E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.2352E+06	-.3812E+06
DEC	883.	604.	1.000	35.	0.	0.	0	1	.9568E+05	-.6209E+06

BLDG 1720 - E.M. BARRACKS DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 1.000000
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
--------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 8.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 2.900000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 190625.000000
FLOOR AREA (SQFT) 22876.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 620930.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -725350.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 228760.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 1348.000000
INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	1.00	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA) 4.240000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 23702.360000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 294.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 98.000000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	.00	90.00	180.00	-90.00
WALL AREA SQFT (AWLL)	4236.0	4069.0	4236.0	4038.0
WINDOW AREA SQFT (AWND)	.0	1148.0	.0	1179.0
WINDOW HEIGHT FT (WNDH)	.0	10.0	.0	10.0
WINDOW WIDTH FT (WNDW)	.0	114.8	.0	117.9
WIDTH OF OVERHANG (WOH)	.0	.0	.0	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.137	.110	.138
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00405	.00505	.00405	.00508
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00001	.00001	.00001	.00001
N=2	.00056	.00070	.00056	.00071
N=3	.00223	.00278	.00223	.00280
N=4	.00116	.00144	.00116	.00145
N=5	.00009	.00011	.00009	.00011
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	5	5	5	5
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.71940	-1.71940	-1.71940	-1.71940
N=3	.84375	.84375	.84375	.84375
N=4	-.09022	-.09022	-.09022	-.09022
N=5	.00268	.00268	.00268	.00268
N=6	********	********	********	********

ROOF AREA SQFT (AROF) 7721.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 7.100000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 3.441956E-02
ROOF B TRANSFER FUNCTIONS (BNR)
.193E-02 .199E-01 .120E-01 .540E-03 771. 771.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -.600 .822E-01 -.300E-03 999. 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 1.800000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	16.	13093.	21600.	10080.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.200	.300	1.000	1.000	68.0	78.0
2	.200	.300	1.000	1.000	68.0	78.0
3	.200	.300	1.000	1.000	68.0	78.0
4	.200	.300	1.000	1.000	68.0	78.0
5	.400	.300	1.000	1.000	68.0	78.0
6	.800	.500	1.000	1.000	68.0	78.0
7	1.000	.500	.600	.600	68.0	78.0
8	.200	.300	.400	.400	68.0	78.0
9	.200	.300	.100	.100	68.0	78.0
10	.200	.300	.100	.100	68.0	78.0
11	.200	.300	.100	.100	68.0	78.0
12	.200	.300	.100	.100	68.0	78.0

13	.200	.300	.100	.100	68.0	78.0
14	.200	.300	.100	.100	68.0	78.0
15	.200	.300	.100	.100	68.0	78.0
16	.200	.500	.300	.300	68.0	78.0
17	.400	.600	.500	.500	68.0	78.0
18	.800	.700	.800	.800	68.0	78.0
19	1.000	.900	.900	.900	68.0	78.0
20	1.000	.900	.900	.900	68.0	78.0
21	1.000	.900	.900	.900	68.0	78.0
22	.500	.500	1.000	1.000	68.0	78.0
23	.200	.300	1.000	1.000	68.0	78.0
24	.200	.300	1.000	1.000	68.0	78.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 37800.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 55.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 0.000000E+00
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.250000E-01
HEATING PLANT RATED OUTPUT BTU (HFLOT) 620930.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 776162.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 725350.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 134096.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1720 - E.M. BARRACKS DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	0.	GAIN	33.	0.	0.	0.	0.	0.	0.	0.
	-155.	LOSS		-16.	-10.	0.	-37.	-31.	-129.	0.
FEB	0.	GAIN	44.	0.	0.	0.	0.	0.	0.	0.
	-112.	LOSS		-13.	-8.	0.	-27.	-26.	-111.	0.
MAR	6.	GAIN	54.	0.	0.	0.	2.	0.	0.	1.
	-83.	LOSS		-12.	-8.	0.	-19.	-25.	-103.	0.
APR	31.23	GAIN	57.65	.41	.02	.00	6.92	.07	.24	3.51
	-27.67	LOSS		-7.59	-4.95	.00	-8.41	-15.55	-61.15	.00
MAY	71.62	GAIN	63.66	1.04	.08	.00	13.19	.25	.72	12.86
	-4.58	LOSS		-5.30	-3.21	.00	-2.69	-9.71	-37.50	.00
JUN	146.	GAIN	63.	2.	0.	0.	20.	1.	3.	52.
	0.	LOSS		-3.	-2.	0.	-1.	-5.	-17.	0.
JUL	189.	GAIN	65.	3.	1.	0.	26.	3.	9.	67.
	0.	LOSS		-3.	-1.	0.	0.	-3.	-11.	0.
AUG	172.	GAIN	58.	2.	1.	0.	22.	2.	6.	67.
	0.	LOSS		-3.	-1.	0.	0.	-4.	-12.	0.
SEP	102.	GAIN	49.	1.	0.	0.	12.	1.	4.	40.
	-7.	LOSS		-5.	-3.	0.	-3.	-8.	-28.	0.
OCT	24.18	GAIN	40.12	.20	.03	.00	3.23	.11	.35	6.29
	-27.24	LOSS		-7.95	-4.63	.00	-10.37	-14.15	-49.99	.00
NOV	5.49	GAIN	31.42	.00	.00	.00	.66	.00	.00	1.09
	-69.41	LOSS		-10.53	-6.36	.00	-20.37	-19.47	-72.96	.00
DEC	0.	GAIN	29.	0.	0.	0.	0.	0.	0.	0.
	-152.	LOSS		-15.	-10.	0.	-38.	-30.	-122.	0.
TOT	747.	GAIN	587.	10.	2.	0.	106.	7.	23.	252.
	-637.	LOSS		-101.	-62.	0.	-167.	-191.	-754.	0.

MAX HEATING LOAD= -615788. BTUH ON DEC 18 HOUR 8 AMBIENT TEMP 1.
MAX COOLING LOAD= 543250. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 4135.5

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 1720 - E.M. BARRACKS DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	68.	79.		5	15	64.	4.93	23.68	2.56	33.68
			67.	29	4	11.				
FEB	69.	79.		17	13	59.	4.45	21.38	2.31	30.42
			67.	2	3	15.				
MAR	70.	79.		12	12	74.	4.93	23.68	2.56	33.68
			67.	3	4	17.				
APR	73.	79.		30	12	80.	4.77	22.91	2.48	32.60
			68.	9	4	31.				
MAY	76.	79.		28	12	85.	4.93	23.68	2.56	33.68
			68.	11	4	38.				
JUN	78.	80.		27	13	88.	4.77	22.91	2.48	32.60
			68.	17	5	56.				
JUL	78.	80.		3	12	86.	4.93	23.68	2.56	33.68
			70.	10	5	57.				
AUG	78.	80.		12	12	86.	4.93	23.68	2.56	33.68
			68.	25	5	52.				
SEP	76.	80.		3	12	89.	4.77	22.91	2.48	32.60
			68.	15	4	41.				
OCT	73.	79.		5	13	80.	4.93	23.68	2.56	33.68
			68.	28	4	30.				
NOV	70.	79.		7	14	73.	4.77	22.91	2.48	32.60
			67.	3	4	17.				
DEC	68.	79.		23	14	70.	4.93	23.68	2.56	33.68
			67.	18	8	1.				
YEAR							58.02	278.77	30.15	396.61

BLDG 1720 - E.M. BARRACKS DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	691	5	0	0	-.5474E+06	.0000
FEB	549	23	0	0	-.4689E+06	.9049E+05
MAR	501	90	0	0	-.4658E+06	.2499E+06
APR	246	239	0	0	-.2701E+06	.2896E+06
MAY	65	433	0	0	-.1635E+06	.3612E+06
JUN	1	589	0	0	-8622.	.4771E+06
JUL	0	674	0	0	.0000	.5433E+06
AUG	4	672	0	0	-.3304E+05	.5065E+06
SEP	101	471	0	0	-.1424E+06	.5057E+06
OCT	285	206	0	0	-.2428E+06	.3517E+06
NOV	485	60	0	0	-.3710E+06	.2204E+06
DEC	693	4	0	0	-.6158E+06	.7552E+05
YEAR	3621	3466	0	0	-.6158E+06	.5433E+06

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	226.68	.00	4.93	23.68	.75	33.68	17.1
FEB	168.32	.01	4.45	21.38	.68	30.42	17.1
MAR	133.58	.42	4.93	23.68	.75	33.68	26.1
APR	52.74	1.96	4.77	22.91	.73	32.60	28.0
MAY	11.40	4.04	4.93	23.68	.75	33.68	31.5
JUN	.15	7.90	4.77	22.91	.73	32.60	37.4
JUL	.00	10.04	4.93	23.68	.75	33.68	39.6
AUG	.59	9.27	4.93	23.68	.75	33.68	34.7
SEP	17.04	5.72	4.77	22.91	.73	32.60	34.0
OCT	55.62	1.69	4.93	23.68	.75	33.68	28.3
NOV	119.06	.46	4.77	22.91	.73	32.60	24.9
DEC	224.19	.02	4.93	23.68	.75	33.68	17.1
YEAR	1009.36	41.53	58.02	278.77	8.83	396.61	39.6

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 72480. BTU/(SQFT-YEAR)

BLDG 1720 - E.M. BARRACKS DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1041.	675.	1.000	35.	0.	0.	0	0	.0000	-.5474E+06
FEB	1464.	929.	1.000	37.	0.	0.	0	0	.9049E+05	-.4689E+06
MAR	1922.	1254.	1.000	43.	0.	0.	0	0	.2499E+06	-.4658E+06
APR	2312.	1600.	1.000	55.	0.	0.	0	0	.2896E+06	-.2701E+06
MAY	2566.	1826.	1.000	65.	0.	0.	0	0	.3612E+06	-.1635E+06
JUN	2647.	1993.	1.000	72.	0.	0.	0	0	.4771E+06	-8622.
JUL	2546.	2015.	1.000	77.	0.	0.	0	0	.5433E+06	.0000
AUG	2280.	1840.	1.000	76.	0.	0.	0	0	.5065E+06	-.3304E+05
SEP	1856.	1371.	1.000	68.	0.	0.	0	0	.5057E+06	-.1424E+06
OCT	1437.	953.	1.000	57.	0.	0.	0	0	.3517E+06	-.2428E+06
NOV	1039.	732.	1.000	47.	0.	0.	0	0	.2204E+06	-.3710E+06
DEC	883.	604.	1.000	35.	0.	0.	0	0	.7552E+05	-.6158E+06

COMPUTER SIMULATIONS

BUILDING 1721

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 1721
BLDG. TYPE: DAYROOM

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	148.9	110.1	102.9	102.9	139.1	145.5
COOLING (kWH)	5610	4900	4590	4560	5580	5420

SUPPLY AIR FAN	3490 CFM
FLOOR AREA	1920 FT²
CFMI	110 CFM
UA	703 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	600	2100	75 HR
SAT.	600	2100	15 HR
SUN.	600	2100	15 HR
	TOTAL OCCUPY HR.		105 HR/WK
	TOTAL UNOCC. HR.		63 HR/WK
	ANNUAL OCCUPY HR.		5475 HR/YR
	ANNUAL UNOCC. HR.		3285 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	2730 HR/YR
HR. ON COOLING	1830 HR/YR
HR. OFF HEATING	1638 HR/YR
HR. OFF COOLING	1098 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY)	4368	–	2730	=	1638 HR/YR
HOUR SAVE (COOLING ONLY)	2928	–	1830	=	1098 HR/YR

HOAUHC	148.9 MBtu –	139.1 MBtu	=	2.71E+01 Btu/CFM-HR
	110 CFM *	3285 HR/YR		
HOAUH	148.9 MBtu –	139.1 MBtu	=	5.44E+01 Btu/CFM-HR
	110 CFM *	1638 HR/YR		
COAUHC	5610 kWH –	5580 kWH	=	8.30E-05 kWH/CFM-HR
	110 CFM *	3285 HR/YR		
COAUC	5610 kWH –	5580 kWH	=	2.48E-04 kWH/CFM-HR
	110 CFM *	1098 HR/YR		
HOAOHC	148.9 MBtu –	145.5 MBtu	=	5.65E+00 Btu/CFM-HR
	110 CFM *	5475 HR/YR		
HOAOH	148.9 MBtu –	145.5 MBtu	=	1.13E+01 Btu/CFM-HR
	110 CFM *	2730 HR/YR		
COAOHC	5610 kWH	5420 kWH	=	3.15E-04 kWH/CFM-HR
	110 CFM *	5475 HR/YR		
COAOC	5610 kWH	5420 kWH	=	9.44E-04 kWH/CFM-HR
	110 CFM *	1830 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 04-Mar-93
BUILDING NO.: 1721
BLDG. TYPE: DAYROOM

ENERGY CONSTANT CALCULATIONS

ECC	4590 kWH –	4560 kWH	=	4.70E-06 kWH/CFM-HR
	3490 CFM *	1830 HR/YR		
ECHC	4590 kWH –	4560 kWH	=	1.57E-06 kWH/CFM-HR
	3490 CFM *	5475 HR/YR		
NSUCHC	5610 kWH –	4900 kWH	=	6.19E-05 kWH/CFM-HR
	3490 CFM *	3285 HR/YR		
NSUCC	5610 kWH –	4900 kWH	=	1.85E-04 kWH/CFM-HR
	3490 CFM *	1098 HR/YR		
DDCCHC	4900 kWH –	4590 kWH	=	1.62E-05 kWH/CFM-HR
	3490 CFM *	5475 HR/YR		
DDCCC	4900 kWH –	4590 kWH	=	4.85E-05 kWH/CFM-HR
	3490 CFM *	1830 HR/YR		
NSC	148.9 MBtu –	110.09 MBtu	=	5.52E+04 Btu/UA
	703 UA			
DSC	110.09 MBtu –	102.9 MBtu	=	1.02E+04 Btu/UA
	703 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR		
			=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)			
			=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	04-Feb-93
BY:	BHS
JOB:	3204.000
CHK:	
FILE:	1721BHL

BUILDING HEATING LOAD CALCULATION SHEET

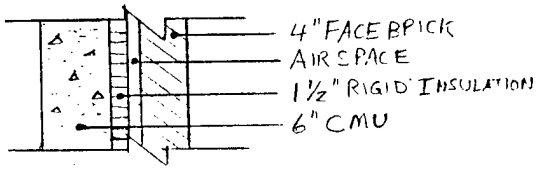
BLDG NO: 1721 BLDG NAME: DAYROOM
BLDG FUNCTION: MAIL/ LOUNGE/ RECREATION
FLOOR AREA: (SQ. FT) 1,920 # FLOORS 1
SLAB PERIMETER: (FT) 190

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	553	394	556	611	2,114
GLASS	(SQ. FT)	60	60	0	72	192
PERSONNEL DOOR	(SQ. FT)	21	21	0	0	42
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	472	313	556	539	1,880
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	1,920
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

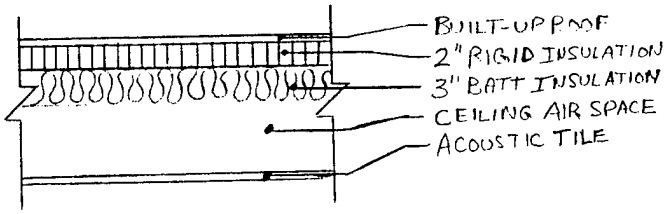
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	1.5" INSULATION	4.98
5.	6" CMU	1.89
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	9.06
	U=1/R	0.110

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.67
4.	3" BATT INSULATION	11.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	21.64
	U=1/R	0.046

GLASS TYPE:	PPG 'PENNVERNON' C.L. TWNDV, SSA, .88 S.C.	R-GLASS	1.61
SLAB TYPE FLOOR:	CEMENT	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)	L	2114	X CFM / SQ.FT.	0.042	=	89
AVG. WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		15	X CFM /OPENING /HR	1.385	=	21
			TOTAL INFILTRATION (CFM)		=	110

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	1,880	X WALL "U"	0.110	=	207
UA ROOF	= ROOF AREA	1,920	X ROOF "U"	0.046	=	89
UA GLASS	= GLASS AREA	192	X GLASS "U"	0.621	=	119
UA SLAB	= SLAB PERIM.	190	X SLF	0.830	=	158
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	110	X A. T. F.	1.035	=	113
			TOTAL UA (BTU/HR°F)			703

E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 04-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 1721Z1
BLDG: 1721 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	20	5	Standing, light work, or walking slowly	Retail store, bank	270	220	5,400	4,400
TOTAL	20					TOTAL	5,400	4,400

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	10	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	1,680
	7	18	Incandescent – 60w	60	420
	4	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	200
	3	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	252
TOTAL	24			TOTAL	2,552

Peak Value for Internal Gains

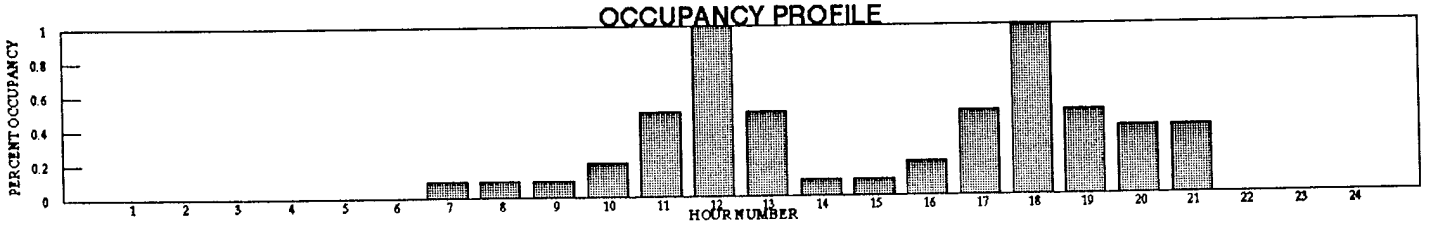
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	3	62	Television (Color, tube)	300	15%	900	3,072
	1	46	Microwave Oven	600	65%	600	2,048
	1	49	Radio	71	10%	71	242
	1	25	Cold Food/Beverage	1,535	50%	1,535	5,239
				TOTAL	42%	3,106	10,601

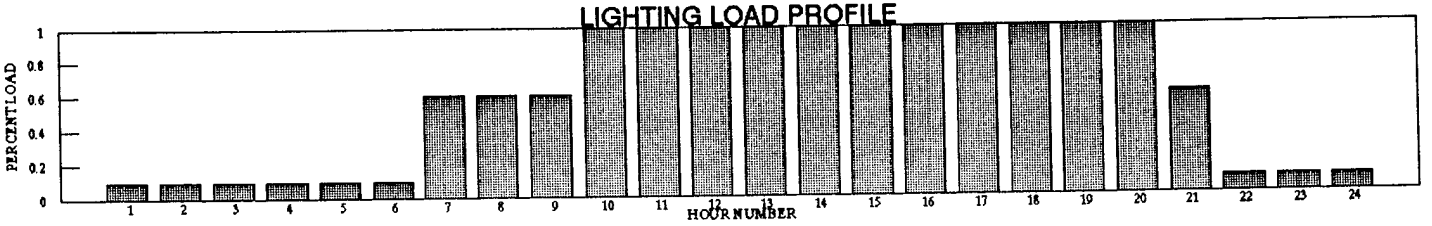
E M C Engineers, Inc.

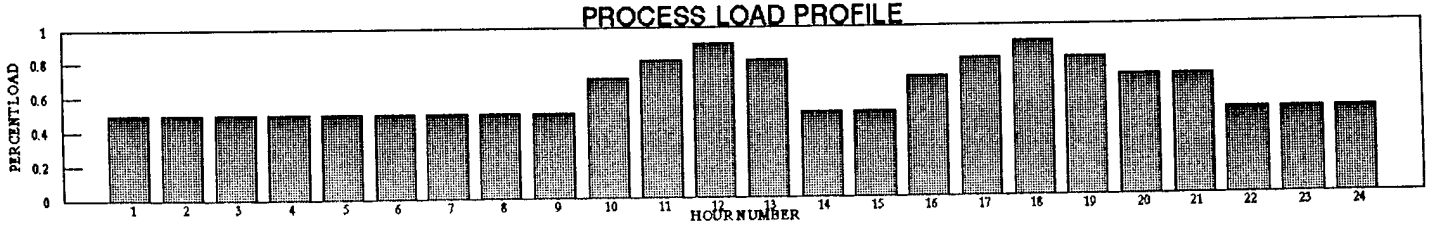
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 04-Feb-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 1721Z1
BLDG: 1721
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	Day Room	OCCUPANCY							0.1	0.1	0.1	0.2	0.5	1	0.5	0.1	0.1	0.2	0.5	1	0.5	0.4	0.4			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.6	0.6	1	1	1	1	1	1	1	1	1	1	1	0.6	0.1	0.1	0.1
		PROCESS	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	0.8	0.9	0.8	0.5	0.5	0.7	0.8	0.9	0.8	0.7	0.7	0.5	0.5	0.5







BLDG 1721 - DAYROOM BASERUN (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1	
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW)	0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO

STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	17278.000000
FLOOR AREA (SQFT)	1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	110.000000

INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	.800	.800
.800	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA)	3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	157.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	16.380000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.886E-05 .130E-02 .487E-02 .240E-02 .177E-03 885.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	BTU/HR			THERMOSTAT SET POINT DEG F	
	LIGHTS	PEOPLE SENSIBLE PROCESS	PEOPLE LATENT		HEATING	COOLING
PEAK VAL	3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.500	.000	.000	70.0	76.0
2	.100	.500	.000	.000	70.0	76.0
3	.100	.500	.000	.000	70.0	76.0
4	.100	.500	.000	.000	70.0	76.0
5	.100	.500	.000	.000	70.0	76.0
6	.100	.500	.000	.000	70.0	76.0
7	.600	.500	.100	.100	70.0	76.0
8	.600	.500	.100	.100	70.0	76.0
9	.600	.500	.100	.100	70.0	76.0
10	1.000	.700	.200	.200	70.0	76.0
11	1.000	.800	.500	.500	70.0	76.0
12	1.000	.900	1.000	1.000	70.0	76.0

13	1.000	.800	.500	.500	70.0	76.0
14	1.000	.500	.100	.100	70.0	76.0
15	1.000	.500	.100	.100	70.0	76.0
16	1.000	.700	.200	.200	70.0	76.0
17	1.000	.800	.500	.500	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.800	.500	.500	70.0	76.0
20	1.000	.700	.400	.400	70.0	76.0
21	.600	.700	.400	.400	70.0	76.0
22	.100	.500	.000	.000	70.0	76.0
23	.100	.500	.000	.000	70.0	76.0
24	.100	.500	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1721 - DAYROOM BASERUN (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-23.76	LOSS		-2.58	-4.58	.00	-4.43	-2.67	-22.10	.00
FEB	.02	GAIN	3.39	.00	.00	.00	.00	.00	.00	.01
	-18.33	LOSS		-2.15	-3.92	.00	-3.35	-2.29	-18.93	.00
MAR	1.06	GAIN	4.40	.01	.00	.00	.11	.00	.00	.13
	-14.47	LOSS		-1.94	-3.65	.00	-2.63	-2.13	-17.58	.00
APR	5.08	GAIN	4.62	.08	.02	.00	.49	.01	.08	.63
	-5.68	LOSS		-1.16	-2.18	.00	-1.22	-1.27	-10.23	.00
MAY	11.25	GAIN	5.07	.20	.07	.00	1.04	.04	.26	2.41
	-1.31	LOSS		-.71	-1.26	.00	-.40	-.71	-5.93	.00
JUN	22.91	GAIN	5.09	.35	.20	.00	1.67	.12	.79	8.85
	-.08	LOSS		-.41	-.61	.00	-.08	-.34	-2.38	.00
JUL	29.97	GAIN	5.28	.53	.52	.00	2.29	.31	2.08	11.49
	-.01	LOSS		-.29	-.38	.00	-.04	-.21	-1.50	.00
AUG	27.93	GAIN	4.67	.43	.39	.00	1.89	.22	1.51	11.49
	-.06	LOSS		-.32	-.42	.00	-.05	-.23	-1.61	.00
SEP	16.27	GAIN	3.76	.19	.20	.00	.99	.12	.82	6.40
	-1.58	LOSS		-.64	-1.02	.00	-.42	-.59	-4.71	.00
OCT	4.57	GAIN	3.17	.03	.03	.00	.22	.02	.11	1.15
	-5.23	LOSS		-1.25	-2.10	.00	-1.44	-1.20	-9.28	.00
NOV	1.18	GAIN	2.51	.00	.00	.00	.03	.00	.00	.23
	-11.45	LOSS		-1.75	-3.00	.00	-2.61	-1.71	-13.54	.00
DEC	.06	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-23.02	LOSS		-2.56	-4.49	.00	-4.46	-2.59	-21.20	.00
TOT	120.	GAIN	47.	2.	1.	0.	9.	1.	6.	43.
	-105.	LOSS		-16.	-28.	0.	-21.	-16.	-129.	0.

MAX HEATING LOAD= -77680. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 88350. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 430.5

BEACON Energy Analysis By Energy Systems Engineers, Inc.

BLDG 1721 - DAYROOM BASERUN (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.	65.	4 27	12 6	63. 4.	1.13	4.86	3.03	9.88
FEB	71.	77.	69.	17 2	13 6	59. 14.	1.02	4.39	2.73	8.93
MAR	71.	78.	69.	12 4	13 6	74. 15.	1.13	4.86	3.03	9.88
APR	73.	78.	69.	30 9	12 5	80. 30.	1.09	4.71	2.93	9.57
MAY	75.	78.	69.	28 11	12 5	85. 39.	1.13	4.86	3.03	9.88
JUN	76.	78.	70.	22 17	12 5	84. 56.	1.09	4.71	2.93	9.57
JUL	77.	78.	70.	3 10	12 5	86. 57.	1.13	4.86	3.03	9.88
AUG	77.	78.	70.	19 25	12 6	87. 51.	1.13	4.86	3.03	9.88
SEP	75.	78.	69.	3 15	12 6	89. 39.	1.09	4.71	2.93	9.57
OCT	73.	78.	69.	5 28	12 5	84. 31.	1.13	4.86	3.03	9.88
NOV	71.	77.	69.	8 3	12 6	74. 18.	1.09	4.71	2.93	9.57
DEC	70.	77.	59.	29 18	17 6	61. 0.	1.13	4.86	3.03	9.88
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM BASERUN (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	680	15	14	0	-.7768E+05	.0000
FEB	559	27	0	0	-.7218E+05	.1891E+05
MAR	526	93	0	0	-.7196E+05	.4324E+05
APR	299	227	0	0	-.4481E+05	.4930E+05
MAY	120	379	0	0	-.3044E+05	.6068E+05
JUN	17	511	0	0	-8002.	.8062E+05
JUL	3	625	0	0	-5296.	.8835E+05
AUG	10	608	0	0	-.1238E+05	.8151E+05
SEP	117	428	0	0	-.2914E+05	.8619E+05
OCT	302	220	0	0	-.4204E+05	.6359E+05
NOV	475	93	0	0	-.6188E+05	.4512E+05
DEC	684	15	12	0	-.7768E+05	.1755E+05
YEAR	3792	3241	26	0	-.7768E+05	.8835E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	33.01	.00	1.13	4.86	.89	9.88	3.7
FEB	25.92	.00	1.02	4.39	.80	8.93	5.0
MAR	21.41	.06	1.13	4.86	.89	9.88	5.9
APR	9.54	.28	1.09	4.71	.86	9.57	6.2
MAY	2.89	.59	1.13	4.86	.89	9.88	6.8
JUN	.32	1.18	1.09	4.71	.86	9.57	7.9
JUL	.06	1.55	1.13	4.86	.89	9.88	8.4
AUG	.20	1.44	1.13	4.86	.89	9.88	8.0
SEP	3.04	.85	1.09	4.71	.86	9.57	8.3
OCT	9.07	.26	1.13	4.86	.89	9.88	6.9
NOV	17.58	.08	1.09	4.71	.86	9.57	6.0
DEC	32.36	.00	1.13	4.86	.89	9.88	5.0
YEAR	155.39	6.31	13.32	57.27	10.44	116.38	8.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 164214. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM BASERUN (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1891E+05	-.7218E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.4324E+05	-.7196E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.4930E+05	-.4481E+05
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.6068E+05	-.3044E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8062E+05	-8002.
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8835E+05	-5296.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8151E+05	-.1238E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8619E+05	-.2914E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.6359E+05	-.4204E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.4512E+05	-.6188E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1755E+05	-.7768E+05

BLDG 1721 - DAYROOM NIGHT SETBACK (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
---------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 17278.000000
FLOOR AREA (SQFT) 1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 110.000000
INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	.800	.800
.800	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA) 3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 157.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 16.380000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.886E-05 .130E-02 .487E-02 .240E-02 .177E-03 885.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	76.0	76.0
76.0	76.0	76.0	76.0	76.0	76.0	76.0	76.0
76.0	76.0	76.0	76.0	76.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
70.0	70.0	70.0	70.0	70.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL		3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -						
1	.100	.500	.000	.000	55.0	90.0	
2	.100	.500	.000	.000	55.0	90.0	
3	.100	.500	.000	.000	55.0	90.0	
4	.100	.500	.000	.000	55.0	90.0	
5	.100	.500	.000	.000	55.0	90.0	
6	.100	.500	.000	.000	55.0	90.0	
7	.600	.500	.100	.100	70.0	76.0	
8	.600	.500	.100	.100	70.0	76.0	
9	.600	.500	.100	.100	70.0	76.0	
10	1.000	.700	.200	.200	70.0	76.0	
11	1.000	.800	.500	.500	70.0	76.0	
12	1.000	.900	1.000	1.000	70.0	76.0	
13	1.000	.800	.500	.500	70.0	76.0	
14	1.000	.500	.100	.100	70.0	76.0	
15	1.000	.500	.100	.100	70.0	76.0	
16	1.000	.700	.200	.200	70.0	76.0	
17	1.000	.800	.500	.500	70.0	76.0	
18	1.000	.900	1.000	1.000	70.0	76.0	
19	1.000	.800	.500	.500	70.0	76.0	
20	1.000	.700	.400	.400	70.0	76.0	
21	.600	.700	.400	.400	70.0	76.0	
22	.100	.500	.000	.000	55.0	90.0	
23	.100	.500	.000	.000	55.0	90.0	
24	.100	.500	.000	.000	55.0	90.0	

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1721 - DAYROOM NIGHT SETBACK (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-18.18	LOSS		-2.25	-3.93	.00	-3.65	-2.29	-18.74	.00
FEB	.02	GAIN	3.39	.00	.00	.00	.00	.00	.00	.01
	-13.51	LOSS		-1.85	-3.34	.00	-2.66	-1.95	-16.01	.00
MAR	1.08	GAIN	4.40	.01	.00	.00	.13	.00	.00	.13
	-9.92	LOSS		-1.65	-3.09	.00	-1.99	-1.81	-14.86	.00
APR	5.09	GAIN	4.62	.08	.02	.00	.53	.01	.08	.62
	-3.22	LOSS		-.99	-1.85	.00	-.86	-1.09	-8.76	.00
MAY	11.10	GAIN	5.07	.21	.07	.00	1.07	.04	.26	2.32
	-.50	LOSS		-.66	-1.16	.00	-.30	-.65	-5.52	.00
JUN	21.10	GAIN	5.09	.35	.20	.00	1.60	.12	.79	7.57
	-.01	LOSS		-.44	-.67	.00	-.09	-.38	-2.62	.00
JUL	25.37	GAIN	5.28	.52	.51	.00	2.07	.30	2.03	8.33
	.00	LOSS		-.38	-.56	.00	-.05	-.32	-2.23	.00
AUG	23.74	GAIN	4.67	.42	.39	.00	1.72	.22	1.51	8.43
	-.02	LOSS		-.40	-.58	.00	-.06	-.32	-2.21	.00
SEP	14.74	GAIN	3.76	.19	.20	.00	.95	.12	.81	5.30
	-.65	LOSS		-.61	-.96	.00	-.32	-.55	-4.44	.00
OCT	4.54	GAIN	3.17	.04	.03	.00	.24	.02	.11	1.09
	-2.73	LOSS		-1.08	-1.76	.00	-1.07	-1.01	-7.86	.00
NOV	1.21	GAIN	2.51	.00	.00	.00	.04	.00	.00	.23
	-7.71	LOSS		-1.51	-2.52	.00	-2.05	-1.44	-11.35	.00
DEC	.07	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-17.52	LOSS		-2.23	-3.83	.00	-3.66	-2.21	-17.87	.00
TOT	108.	GAIN	47.	2.	1.	0.	8.	1.	6.	34.
	-74.	LOSS		-14.	-24.	0.	-17.	-14.	-112.	0.

MAX HEATING LOAD= -77680. BTUH ON DEC 28 HOUR 7 AMBIENT TEMP 27.
MAX COOLING LOAD= 87685. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 430.5

BLDG 1721 - DAYROOM NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
INTERNAL										
JAN	65.	77.		4	12	63.	1.13	4.86	3.03	9.88
			54.	27	6	4.				
FEB	66.	77.		17	13	59.	1.02	4.39	2.73	8.93
			54.	2	6	14.				
MAR	67.	78.		12	13	74.	1.13	4.86	3.03	9.88
			54.	4	6	15.				
APR	71.	78.		30	12	80.	1.09	4.71	2.93	9.57
			55.	9	5	30.				
MAY	74.	79.		31	24	69.	1.13	4.86	3.03	9.88
			55.	11	5	39.				
JUN	77.	83.		29	1	73.	1.09	4.71	2.93	9.57
			66.	17	6	57.				
JUL	78.	89.		16	3	80.	1.13	4.86	3.03	9.88
			68.	10	6	60.				
AUG	78.	85.		1	3	75.	1.13	4.86	3.03	9.88
			64.	25	6	51.				
SEP	75.	84.		3	2	74.	1.09	4.71	2.93	9.57
			55.	15	6	39.				
OCT	71.	78.		5	1	69.	1.13	4.86	3.03	9.88
			55.	28	5	31.				
NOV	68.	77.		8	12	74.	1.09	4.71	2.93	9.57
			54.	3	6	18.				
DEC	65.	77.		23	13	71.	1.13	4.86	3.03	9.88
			54.	18	6	0.				
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM NIGHT SETBACK (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	614	16	20	0	-.7768E+05	.0000
FEB	486	32	16	0	-.7768E+05	.1971E+05
MAR	409	97	10	0	-.7768E+05	.4353E+05
APR	175	225	0	0	-.7462E+05	.4926E+05
MAY	37	368	0	0	-.5404E+05	.6064E+05
JUN	2	432	0	0	-4632.	.8004E+05
JUL	0	454	0	0	.0000	.8769E+05
AUG	2	451	0	0	-.1807E+05	.8075E+05
SEP	34	365	0	0	-.5729E+05	.8546E+05
OCT	161	222	0	0	-.7222E+05	.6356E+05
NOV	358	99	5	0	-.7768E+05	.4513E+05
DEC	605	16	22	0	-.7768E+05	.2047E+05
YEAR	2883	2777	73	0	-.7768E+05	.8769E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	26.38	.00	1.13	4.86	.89	9.88	3.7
FEB	20.03	.00	1.02	4.39	.80	8.93	5.1
MAR	15.30	.06	1.13	4.86	.89	9.88	5.9
APR	5.50	.28	1.09	4.71	.86	9.57	6.2
MAY	.98	.58	1.13	4.86	.89	9.88	6.8
JUN	.04	1.07	1.09	4.71	.86	9.57	7.9
JUL	.00	1.29	1.13	4.86	.89	9.88	8.4
AUG	.05	1.20	1.13	4.86	.89	9.88	7.9
SEP	1.10	.76	1.09	4.71	.86	9.57	8.3
OCT	4.87	.26	1.13	4.86	.89	9.88	6.9
NOV	12.36	.08	1.09	4.71	.86	9.57	6.0
DEC	25.64	.00	1.13	4.86	.89	9.88	5.1
YEAR	112.26	5.58	13.32	57.27	10.44	116.38	8.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 140450. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM NIGHT SETBACK (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS WHEN SYSTEM LOADS NOT MET COOL	HOURS WHEN SYSTEM LOADS NOT MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1971E+05	-.7768E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.4353E+05	-.7768E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.4926E+05	-.7462E+05
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.6064E+05	-.5404E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8004E+05	-4632.
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8769E+05	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8075E+05	-.1807E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8546E+05	-.5729E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.6356E+05	-.7222E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.4513E+05	-.7768E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.2047E+05	-.7768E+05

BLDG 1721 - DAYROOM DDC (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
---------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 17278.000000
FLOOR AREA (SQFT) 1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 110.000000
INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	.800	.800
.800	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA) 3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 157.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 16.380000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.886E-05 .130E-02 .487E-02 .240E-02 .177E-03 885.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.500	.000	.000	55.0	90.0
2	.100	.500	.000	.000	55.0	90.0
3	.100	.500	.000	.000	55.0	90.0
4	.100	.500	.000	.000	55.0	90.0
5	.100	.500	.000	.000	55.0	90.0
6	.100	.500	.000	.000	55.0	90.0
7	.600	.500	.100	.100	68.0	78.0
8	.600	.500	.100	.100	68.0	78.0
9	.600	.500	.100	.100	68.0	78.0
10	1.000	.700	.200	.200	68.0	78.0
11	1.000	.800	.500	.500	68.0	78.0
12	1.000	.900	1.000	1.000	68.0	78.0
13	1.000	.800	.500	.500	68.0	78.0
14	1.000	.500	.100	.100	68.0	78.0
15	1.000	.500	.100	.100	68.0	78.0
16	1.000	.700	.200	.200	68.0	78.0
17	1.000	.800	.500	.500	68.0	78.0
18	1.000	.900	1.000	1.000	68.0	78.0
19	1.000	.800	.500	.500	68.0	78.0
20	1.000	.700	.400	.400	68.0	78.0
21	.600	.700	.400	.400	68.0	78.0
22	.100	.500	.000	.000	55.0	90.0
23	.100	.500	.000	.000	55.0	90.0
24	.100	.500	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BEACON Energy Analysis By Energy Systems Engineers, Inc. 1721-1.I

BLDG 1721 - DAYROOM DDC (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-16.95	LOSS		-2.18	-3.79	.00	-3.49	-2.21	-17.95	.00
FEB	.02	GAIN	3.39	.00	.00	.00	.00	.00	.00	.01
	-12.54	LOSS		-1.80	-3.24	.00	-2.55	-1.90	-15.36	.00
MAR	.96	GAIN	4.40	.01	.00	.00	.11	.00	.00	.13
	-9.06	LOSS		-1.62	-3.03	.00	-1.90	-1.77	-14.30	.00
APR	4.59	GAIN	4.62	.07	.01	.00	.46	.01	.04	.59
	-2.79	LOSS		-1.00	-1.89	.00	-.85	-1.11	-8.63	.00
MAY	10.18	GAIN	5.07	.17	.04	.00	.95	.02	.13	2.25
	-.37	LOSS		-.69	-1.26	.00	-.34	-.71	-5.68	.00
JUN	19.68	GAIN	5.09	.30	.13	.00	1.44	.08	.51	7.35
	.00	LOSS		-.47	-.76	.00	-.12	-.43	-2.97	.00
JUL	23.99	GAIN	5.28	.46	.40	.00	1.88	.23	1.57	8.22
	.00	LOSS		-.42	-.62	.00	-.07	-.36	-2.45	.00
AUG	22.36	GAIN	4.67	.37	.29	.00	1.54	.16	1.10	8.30
	-.01	LOSS		-.43	-.65	.00	-.09	-.36	-2.45	.00
SEP	13.58	GAIN	3.76	.16	.14	.00	.83	.09	.59	5.10
	-.52	LOSS		-.65	-1.04	.00	-.36	-.60	-4.62	.00
OCT	4.05	GAIN	3.17	.03	.02	.00	.20	.01	.06	1.05
	-2.33	LOSS		-1.10	-1.80	.00	-1.08	-1.03	-7.71	.00
NOV	1.02	GAIN	2.51	.00	.00	.00	.03	.00	.00	.22
	-6.95	LOSS		-1.48	-2.48	.00	-1.99	-1.42	-10.90	.00
DEC	.05	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-16.32	LOSS		-2.16	-3.70	.00	-3.51	-2.13	-17.13	.00
TOT	100.	GAIN	47.	2.	1.	0.	7.	1.	4.	33.
	-68.	LOSS		-14.	-24.	0.	-16.	-14.	-110.	0.

MAX HEATING LOAD= -77680. BTUH ON DEC 28 HOUR 7 AMBIENT TEMP 27.
MAX COOLING LOAD= 85094. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 430.5

BEACON Energy Analysis By Energy Systems Engineers, Inc. 1721-1.I

BLDG 1721 - DAYROOM DDC (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	64.	79.		3	15	63.	1.13	4.86	3.03	9.88
			54.	27	6	4.				
FEB	65.	79.		17	13	59.	1.02	4.39	2.73	8.93
			54.	2	6	14.				
MAR	67.	80.		12	13	74.	1.13	4.86	3.03	9.88
			54.	4	6	15.				
APR	71.	80.		30	12	80.	1.09	4.71	2.93	9.57
			55.	9	5	30.				
MAY	75.	80.		31	23	71.	1.13	4.86	3.03	9.88
			55.	11	5	39.				
JUN	78.	84.		29	1	73.	1.09	4.71	2.93	9.57
			66.	17	6	57.				
JUL	80.	89.		16	3	80.	1.13	4.86	3.03	9.88
			68.	10	6	60.				
AUG	79.	85.		1	2	75.	1.13	4.86	3.03	9.88
			64.	25	6	51.				
SEP	76.	85.		3	1	76.	1.09	4.71	2.93	9.57
			55.	15	6	39.				
OCT	71.	80.		5	12	84.	1.13	4.86	3.03	9.88
			55.	28	5	31.				
NOV	67.	79.		8	12	74.	1.09	4.71	2.93	9.57
			54.	3	6	18.				
DEC	64.	79.		12	16	59.	1.13	4.86	3.03	9.88
			54.	18	6	0.				
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM DDC (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	608	10	13	0	-.7768E+05	.0000
FEB	468	18	11	0	-.7768E+05	.1762E+05
MAR	397	76	4	0	-.7768E+05	.4078E+05
APR	161	204	0	0	-.6694E+05	.4686E+05
MAY	31	347	0	0	-.4659E+05	.5837E+05
JUN	0	414	0	0	.0000	.7752E+05
JUL	0	446	0	0	.0000	.8509E+05
AUG	1	441	0	0	-.1085E+05	.7823E+05
SEP	31	339	0	0	-.4987E+05	.8270E+05
OCT	145	186	0	0	-.6459E+05	.6113E+05
NOV	344	77	2	0	-.7768E+05	.4303E+05
DEC	595	8	14	0	-.7768E+05	.1327E+05
YEAR	2781	2566	44	0	-.7768E+05	.8509E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	25.02	.00	1.13	4.86	.89	9.88	3.7
FEB	18.76	.00	1.02	4.39	.80	8.93	5.0
MAR	14.30	.06	1.13	4.86	.89	9.88	5.8
APR	4.87	.26	1.09	4.71	.86	9.57	6.0
MAY	.77	.54	1.13	4.86	.89	9.88	6.6
JUN	.00	1.00	1.09	4.71	.86	9.57	7.7
JUL	.00	1.22	1.13	4.86	.89	9.88	8.2
AUG	.02	1.13	1.13	4.86	.89	9.88	7.8
SEP	.93	.70	1.09	4.71	.86	9.57	8.1
OCT	4.25	.24	1.13	4.86	.89	9.88	6.8
NOV	11.41	.07	1.09	4.71	.86	9.57	5.9
DEC	24.29	.00	1.13	4.86	.89	9.88	4.9
YEAR	104.62	5.21	13.32	57.27	10.44	116.38	8.2

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 135819. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM DDC (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM LOADS NOT MET COOL	HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1762E+05	-.7768E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.4078E+05	-.7768E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.4686E+05	-.6694E+05
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5837E+05	-.4659E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.7752E+05	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8509E+05	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.7823E+05	-.1085E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8270E+05	-.4987E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.6113E+05	-.6459E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.4303E+05	-.7768E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1327E+05	-.7768E+05

BLDG 1721 - DAYROOM ECONOMIZER (FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------
COOLING ON WEEKEND (1=YES, 0=NO) (ICWK) 3
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC) 0
WEEKEND INTERNAL GAINS FACTOR (WKEND) 1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS) 1
SKY CLEARNESS FACTOR (CLN) 9.700000E-01
NUMBER OF ZONES (NZ) 1
WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0
---------- SITE AND BUILDING DATA ----------
******REAL WEATHER FROM DISK*******
FILE NAME MO
STATION 13995 YEAR 1955
SITE LATITUDE DEG (AL1) 37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV) 1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB) 56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN) 20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA) 6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF) 3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG) 2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO) 70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO) 70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS) 9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW) 0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS) 17278.000000
FLOOR AREA (SQFT) 1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX) 77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX) -96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA) 19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI) 110.000000
INFILTRATION PROFILE

.800	.800	.800	.800	.800	.800	.800	.800
.800	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1.00	1.00	1.00	1.00	1.00	.800	.800	.800

A FACTOR IN INFILTRATION EQUATION (CINA) 3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB) 2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC) 8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP) 4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF) 0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF) 157.000000
PARTITION UA BTU/HR-F (GUA) 0.000000E+00
DOOR UA BTU/HR-F (DUA) 16.380000
WINDOW GLASS NUMBER (NG) 30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO) 6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN) 6.930472E-01
WINDOW SHADING FACTOR (SHD) 5.900000E-01

	WALL DATA			
WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.886E-05 .130E-02 .487E-02 .240E-02 .177E-03 885.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01
WEEKEND COOLING THERMOSTAT PROFILE

90.0	90.0	90.0	90.0	90.0	90.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0
78.0	78.0	78.0	78.0	78.0	90.0	90.0	90.0

WEEKEND HEATING THERMOSTAT PROFILE

55.0	55.0	55.0	55.0	55.0	55.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	68.0	68.0	68.0
68.0	68.0	68.0	68.0	68.0	55.0	55.0	55.0

----------INTERNAL GAINS AND PROFILES ----------

				THERMOSTAT SET POINT DEG F	
KW	- - - - - - BTU/HR - - - - - -				
LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING

PEAK VAL	3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.500	.000	.000	55.0	90.0
2	.100	.500	.000	.000	55.0	90.0
3	.100	.500	.000	.000	55.0	90.0
4	.100	.500	.000	.000	55.0	90.0
5	.100	.500	.000	.000	55.0	90.0
6	.100	.500	.000	.000	55.0	90.0
7	.600	.500	.100	.100	68.0	78.0
8	.600	.500	.100	.100	68.0	78.0
9	.600	.500	.100	.100	68.0	78.0
10	1.000	.700	.200	.200	68.0	78.0
11	1.000	.800	.500	.500	68.0	78.0
12	1.000	.900	1.000	1.000	68.0	78.0
13	1.000	.800	.500	.500	68.0	78.0
14	1.000	.500	.100	.100	68.0	78.0
15	1.000	.500	.100	.100	68.0	78.0
16	1.000	.700	.200	.200	68.0	78.0
17	1.000	.800	.500	.500	68.0	78.0
18	1.000	.900	1.000	1.000	68.0	78.0
19	1.000	.800	.500	.500	68.0	78.0
20	1.000	.700	.400	.400	68.0	78.0
21	.600	.700	.400	.400	68.0	78.0
22	.100	.500	.000	.000	55.0	90.0
23	.100	.500	.000	.000	55.0	90.0
24	.100	.500	.000	.000	55.0	90.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 75.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1721 - DAYROOM ECONOMIZER (FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-16.95	LOSS		-2.18	-3.79	.00	-3.49	-2.21	-17.95	.00
FEB	.00	GAIN	3.39	.00	.00	.00	.00	.00	.00	.00
	-12.54	LOSS		-1.80	-3.24	.00	-2.55	-1.90	-15.37	.00
MAR	.35	GAIN	4.40	.01	.00	.00	.11	.00	.00	.11
	-9.06	LOSS		-1.62	-3.03	.00	-1.90	-1.77	-14.89	.00
APR	3.42	GAIN	4.62	.07	.01	.00	.46	.01	.04	1.40
	-2.79	LOSS		-1.00	-1.89	.00	-.85	-1.11	-10.60	.00
MAY	9.50	GAIN	5.07	.17	.04	.00	.95	.02	.13	3.91
	-.37	LOSS		-.69	-1.26	.00	-.34	-.71	-8.02	.00
JUN	19.94	GAIN	5.09	.30	.13	.00	1.41	.08	.51	10.14
	.00	LOSS		-.48	-.79	.00	-.13	-.45	-5.41	.00
JUL	24.19	GAIN	5.28	.46	.39	.00	1.85	.23	1.56	10.03
	.00	LOSS		-.43	-.66	.00	-.08	-.38	-3.93	.00
AUG	22.83	GAIN	4.67	.36	.29	.00	1.49	.16	1.10	10.59
	-.01	LOSS		-.46	-.71	.00	-.12	-.40	-4.07	.00
SEP	13.20	GAIN	3.76	.16	.14	.00	.82	.09	.59	6.81
	-.52	LOSS		-.65	-1.06	.00	-.37	-.61	-6.63	.00
OCT	3.02	GAIN	3.17	.03	.02	.00	.20	.01	.06	1.47
	-2.33	LOSS		-1.10	-1.80	.00	-1.08	-1.03	-9.15	.00
NOV	.33	GAIN	2.51	.00	.00	.00	.03	.00	.00	.20
	-6.95	LOSS		-1.48	-2.48	.00	-1.99	-1.42	-11.57	.00
DEC	.00	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-16.32	LOSS		-2.16	-3.70	.00	-3.51	-2.13	-17.18	.00
TOT	96.78	GAIN	47.13	1.55	1.02	.00	7.31	.59	4.00	44.64
	-67.85	LOSS		-14.07	-24.42	.00	-16.41	-14.10	-124.77	.00

MAX HEATING LOAD= -77680. BTUH ON DEC 28 HOUR 7 AMBIENT TEMP 27.
MAX COOLING LOAD= 96225. BTUH ON OCT 15 HOUR 12 AMBIENT TEMP 71.

ZONE UA BTU/HR-F 430.5

BEACON Energy Analysis By Energy Systems Engineers, Inc. 1721-3.I

BLDG 1721 - DAYROOM ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	64.	79.		3	15	63.	1.13	4.86	3.03	9.88
			54.	27	6	4.				
FEB	65.	79.		17	13	59.	1.02	4.39	2.73	8.93
			54.	2	6	14.				
MAR	67.	80.		12	13	74.	1.13	4.86	3.03	9.88
			54.	4	6	15.				
APR	71.	80.		30	12	80.	1.09	4.71	2.93	9.57
			55.	9	5	30.				
MAY	75.	80.		31	23	71.	1.13	4.86	3.03	9.88
			55.	11	5	39.				
JUN	78.	91.		23	10	74.	1.09	4.71	2.93	9.57
			66.	17	6	57.				
JUL	80.	93.		30	21	75.	1.13	4.86	3.03	9.88
			68.	10	6	60.				
AUG	80.	96.		21	11	75.	1.13	4.86	3.03	9.88
			64.	25	6	51.				
SEP	76.	90.		4	14	74.	1.09	4.71	2.93	9.57
			55.	15	6	39.				
OCT	71.	82.		5	15	73.	1.13	4.86	3.03	9.88
			55.	28	5	31.				
NOV	67.	79.		8	12	74.	1.09	4.71	2.93	9.57
			54.	3	6	18.				
DEC	64.	79.		12	16	59.	1.13	4.86	3.03	9.88
			54.	18	6	0.				
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM ECONOMIZER (FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	608	10	13	0	-.7768E+05	.0000
FEB	468	18	11	0	-.7768E+05	.0000
MAR	397	76	4	0	-.7768E+05	.6038E+05
APR	161	204	0	0	-.6694E+05	.7343E+05
MAY	31	347	0	1	-.4659E+05	.9623E+05
JUN	0	414	0	32	.0000	.9623E+05
JUL	0	447	0	22	.0000	.9623E+05
AUG	1	442	0	27	-.1085E+05	.9623E+05
SEP	31	339	0	19	-.4987E+05	.9623E+05
OCT	145	186	0	2	-.6459E+05	.9623E+05
NOV	344	77	2	0	-.7768E+05	.6216E+05
DEC	595	8	14	0	-.7768E+05	.0000
YEAR	2781	2568	44	103	-.7768E+05	.9623E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	25.02	.00	1.13	4.86	.89	9.88	3.7
FEB	18.76	.00	1.02	4.39	.80	8.93	3.7
MAR	14.30	.02	1.13	4.86	.89	9.88	6.8
APR	4.87	.18	1.09	4.71	.86	9.57	7.5
MAY	.77	.49	1.13	4.86	.89	9.88	8.8
JUN	.00	1.01	1.09	4.71	.86	9.57	9.0
JUL	.00	1.23	1.13	4.86	.89	9.88	9.0
AUG	.02	1.15	1.13	4.86	.89	9.88	9.0
SEP	.93	.68	1.09	4.71	.86	9.57	9.0
OCT	4.25	.16	1.13	4.86	.89	9.88	9.0
NOV	11.41	.02	1.09	4.71	.86	9.57	6.9
DEC	24.29	.00	1.13	4.86	.89	9.88	3.7
YEAR	104.62	4.95	13.32	57.27	10.44	116.38	9.0

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 135354. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM ECONOMIZER (FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS SYSTEM NOT COOL	WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.0000	-.7768E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.6038E+05	-.7768E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.7343E+05	-.6694E+05
MAY	2489.	1771.	1.000	65.	0.	0.	1	0	.9623E+05	-.4659E+05
JUN	2567.	1933.	1.000	72.	0.	0.	32	0	.9623E+05	.0000
JUL	2470.	1954.	1.000	77.	0.	0.	22	0	.9623E+05	.0000
AUG	2211.	1784.	1.000	76.	0.	0.	27	0	.9623E+05	-.1085E+05
SEP	1800.	1330.	1.000	68.	0.	0.	19	0	.9623E+05	-.4987E+05
OCT	1394.	924.	1.000	57.	0.	0.	2	0	.9623E+05	-.6459E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.6216E+05	-.7768E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05

BLDG 1721 - DAYROOM OUTSIDE AIR (NIGHTIME)(FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	17278.000000
FLOOR AREA (SQFT)	1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	110.000000

INFILTRATION PROFILE

.000	.000	.000	.000	.000	.000	.000	1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
.000	.000	.000	.000	.000	.000	.000	.000

A FACTOR IN INFILTRATION EQUATION (CINA)	3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	157.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	16.380000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)
.886E-05 .130E-02 .487E-02 .240E-02 .177E-03 885.
ROOF D TRANSFER FUNCTIONS (DNR)
1.00 -1.18 .410 -.444E-01 .500E-03 999.
SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -			THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.500	.000	.000	70.0	76.0
2	.100	.500	.000	.000	70.0	76.0
3	.100	.500	.000	.000	70.0	76.0
4	.100	.500	.000	.000	70.0	76.0
5	.100	.500	.000	.000	70.0	76.0
6	.100	.500	.000	.000	70.0	76.0
7	.600	.500	.100	.100	70.0	76.0
8	.600	.500	.100	.100	70.0	76.0
9	.600	.500	.100	.100	70.0	76.0
10	1.000	.700	.200	.200	70.0	76.0
11	1.000	.800	.500	.500	70.0	76.0
12	1.000	.900	1.000	1.000	70.0	76.0

13	1.000	.800	.500	.500	70.0	76.0
14	1.000	.500	.100	.100	70.0	76.0
15	1.000	.500	.100	.100	70.0	76.0
16	1.000	.700	.200	.200	70.0	76.0
17	1.000	.800	.500	.500	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.800	.500	.500	70.0	76.0
20	1.000	.700	.400	.400	70.0	76.0
21	.600	.700	.400	.400	70.0	76.0
22	.100	.500	.000	.000	70.0	76.0
23	.100	.500	.000	.000	70.0	76.0
24	.100	.500	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1721 - DAYROOM OUTSIDE AIR (NIGHTIME)(FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-22.05	LOSS		-2.59	-4.59	.00	-4.44	-2.68	-20.36	.00
FEB	.02	GAIN	3.39	.00	.00	.00	.00	.00	.00	.01
	-16.91	LOSS		-2.15	-3.92	.00	-3.36	-2.29	-17.49	.00
MAR	1.06	GAIN	4.40	.01	.00	.00	.10	.00	.00	.12
	-13.19	LOSS		-1.94	-3.66	.00	-2.64	-2.14	-16.26	.00
APR	5.09	GAIN	4.62	.08	.02	.00	.48	.01	.08	.61
	-5.00	LOSS		-1.16	-2.19	.00	-1.23	-1.28	-9.47	.00
MAY	11.22	GAIN	5.07	.20	.07	.00	1.03	.04	.25	2.31
	-1.05	LOSS		-.72	-1.28	.00	-.42	-.72	-5.54	.00
JUN	22.65	GAIN	5.09	.35	.20	.00	1.66	.12	.77	8.46
	-.05	LOSS		-.41	-.62	.00	-.09	-.35	-2.14	.00
JUL	29.27	GAIN	5.28	.53	.52	.00	2.29	.31	1.99	10.76
	.00	LOSS		-.30	-.38	.00	-.04	-.22	-1.35	.00
AUG	27.36	GAIN	4.67	.43	.39	.00	1.89	.22	1.44	10.84
	-.04	LOSS		-.32	-.42	.00	-.05	-.24	-1.42	.00
SEP	16.13	GAIN	3.76	.19	.20	.00	.99	.12	.79	6.17
	-1.34	LOSS		-.64	-1.03	.00	-.43	-.59	-4.32	.00
OCT	4.58	GAIN	3.17	.03	.03	.00	.22	.02	.11	1.11
	-4.60	LOSS		-1.26	-2.12	.00	-1.46	-1.21	-8.55	.00
NOV	1.19	GAIN	2.51	.00	.00	.00	.03	.00	.00	.22
	-10.40	LOSS		-1.75	-3.01	.00	-2.62	-1.72	-12.45	.00
DEC	.06	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-21.36	LOSS		-2.57	-4.50	.00	-4.47	-2.60	-19.51	.00
TOT	119.	GAIN	47.	2.	1.	0.	9.	1.	5.	41.
	-96.	LOSS		-16.	-28.	0.	-21.	-16.	-119.	0.

MAX HEATING LOAD= -77680. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 88367. BTUH ON JUL 3 HOUR 12 AMBIENT TEMP 86.

ZONE UA BTU/HR-F 430.5

BLDG 1721 - DAYROOM OUTSIDE AIR (NIGHTIME)(FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.		4	12	63.	1.13	4.86	3.03	9.88
			68.	27	6	4.				
FEB	71.	77.		17	13	59.	1.02	4.39	2.73	8.93
			69.	2	6	14.				
MAR	71.	78.		12	13	74.	1.13	4.86	3.03	9.88
			69.	4	6	15.				
APR	73.	78.		30	12	80.	1.09	4.71	2.93	9.57
			69.	9	5	30.				
MAY	75.	78.		28	12	85.	1.13	4.86	3.03	9.88
			69.	11	5	39.				
JUN	76.	78.		22	12	84.	1.09	4.71	2.93	9.57
			70.	17	5	56.				
JUL	77.	78.		3	12	86.	1.13	4.86	3.03	9.88
			70.	10	6	60.				
AUG	77.	78.		19	12	87.	1.13	4.86	3.03	9.88
			70.	25	6	51.				
SEP	75.	78.		3	12	89.	1.09	4.71	2.93	9.57
			70.	15	6	39.				
OCT	73.	78.		5	12	84.	1.13	4.86	3.03	9.88
			69.	28	5	31.				
NOV	72.	77.		8	12	74.	1.09	4.71	2.93	9.57
			69.	3	6	18.				
DEC	70.	77.		29	18	57.	1.13	4.86	3.03	9.88
			63.	18	8	1.				
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM OUTSIDE AIR (NIGHTIME)(FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	675	16	1	0	-.7768E+05	.0000
FEB	555	32	0	0	-.6668E+05	.1891E+05
MAR	516	97	0	0	-.6657E+05	.4323E+05
APR	285	231	0	0	-.4092E+05	.4922E+05
MAY	101	389	0	0	-.2743E+05	.6058E+05
JUN	14	525	0	0	-6653.	.8062E+05
JUL	2	641	0	0	-2120.	.8837E+05
AUG	8	629	0	0	-.1066E+05	.8153E+05
SEP	110	444	0	0	-.2622E+05	.8619E+05
OCT	284	228	0	0	-.3819E+05	.6355E+05
NOV	466	103	0	0	-.5659E+05	.4506E+05
DEC	679	16	12	0	-.7768E+05	.1754E+05
YEAR	3695	3351	13	0	-.7768E+05	.8837E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	31.07	.00	1.13	4.86	.89	9.88	3.7
FEB	24.35	.00	1.02	4.39	.80	8.93	5.0
MAR	19.93	.06	1.13	4.86	.89	9.88	5.9
APR	8.68	.28	1.09	4.71	.86	9.57	6.1
MAY	2.38	.59	1.13	4.86	.89	9.88	6.8
JUN	.26	1.18	1.09	4.71	.86	9.57	7.9
JUL	.04	1.53	1.13	4.86	.89	9.88	8.4
AUG	.15	1.43	1.13	4.86	.89	9.88	8.0
SEP	2.71	.85	1.09	4.71	.86	9.57	8.3
OCT	8.19	.26	1.13	4.86	.89	9.88	6.9
NOV	16.37	.08	1.09	4.71	.86	9.57	6.0
DEC	30.48	.00	1.13	4.86	.89	9.88	5.0
YEAR	144.62	6.27	13.32	57.27	10.44	116.38	8.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 158539. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM OUTSIDE AIR (NIGHTIME)(FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	MAX SYSTEM TEMP. DRIFT DEG. F −	HOURS SYSTEM NOT COOL	HOURS WHEN LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1891E+05	-.6668E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.4323E+05	-.6657E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.4922E+05	-.4092E+05
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.6058E+05	-.2743E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.8062E+05	-6653.
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8837E+05	-2120.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.8153E+05	-.1066E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8619E+05	-.2622E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.6355E+05	-.3819E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.4506E+05	-.5659E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1754E+05	-.7768E+05

BLDG 1721 - DAYROOM OUTSIDE AIR (DAYTIME)(FT LEONARD WOOD, MO)

---------- PROGRAM CONTROL OPTIONS ----------

COOLING ON WEEKEND (1=YES, 0=NO) (ICWK)	1
ROOF HAS VENTED ATTIC (1=YES, 0=NO) (IATIC)	0
WEEKEND INTERNAL GAINS FACTOR (WKEND)	1.000000
LAST CASE FLAG (1=YES, 0=NO) (LSTCS)	1
SKY CLEARNESS FACTOR (CLN)	9.700000E-01
NUMBER OF ZONES (NZ)	1

WEATHER SOURCE ISW=0 WEATHER ON TAPE6, ISW=1
WEATHER AS SPECIFIED IN TAVE, ECT. (ISW) 0

--------- SITE AND BUILDING DATA ----------

******REAL WEATHER FROM DISK*******

FILE NAME MO
STATION 13995 YEAR 1955

SITE LATITUDE DEG (AL1)	37.750000
ELEVATION ABOVE SEA LEVEL IN FEET (ELEV)	1158.000000
MEAN AMBIENT TEMP FOR YEAR DEG F (TMAMB)	56.000000
AMPLITUDE OF GROUND TEMP SWING DEG F (AMGRN)	20.000000
SOLAR ABSORBTIVITY OF WALLS (ALPHA)	6.800000E-01
SOLAR ABSORBTIVITY OF ROOF (ALFRF)	3.500000E-01
SOLAR REFLECTANCE OF GROUND (RHOG)	2.000000E-01
INITIAL TEMP OF AIR IN BUILDING DEG F (TAO)	70.000000
INITIAL TEMPERATURE OF BUILDING MASS (TO)	70.000000
INSIDE SUMMER HUMIDITY RATIO LBS/LBS (HRS)	9.000000E-03
INSIDE WINTER HUMIDITY RATIO LBS/LBS (HRW)	0.000000E+00
VOLUME OF ZONE IN CUBIC FEET (VOLHS)	17278.000000
FLOOR AREA (SQFT)	1920.000000
HEATING COIL MAX HEATING RATE BTU/HR (QHMAX)	77680.000000
COOLING COIL MAX COOLING RATE BTU/HR (QCMAX)	-96225.000000
COND BETWEEN BLDG AIR AND MASS BTU/HR-F (GA)	19200.000000
CONSTANT INFILTRATION RATE CFM (CFMI)	110.000000

INFILTRATION PROFILE

1.00	1.00	1.00	1.00	1.00	1.00	1.00	.000
.000	.000	.000	.000	.000	.000	.000	.000
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

A FACTOR IN INFILTRATION EQUATION (CINA)	3.820000E-01
B FACTOR IN INFILTRATION EQUATION (CINB)	2.165000E-02
C FACTOR IN INFILTRATION EQUATION (CINC)	8.330000E-03
BUILDING THERMAL MASS MCP BTU/F (CMCP)	4800.000000
BASEMENT UA FACTOR BTU/HR-F (BSNF)	0.000000E+00
SLAB ON GRADE FACTOR BTU/HR-F (SLBF)	157.000000
PARTITION UA BTU/HR-F (GUA)	0.000000E+00
DOOR UA BTU/HR-F (DUA)	16.380000
WINDOW GLASS NUMBER (NG)	30
DAY TIME WINDOW U BTU/HR-SQFT-F (WNDUO)	6.930472E-01
NIGHT TIME WINDOW U BTU/HR-SQFT-F (WNDUN)	6.930472E-01
WINDOW SHADING FACTOR (SHD)	5.900000E-01

WALL DATA

WALL NUMBER	1	2	3	4
AZIMUTH ANGLE (AZ)	-45.00	45.00	135.00	-135.00
WALL AREA SQFT (AWLL)	313.0	539.0	472.0	556.0
WINDOW AREA SQFT (AWND)	60.0	72.0	60.0	.0
WINDOW HEIGHT FT (WNDH)	10.0	10.0	10.0	10.0
WINDOW WIDTH FT (WNDW)	6.0	7.2	6.0	.0
WIDTH OF OVERHANG (WOH)	6.8	2.0	6.8	.0
OVERHANG HGT ABV WNDW(HOH)	.0	.0	.0	.0

MAX SOLAR WITH NO SHADE(SOLMX)	120.0	120.0	120.0	120.0
U VALUE BTU/(HR-SQFT-F) (UW)	.110	.110	.110	.110
WALL TRANSFER FUNCTIONS				
CN FACTORS	.00471	.00471	.00471	.00471
NUMBER OF BN FACTORS (NB	5	5	5	5
BN FACTORS BN (BN)				
N=1	.00000	.00000	.00000	.00000
N=2	.00050	.00050	.00050	.00050
N=3	.00243	.00243	.00243	.00243
N=4	.00162	.00162	.00162	.00162
N=5	.00017	.00017	.00017	.00017
N=6	********	********	********	********
NUMBER OF DN FACTORS (ND)	6	6	6	6
DN FACTORS				
N=1	1.00000	1.00000	1.00000	1.00000
N=2	-1.73771	-1.73771	-1.73771	-1.73771
N=3	.90936	.90936	.90936	.90936
N=4	-.13373	-.13373	-.13373	-.13373
N=5	.00496	.00496	.00496	.00496
N=6	-.00001	-.00001	-.00001	-.00001

ROOF AREA SQFT (AROF) 1920.000000
ROOF U VALUE BTU/HR-SQFT-F (URF) 4.600000E-02
ROOF TRANS FUNCTIONS USED (1=YES, 0=NO) (IROOF) 1
ROOF C TRANSFER FUNCTION (CNR) 8.756841E-03
ROOF B TRANSFER FUNCTIONS (BNR)

.886E-05	.130E-02	.487E-02	.240E-02	.177E-03	885.

ROOF D TRANSFER FUNCTIONS (DNR)

1.00	-1.18	.410	-.444E-01	.500E-03	999.

SKYLIGHT TILT DEGREES (TILT) 0.000000E+00
SKYLIGHT AZIMUTH ANGLE DEGREES (AZSK) 9999.000000
SKYLIGHT HEIGHT FT (SKH) 0.000000E+00
SKYLIGHT WIDTH FT (SKW) 0.000000E+00
SKYLIGHT OVERHANG WIDTH FT (SKOW) 0.000000E+00
OVERHANG HEIGHT ABOVE SKYLIGHT FT (SKOH) 0.000000E+00
SKYLIGHT GLASS NUMBER (NS) 1
SKYLIGHT SHADING COEFFICIENT (SHSK) 0.000000E+00
SUMMER START MONTH AND DAY FOR SHSK (MST,NDST) 1 1
SUMMER END MONTH AND DAY FOR SHSK (MND,NDND) 1 1
SKY LIGHT AREA SQFT (ASKY) 0.000000E+00
DAYTIME SKY LIGHT U BTU/SQFT-HR-F (SKYU) 1.292998
NIGHT TIME SKYLIGHT U BTU/SQFT-HR-F (SKYUN) 1.292998
FRACTION OF PROCESS HEAT TO INTERNAL SPACE (FAP) 4.200000E-01

----------INTERNAL GAINS AND PROFILES ----------

	KW	- - - - - - BTU/HR - - - - - -		THERMOSTAT SET POINT DEG F	
	LIGHTS	PROCESS	PEOPLE SENSIBLE	PEOPLE LATENT	HEATING	COOLING
PEAK VAL	3.	4452.	5400.	4400.		
HOUR	- - - - HOURLY FRACTION OF PEAK - - - -					
1	.100	.500	.000	.000	70.0	76.0
2	.100	.500	.000	.000	70.0	76.0
3	.100	.500	.000	.000	70.0	76.0
4	.100	.500	.000	.000	70.0	76.0
5	.100	.500	.000	.000	70.0	76.0
6	.100	.500	.000	.000	70.0	76.0
7	.600	.500	.100	.100	70.0	76.0
8	.600	.500	.100	.100	70.0	76.0
9	.600	.500	.100	.100	70.0	76.0
10	1.000	.700	.200	.200	70.0	76.0
11	1.000	.800	.500	.500	70.0	76.0
12	1.000	.900	1.000	1.000	70.0	76.0

13	1.000	.800	.500	.500	70.0	76.0
14	1.000	.500	.100	.100	70.0	76.0
15	1.000	.500	.100	.100	70.0	76.0
16	1.000	.700	.200	.200	70.0	76.0
17	1.000	.800	.500	.500	70.0	76.0
18	1.000	.900	1.000	1.000	70.0	76.0
19	1.000	.800	.500	.500	70.0	76.0
20	1.000	.700	.400	.400	70.0	76.0
21	.600	.700	.400	.400	70.0	76.0
22	.100	.500	.000	.000	70.0	76.0
23	.100	.500	.000	.000	70.0	76.0
24	.100	.500	.000	.000	70.0	76.0

NO HEATING ABOVE AMBIENT TEMP. OF (THLKOT) 68.000000
NO COOLING BELOW AMBIENT TEMP. OF (TCLKOT) 65.000000
SYSTEM TYPE, (IECN) 2
SUPPLY AIR CFM (SACFM) 3490.000000
ECONOMIZER HIGH TEMP LIMIT F 65.000000
SYSTEM SUPPLY AIR START TIME HR 0.000000E+00
SYSTEM SUPPLY AIR STOP TIME HR 24.000000
SYSTEM MIXED AIR TEMP(TMXAIR) 70.000000
MIN OUTSIDE AIR FRACTION OF SACFM (OAFR) 1.000000E-01
FAN EFFICIENCY (EFAN) 5.500000E-01
FAN TOTAL PRESSURE IN. WATER (DP) 1.600000
HEATING PLANT RATED OUTPUT BTU (HFLOT) 78000.000000
HEATING PLANT RATED INPUT BTU (HFLIN) 97500.000000
HEATING PLANT PART LOAD VS FRAC OF INPUT TABLE (PLH)

.100	.191	.200	.286	.300	.369	.400	.451
.500	.537	.600	.625	.700	.718	.800	.812
.900	.906	1.00	1.00				

CHILLER TYPE (ITYPCH) 0
COOLING PLANT RATED OUTPUT BTU (CFLOT) 96225.000000
COOLING PLANT RATED INPUT BTU (CFLIN) 17789.000000
COOLING PLANT PART LOAD FRAC VS FRAC RATED COP (PLC)

.100	.200	.200	.250	.300	.310	.400	.370
.500	.450	.600	.550	.700	.650	.800	.760
.900	.880	1.00	1.00				

BLDG 1721 - DAYROOM OUTSIDE AIR (DAYTIME)(FT LEONARD WOOD, MO)

ENERGY GAIN/LOSS SUMMARY IN MILLION BTU

MNTH	LOAD		SOLAR THRU WINDOW	ROOF	PARTITN DOOR AND SLAB	BSMT	WALL	WINDOW	VENT AND INFL	LATENT
JAN	.00	GAIN	2.72	.00	.00	.00	.00	.00	.00	.00
	-23.05	LOSS		-2.59	-4.59	.00	-4.44	-2.67	-21.38	.00
FEB	.02	GAIN	3.39	.00	.00	.00	.00	.00	.00	.00
	-17.84	LOSS		-2.15	-3.93	.00	-3.37	-2.30	-18.40	.00
MAR	1.07	GAIN	4.40	.01	.00	.00	.10	.00	.00	.12
	-14.14	LOSS		-1.95	-3.67	.00	-2.65	-2.14	-17.18	.00
APR	5.07	GAIN	4.62	.08	.02	.00	.49	.01	.07	.59
	-5.69	LOSS		-1.17	-2.19	.00	-1.24	-1.28	-10.14	.00
MAY	11.05	GAIN	5.07	.20	.07	.00	1.04	.04	.22	2.20
	-1.36	LOSS		-.71	-1.26	.00	-.40	-.71	-5.95	.00
JUN	22.02	GAIN	5.09	.35	.20	.00	1.67	.12	.69	8.07
	-.09	LOSS		-.41	-.60	.00	-.08	-.34	-2.40	.00
JUL	29.12	GAIN	5.28	.53	.52	.00	2.29	.31	1.85	10.87
	-.01	LOSS		-.29	-.37	.00	-.04	-.21	-1.51	.00
AUG	27.08	GAIN	4.67	.43	.39	.00	1.90	.22	1.33	10.84
	-.07	LOSS		-.32	-.42	.00	-.05	-.23	-1.63	.00
SEP	15.74	GAIN	3.76	.19	.20	.00	.99	.12	.71	5.94
	-1.63	LOSS		-.64	-1.02	.00	-.42	-.59	-4.72	.00
OCT	4.50	GAIN	3.17	.03	.03	.00	.22	.02	.09	1.04
	-5.24	LOSS		-1.26	-2.11	.00	-1.46	-1.20	-9.20	.00
NOV	1.19	GAIN	2.51	.00	.00	.00	.03	.00	.00	.21
	-11.22	LOSS		-1.75	-3.01	.00	-2.62	-1.72	-13.24	.00
DEC	.06	GAIN	2.46	.00	.00	.00	.00	.00	.00	.00
	-22.36	LOSS		-2.57	-4.50	.00	-4.46	-2.59	-20.52	.00
TOT	117.	GAIN	47.	2.	1.	0.	9.	1.	5.	40.
	-103.	LOSS		-16.	-28.	0.	-21.	-16.	-126.	0.

MAX HEATING LOAD= -77680. BTUH ON DEC 18 HOUR 9 AMBIENT TEMP 3.
MAX COOLING LOAD= 87377. BTUH ON JUL 28 HOUR 17 AMBIENT TEMP 92.

ZONE UA BTU/HR-F 430.5

BLDG 1721 - DAYROOM OUTSIDE AIR (DAYTIME)(FT LEONARD WOOD, MO)

MONTH	INTERNAL SPACE TEMPERATURE F AVG.	MAX	MIN	DAY	HR	COIN-CIDENT AMBT.	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FAN HEAT MILLION BTU	TOTAL HEAT GAIN MILLION BTU
JAN	70.	77.		2	13	57.	1.13	4.86	3.03	9.88
			64.	27	6	4.				
FEB	71.	77.		17	13	59.	1.02	4.39	2.73	8.93
			69.	2	6	14.				
MAR	71.	78.		12	13	74.	1.13	4.86	3.03	9.88
			69.	4	6	15.				
APR	73.	78.		30	12	80.	1.09	4.71	2.93	9.57
			69.	9	5	30.				
MAY	75.	78.		28	12	85.	1.13	4.86	3.03	9.88
			69.	11	5	39.				
JUN	76.	78.		22	12	84.	1.09	4.71	2.93	9.57
			70.	17	5	56.				
JUL	77.	78.		3	12	86.	1.13	4.86	3.03	9.88
			70.	10	5	57.				
AUG	77.	78.		19	12	87.	1.13	4.86	3.03	9.88
			70.	25	6	51.				
SEP	75.	78.		3	12	89.	1.09	4.71	2.93	9.57
			69.	15	6	39.				
OCT	73.	78.		5	12	84.	1.13	4.86	3.03	9.88
			69.	28	5	31.				
NOV	72.	77.		8	12	74.	1.09	4.71	2.93	9.57
			69.	3	6	18.				
DEC	70.	77.		16	15	56.	1.13	4.86	3.03	9.88
			58.	18	6	0.				
YEAR							13.32	57.27	35.63	116.38

BLDG 1721 - DAYROOM OUTSIDE AIR (DAYTIME)(FT LEONARD WOOD, MO)

MONTH	NUMBER OF HOURS WHEN HEATING OR COOLING IS REQUIRED: HEATING	COOLING INCLUDING ECONOMIZER	NUMBER OF HOURS WHEN LOADS WERE NOT MET: HEATING	COOLING	MAXIMUM LOADS BTU: HEATING	COOLING
JAN	674	17	14	0	-.7768E+05	.0000
FEB	545	35	0	0	-.7356E+05	.1910E+05
MAR	510	102	0	0	-.7331E+05	.4299E+05
APR	290	230	0	0	-.4580E+05	.4819E+05
MAY	120	382	0	0	-.3121E+05	.5847E+05
JUN	18	503	0	0	-8319.	.7878E+05
JUL	3	622	0	0	-5739.	.8738E+05
AUG	11	606	0	0	-.1281E+05	.7778E+05
SEP	118	427	0	0	-.2989E+05	.8073E+05
OCT	297	228	0	0	-.4306E+05	.6052E+05
NOV	460	101	0	0	-.6320E+05	.4413E+05
DEC	668	15	12	0	-.7768E+05	.1924E+05
YEAR	3714	3268	26	0	-.7768E+05	.8738E+05

SYSTEM TOTALS

MONTH	ENERGY CONSUMPTION HEATING MILLION BTU	COOLING THOUSAND KWH	LIGHTING THOUSAND KWH	PROCESS MILLION BTU	FANS THOUSAND KWH	TOTAL INTERNAL HEAT GAIN MILLION BTU	MAXIMUM ELECTRIC DEMAND KW
JAN	32.25	.00	1.13	4.86	.89	9.88	3.7
FEB	25.26	.00	1.02	4.39	.80	8.93	5.0
MAR	20.88	.06	1.13	4.86	.89	9.88	5.9
APR	9.44	.28	1.09	4.71	.86	9.57	6.1
MAY	2.93	.58	1.13	4.86	.89	9.88	6.7
JUN	.33	1.13	1.09	4.71	.86	9.57	7.8
JUL	.06	1.50	1.13	4.86	.89	9.88	8.4
AUG	.22	1.39	1.13	4.86	.89	9.88	7.8
SEP	3.11	.82	1.09	4.71	.86	9.57	7.9
OCT	9.04	.26	1.13	4.86	.89	9.88	6.8
NOV	17.15	.08	1.09	4.71	.86	9.57	5.9
DEC	31.51	.00	1.13	4.86	.89	9.88	5.0
YEAR	152.17	6.12	13.32	57.27	10.44	116.38	8.4

ENERGY CONSUMPTION PER SQUARE FOOT OF FLOOR 162202. BTU/(SQFT-YEAR)

BLDG 1721 - DAYROOM OUTSIDE AIR (DAYTIME)(FT LEONARD WOOD, MO)

OTHER MONTHLY STATISTICS

MONTH	CLEAR DAY SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	ACTUAL SOLAR INSOL. HORIZ. SURF. BTU/ SQFT-DAY	PF FACTOR	AVG. AMBT. DEG. F	MAX SYSTEM TEMP. DRIFT DEG. F +	DEG. F -	HOURS WHEN SYSTEM NOT COOL	LOADS MET HEAT	MAXIMUM COOLING LOAD BTU	MAXIMUM HEATING LOAD BTU
JAN	1010.	655.	1.000	35.	0.	0.	0	0	.0000	-.7768E+05
FEB	1421.	901.	1.000	37.	0.	0.	0	0	.1910E+05	-.7356E+05
MAR	1864.	1216.	1.000	43.	0.	0.	0	0	.4299E+05	-.7331E+05
APR	2242.	1552.	1.000	55.	0.	0.	0	0	.4819E+05	-.4580E+05
MAY	2489.	1771.	1.000	65.	0.	0.	0	0	.5847E+05	-.3121E+05
JUN	2567.	1933.	1.000	72.	0.	0.	0	0	.7878E+05	-8319.
JUL	2470.	1954.	1.000	77.	0.	0.	0	0	.8738E+05	-5739.
AUG	2211.	1784.	1.000	76.	0.	0.	0	0	.7778E+05	-.1281E+05
SEP	1800.	1330.	1.000	68.	0.	0.	0	0	.8073E+05	-.2989E+05
OCT	1394.	924.	1.000	57.	0.	0.	0	0	.6052E+05	-.4306E+05
NOV	1008.	710.	1.000	47.	0.	0.	0	0	.4413E+05	-.6320E+05
DEC	856.	586.	1.000	35.	0.	0.	0	0	.1924E+05	-.7768E+05

COMPUTER SIMULATIONS

BUILDING 2100

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 2100
BLDG. TYPE: RECEPTION CENTER

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	614.7	493.3	278.4	278.4	228.1	382.7
COOLING (kWH)	185529	169028	151021	147506	183308	175188

SUPPLY AIR FAN	68464 CFM
FLOOR AREA	74789 FT²
CFMI	3831 CFM
UA	11901 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	700	1700	50 HR
SAT.			0 HR
SUN.			0 HR
	TOTAL OCCUPY HR.		50 HR/WK
	TOTAL UNOCC. HR.		118 HR/WK
	ANNUAL OCCUPY HR.		2607 HR/YR
	ANNUAL UNOCC. HR.		6153 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1300 HR/YR
HR. ON COOLING	871 HR/YR
HR. OFF HEATING	3068 HR/YR
HR. OFF COOLING	2057 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 1300 = 3068 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 871 = 2057 HR/YR

HOAUHC	614.7 MBtu –	228.1 MBtu	=	1.64E+01 Btu/CFM-HR
	3831 CFM *	6153 HR/YR		
HOAUH	614.7 MBtu –	228.1 MBtu	=	3.29E+01 Btu/CFM-HR
	3831 CFM *	3068 HR/YR		
COAUHC	185529 kWH –	183308 kWH	=	9.42E-05 kWH/CFM-HR
	3831 CFM *	6153 HR/YR		
COAUC	185529 kWH –	183308 kWH	=	2.82E-04 kWH/CFM-HR
	3831 CFM *	2057 HR/YR		
HOAOHC	614.7 MBtu –	382.7 MBtu	=	2.32E+01 Btu/CFM-HR
	3831 CFM *	2607 HR/YR		
HOAOH	614.7 MBtu –	382.7 MBtu	=	4.66E+01 Btu/CFM-HR
	3831 CFM *	1300 HR/YR		
COAOHC	185529 kWH	175188 kWH	=	1.04E-03 kWH/CFM-HR
	3831 CFM *	2607 HR/YR		
COAOC	185529 kWH	175188 kWH	=	3.10E-03 kWH/CFM-HR
	3831 CFM *	871 HR/YR		
DC	1 / 6 (10 MINUTES PER HOUR)		=	0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)		=	0.17

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 2100
BLDG. TYPE: RECEPTION CENTER

ENERGY CONSTANT CALCULATIONS

ECC	151021 kWH	– 147506 kWH	=	5.89E-05 kWH/CFM-HR
	68464 CFM	* 871 HR/YR		
ECHC	151021 kWH	– 147506 kWH	=	1.97E-05 kWH/CFM-HR
	68464 CFM	* 2607 HR/YR		
NSUCHC	185529 kWH	– 169028 kWH	=	3.92E-05 kWH/CFM-HR
	68464 CFM	* 6153 HR/YR		
NSUCC	185529 kWH	– 169028 kWH	=	1.17E-04 kWH/CFM-HR
	68464 CFM	* 2057 HR/YR		
DDCCHC	169028 kWH	– 151021 kWH	=	1.01E-04 kWH/CFM-HR
	68464 CFM	* 2607 HR/YR		
DDCCC	169028 kWH	– 151021 kWH	=	3.02E-04 kWH/CFM-HR
	68464 CFM	* 871 HR/YR		
NSC	614.7 MBtu	– 493.3 MBtu	=	1.02E+04 Btu/UA
	11901 UA			
DSC	493.3 MBtu	– 278.4 MBtu	=	1.81E+04 Btu/UA
	11901 UA			
OPT	(2 HR/DAY X 272 DAY/YR) – 294 HR/YR		=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR * 0.01		=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ1

BUILDING HEATING LOAD CALCULATION SHEET

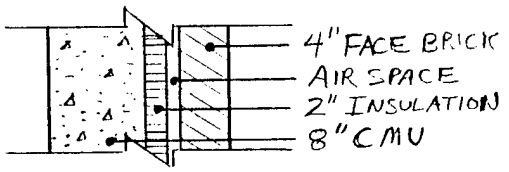
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: ADMINISTRATION OFFICES - ZONE 1
FLOOR AREA: (SQ. FT) 18,716 # FLOORS 1
SLAB PERIMETER: (FT) 627

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	2,716	1,862	1,120	2,464	8,162
GLASS	(SQ. FT)	203	182	0	240	625
PERSONNEL DOOR	(SQ. FT)	21	0	42	63	126
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	2,492	1,680	1,078	2,161	7,411
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	18,716
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	126
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

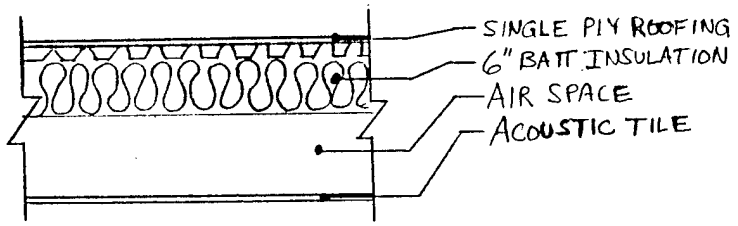
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	8162	X CFM / SQ.FT.	0.115	=	939
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		15	X CFM /OPENING /HR	1.600	=	24
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	=	0
			TOTAL INFILTRATION (CFM)		=	963

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	126	X DOOR "U"	0.391	=	49
UA WALL	= WALL AREA	7,411	X WALL "U"	0.092	=	680
UA ROOF	= ROOF AREA	18,716	X ROOF "U"	0.029	=	551
UA GLASS	= GLASS AREA	625	X GLASS "U"	0.621	=	388
UA SLAB	= SLAB PERIM.	627	X SLF	0.830	=	520
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	963	X A. T. F.	1.035	=	996
			TOTAL UA (BTU/HR°F)			3,185

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ2

BUILDING HEATING LOAD CALCULATION SHEET

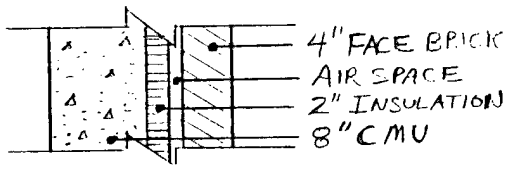
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: COMPUTER ROOM - ZONE 2
FLOOR AREA: (SQ. FT) 861 # FLOORS 1
SLAB PERIMETER: (FT) 62

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	574	0	294	868
GLASS	(SQ. FT)	0	93	0	27	120
PERSONNEL DOOR	(SQ. FT)	0	0	0	0	0
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	481	0	267	748
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	861
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	0
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

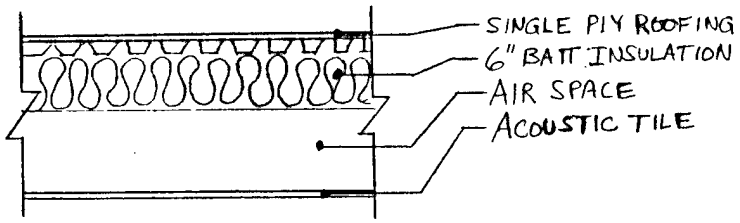
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	L 868	X CFM / SQ.FT.	0.092	=	80
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		X CFM /OPENING /HR	1.385	=	0
		TOTAL INFILTRATION (CFM)		=	80

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	0	X DOOR "U"	0.391	=	0
UA WALL	= WALL AREA	748	X WALL "U"	0.092	=	69
UA ROOF	= ROOF AREA	861	X ROOF "U"	0.029	=	25
UA GLASS	= GLASS AREA	120	X GLASS "U"	0.621	=	75
UA SLAB	= SLAB PERIM.	62	X SLF	0.830	=	51
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	80	X A. T. F.	1.035	=	83
			TOTAL UA (BTU/HR°F)			303

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ3

BUILDING HEATING LOAD CALCULATION SHEET

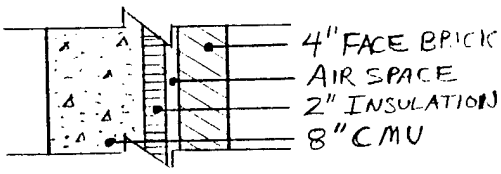
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: ASSEMBLY HALL - ZONE 3
FLOOR AREA: (SQ. FT) 7,667 # FLOORS 1
SLAB PERIMETER: (FT) 16

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,157	1,381	486	486	3,510
GLASS	(SQ. FT)	171	344	85	128	728
PERSONNEL DOOR	(SQ. FT)	0	16	0	0	16
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	986	1,021	401	358	2,766
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	8,081
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	16
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

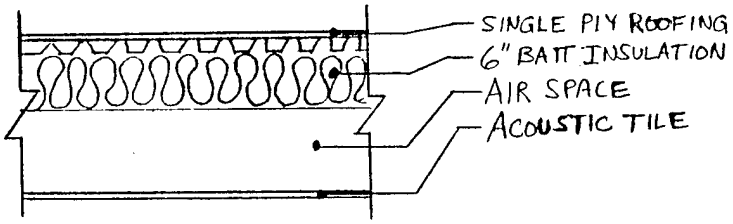
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	ROOF SHINGLES/FELT	0.28
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.92
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	3510	X CFM / SQ.FT.	0.115	=	404
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		30	X CFM /OPENING /HR	1.385	=	42
			TOTAL INFILTRATION (CFM)		=	445

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	16	X DOOR "U"	0.391	=	6
UA WALL	= WALL AREA	2,766	X WALL "U"	0.092	=	254
UA ROOF	= ROOF AREA	8,081	X ROOF "U"	0.029	=	238
UA GLASS	= GLASS AREA	728	X GLASS "U"	0.621	=	452
UA SLAB	= SLAB PERIM.	16	X SLF	0.830	=	13
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	445	X A. T. F.	1.035	=	461
			TOTAL UA (BTU/HR°F)			1,425

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ4

BUILDING HEATING LOAD CALCULATION SHEET

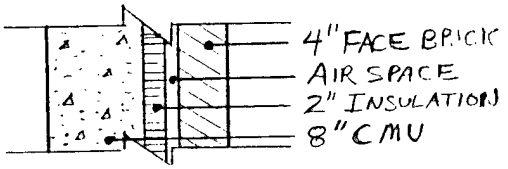
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: MEDICAL CLINIC - ZONE 4
FLOOR AREA: (SQ. FT) 14,142 # FLOORS 1
SLAB PERIMETER: (FT) 219

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	108	3,698	990	910	5,706
GLASS	(SQ. FT)	0	494	128	128	750
PERSONNEL DOOR	(SQ. FT)	0	21	0	0	21
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	108	3,183	862	782	4,935
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	14,187
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	21
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

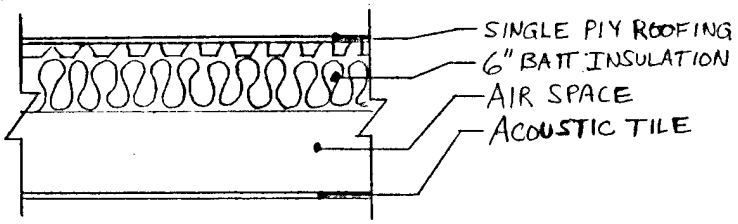
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	= 0
AVG. WALL H/M/L (SQ.FT.)	M	5706	X CFM / SQ.FT.	0.115	= 656
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	= 0
DOOR OPENINGS / HR - SINGLE DOOR		5	X CFM /OPENING /HR	1.600	= 8
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	= 0
			TOTAL INFILTRATION (CFM)		= 664

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	21	X DOOR "U"	0.391	=	8
UA WALL	= WALL AREA	4,935	X WALL "U"	0.092	=	453
UA ROOF	= ROOF AREA	14,187	X ROOF "U"	0.029	=	418
UA GLASS	= GLASS AREA	750	X GLASS "U"	0.621	=	466
UA SLAB	= SLAB PERIM.	219	X SLF	0.830	=	182
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	664	X A. T. F.	1.035	=	687
			TOTAL UA (BTU/HR°F)			2,214

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ5

BUILDING HEATING LOAD CALCULATION SHEET

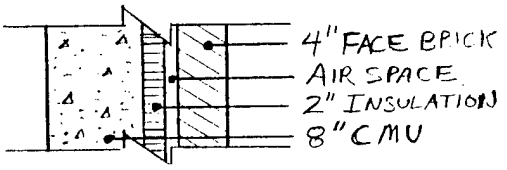
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: CLOTHING ISSUE - ZONE 5
FLOOR AREA: (SQ. FT) 12,680 # FLOORS 1
SLAB PERIMETER: (FT) 199

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	3,045	0	969	1,428	5,442
GLASS	(SQ. FT)	0	0	0	0	0
PERSONNEL DOOR	(SQ. FT)	21	0	0	0	21
OVERHEAD DOOR	(SQ. FT)	144	0	0	0	144
WALLS, NET	(SQ. FT)	2,880	0	969	1,428	5,277
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	12,680
OVERHEAD DOOR	(SQ. FT)	144	PERSONNEL DOOR		(SQ. FT)	21
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

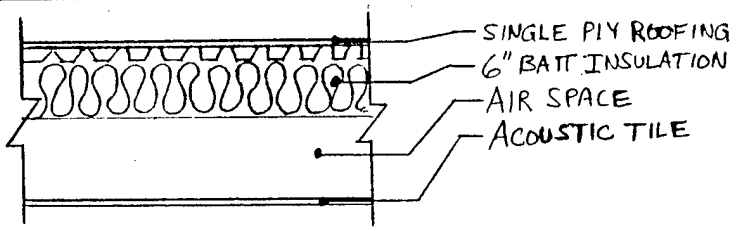
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	5442	X CFM / SQ.FT.	0.115	=	626
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		5	X CFM /OPENING /HR	1.600	=	8
DOOR OPENINGS / HR - DOUBLE DOORS		20	X CFM /OPENING /HR	1.385	=	28
			TOTAL INFILTRATION (CFM)		=	662

UA ODOOR	=ODOOR AREA	144	X DOOR "U"	0.952	=	137
UA PDOOR	=PDOOR AREA	21	X DOOR "U"	0.391	=	8
UA WALL	= WALL AREA	5,133	X WALL "U"	0.092	=	484
UA ROOF	= ROOF AREA	12,680	X ROOF "U"	0.029	=	373
UA GLASS	= GLASS AREA	0	X GLASS "U"	0.621	=	0
UA SLAB	= SLAB PERIM.	199	X SLF	0.830	=	165
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	662	X A. T. F.	1.035	=	685
			TOTAL UA (BTU/HR°F)			1,853

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ6

BUILDING HEATING LOAD CALCULATION SHEET

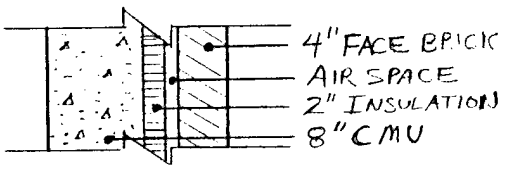
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: OFFICES AND RETAIL STORE - ZONE 6
FLOOR AREA: (SQ. FT) 13,222 # FLOORS 1
SLAB PERIMETER: (FT) 132

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,498	0	728	0	2,226
GLASS	(SQ. FT)	53	0	0	0	53
PERSONNEL DOOR	(SQ. FT)	42	0	42	0	84
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	1,403	0	686	0	2,089
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	9,887
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	84
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

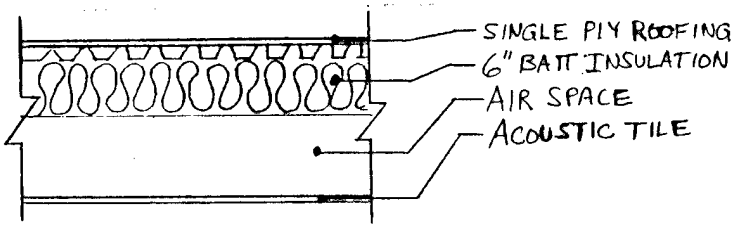
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR	NONE	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	2226	X CFM / SQ.FT.	0.115	=	256
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		6	X CFM /OPENING /HR	1.600	=	10
DOOR OPENINGS / HR - DOUBLE DOORS		8	X CFM /OPENING /HR	1.385	=	11
			TOTAL INFILTRATION (CFM)		=	277

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.952	=	0
UA PDOOR	= PDOOR AREA	84	X DOOR "U"	0.391	=	33
UA WALL	= WALL AREA	2,089	X WALL "U"	0.092	=	192
UA ROOF	= ROOF AREA	9,887	X ROOF "U"	0.029	=	291
UA GLASS	= GLASS AREA	53	X GLASS "U"	0.621	=	33
UA SLAB	= SLAB PERIM.	132	X SLF	0.830	=	110
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	277	X A. T. F.	1.035	=	286
			TOTAL UA (BTU/HR°F)			944

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	2100BLZ7

BUILDING HEATING LOAD CALCULATION SHEET

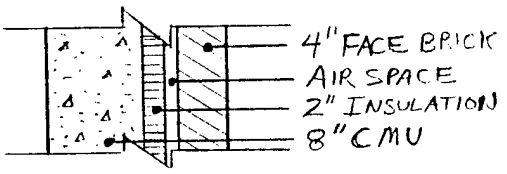
BLDG NO: 2100 BLDG NAME: RECEPTION CENTER
BLDG FUNCTION: CHAPEL / AUDITORIUM - ZONE 7
FLOOR AREA: (SQ. FT) 7,501 # FLOORS 1
SLAB PERIMETER: (FT) 232

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,566	1,632	1,428	1,596	6,222
GLASS	(SQ. FT)	349	0	0	0	349
PERSONNEL DOOR	(SQ. FT)	52	0	21	21	94
INSULATED PANEL	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	1,165	1,632	1,407	1,575	5,779
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	7,963
INSULATED PANEL	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	94
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

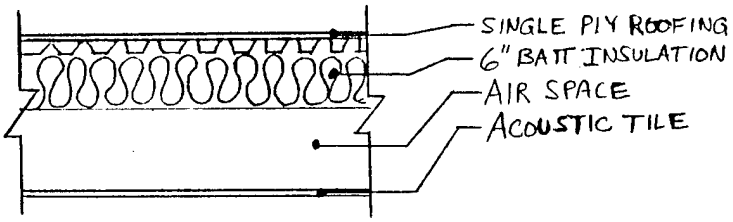
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" L.W. CONC. BLOCK	2.02
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	10.89
	U=1/R	0.092

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	SHEET ROOFING	0.34
3.	BATT INSULATION	30.00
4.	AIR SPACE	1.00
5.	ACOUSTIC TILE	1.79
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	33.97
	U=1/R	0.029

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
INSULATED PANEL:	NONE	R-PANEL	4.20
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	6222	X CFM / SQ.FT.	0.115	=	716
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		18	X CFM /OPENING /HR	1.385	=	25
			TOTAL INFILTRATION (CFM)		=	740

UA PANEL	= PANEL AREA	0	X PANEL "U"	0.238	=	0
UA PDOOR	= PDOOR AREA	94	X DOOR "U"	0.391	=	37
UA WALL	= WALL AREA	5,779	X WALL "U"	0.092	=	531
UA ROOF	= ROOF AREA	7,963	X ROOF "U"	0.029	=	234
UA GLASS	= GLASS AREA	349	X GLASS "U"	0.621	=	217
UA SLAB	= SLAB PERIM.	232	X SLF	0.830	=	193
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	740	X A. T. F.	1.035	=	766
			TOTAL UA (BTU/HR°F)			1,977

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z1
BLDG: 2100 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	112	4	Seated, light work, typing	Offices, hotels, apts	250	200	28,000	22,400
TOTAL	112					TOTAL	28,000	22,400

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	187	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	22,066
	16	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,344
	17	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	850
	3	20	Incandescent – 100w	100	300
TOTAL	223			TOTAL	24,560

Peak Value for Internal Gains

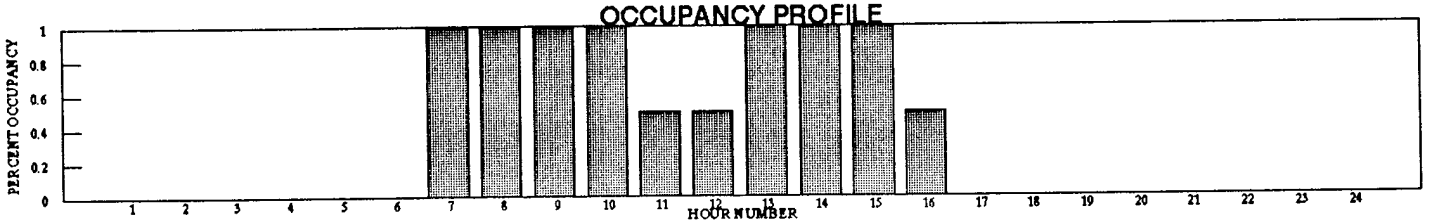
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	60	3	Microcomputer	350	91%	21,000	71,673
	45	5	Printer (laser)	870	34%	39,150	133,619
	1	10	Copy Machine	1,570	20%	1,570	5,358
	28	12	Typewriter	100	10%	2,800	9,556
	7	49	Radio	71	10%	497	1,696
	2	76	Coffee Brewer	1,658	100%	3,316	11,318
	2	65	Vending Machine	700	36%	1,400	4,778
	3	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	963	3,287
	2	46	Microwave Oven	600	65%	1,200	4,096
				TOTAL	53%	71,896	245,381

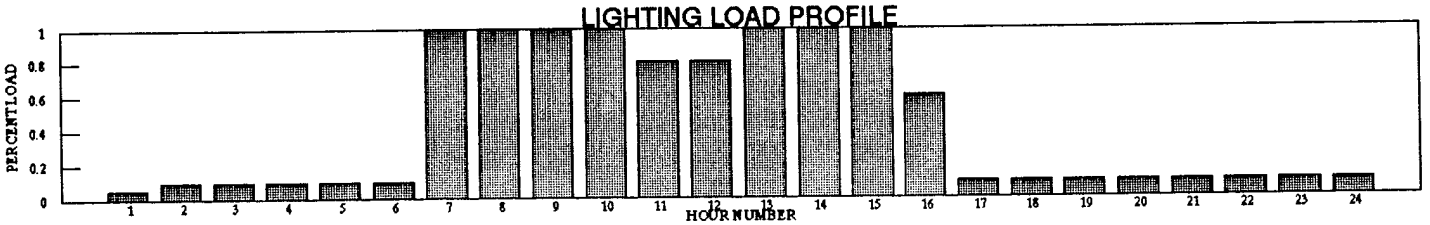
E M C Engineers, Inc.

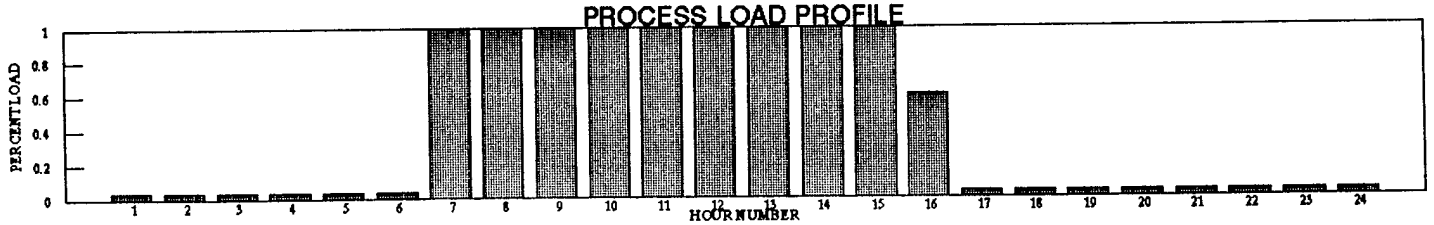
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z1
BLDG: 2100
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.8	1	1	1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.0	0.04	0.04	0.04	0.04	0.04	1	1	1	1	1	1	1	1	1	0.6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z2
BLDG: 2100 ZONE: 2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2	6	4	Seated, light work, typing	Offices, hotels, apts	250	200	1,500	1,200
TOTAL	6					TOTAL	1,500	1,200

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2	14	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	1,652
TOTAL	14			TOTAL	1,652

Peak Value for Internal Gains

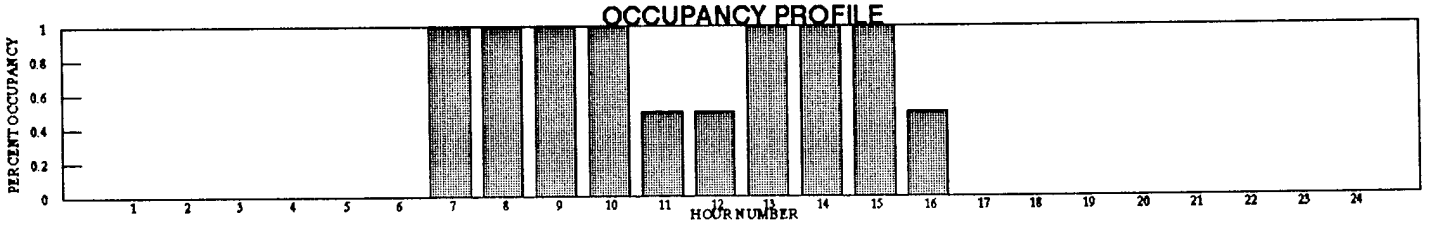
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
2	4	3	Microcomputer	350	91%	1,400	4,778
	4	5	Printer (laser)	870	34%	3,480	11,877
	1	10	Copiers (Large)	1,570	20%	1,570	5,358
	3	2	Disk Drives/Mass Storage	5,500	69%	16,500	56,315
	1	45	Micro Fiche Machine	250	50%	250	853
				TOTAL	62%	23,200	79,182

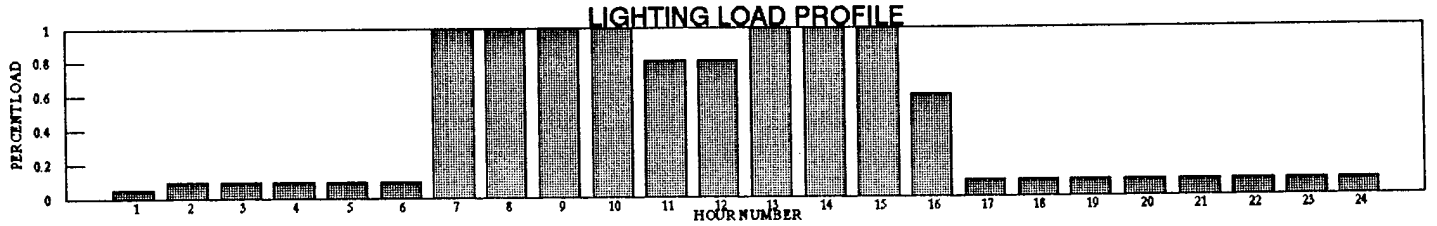
E M C Engineers, Inc.

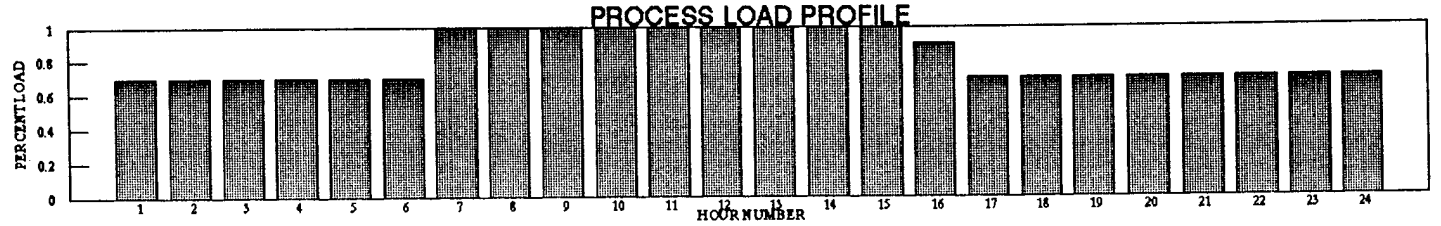
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z2
BLDG: 2100
ZONE: 2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.8	1	1	1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.7	0.7	0.7	0.7	0.7	0.7	1	1	1	1	1	1	1	1	1	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z3
BLDG: 2100 ZONE: 3

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
3	75	2	Seated very light work (writing)	Offices, hotels, apts	245	155	18,375	11,625
TOTAL	75					TOTAL	18,375	11,625

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
3	32	21	Incandescent - 150w	150	4,800
	60	5	Fluorescent, 1 - 34w lamp, 16w ballast (1x4 ft. fixture)	50	3,000
TOTAL	92			TOTAL	7,800

Peak Value for Internal Gains

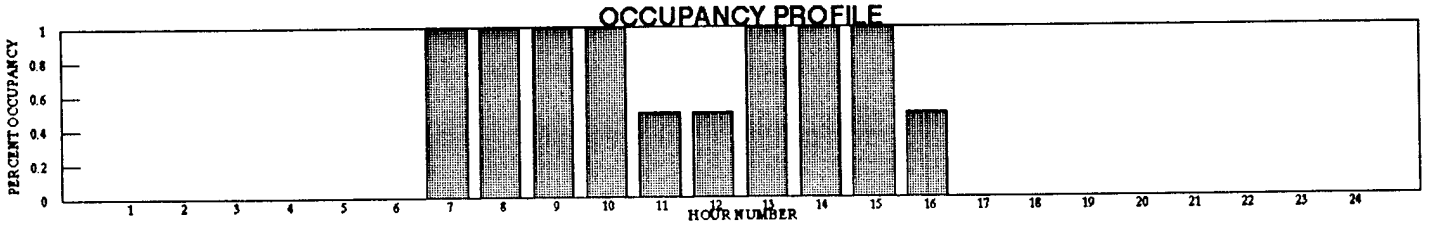
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
3							
				TOTAL	ERR		

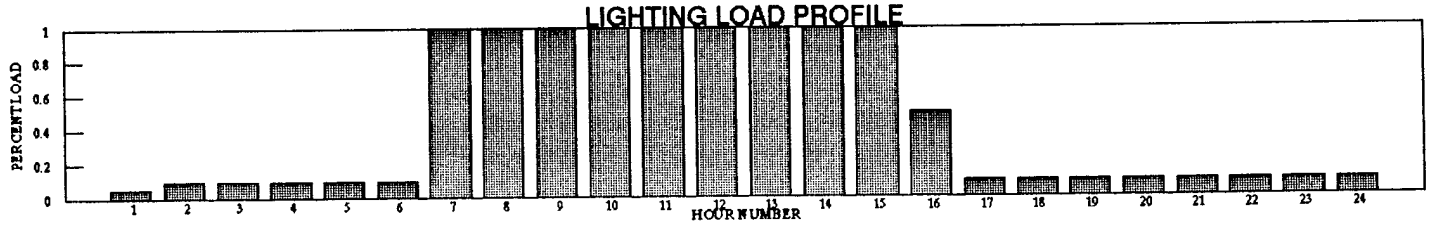
E M C Engineers, Inc.

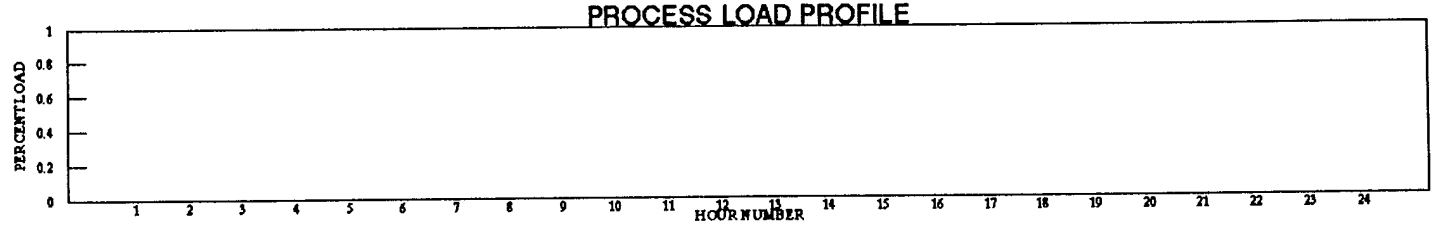
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z3
BLDG: 2100
ZONE: 3

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS																								







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z4
BLDG: 2100 ZONE: 4

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4	50	5	Standing, light work, or walking slowly	Retail store, bank	270	220	13,500	11,000
TOTAL	50					TOTAL	13,500	11,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4	96	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	11,328
	12	21	Incandescent – 150w	150	1,800
	64	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	3,200
	6	60	Exit Light	20	120
TOTAL	178			TOTAL	16,448

Peak Value for Internal Gains

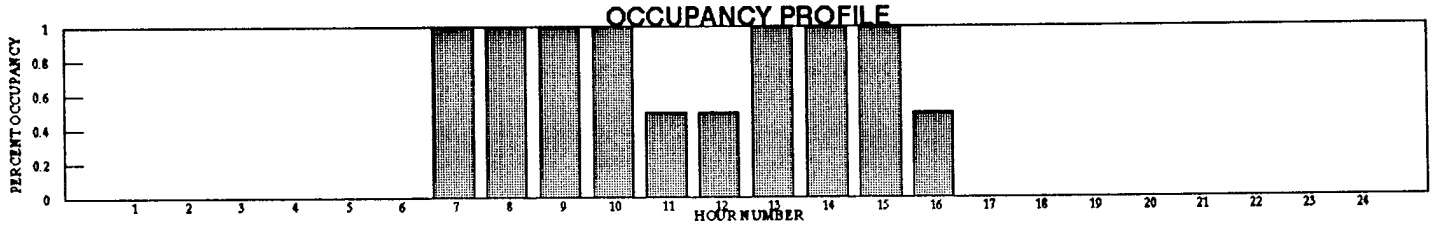
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space (%)	Total Wattage	Total (BTU)
4	7	3	Microcomputer	350	91%	2,450	8,362
	4	5	Printer (laser)	870	34%	3,480	11,877
	1	45	Micro Fiche Machine	250	50%	250	853
	2	49	Radio	71	10%	142	485
	8	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	2,568	8,765
	2	62	Television (Color, tube)	300	15%	600	2,048
	3	12	Typewriter	100	10%	300	1,024
	20		Optical Machine	120	10%	2,400	8,191
	7		X-ray Machine	460	10%	3,220	10,990
	11		Shot Machine	120	10%	1,320	4,505
	2		Hand Dryer	1,200	100%	2,400	8,191
				TOTAL	40%	19,130	65,291

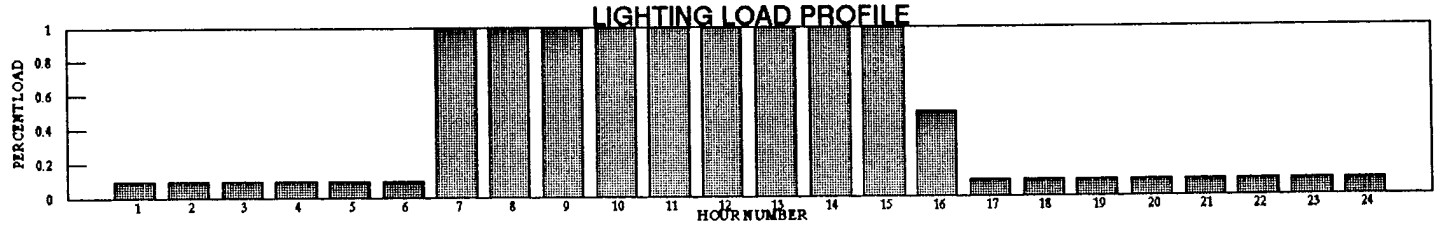
E M C Engineers, Inc.

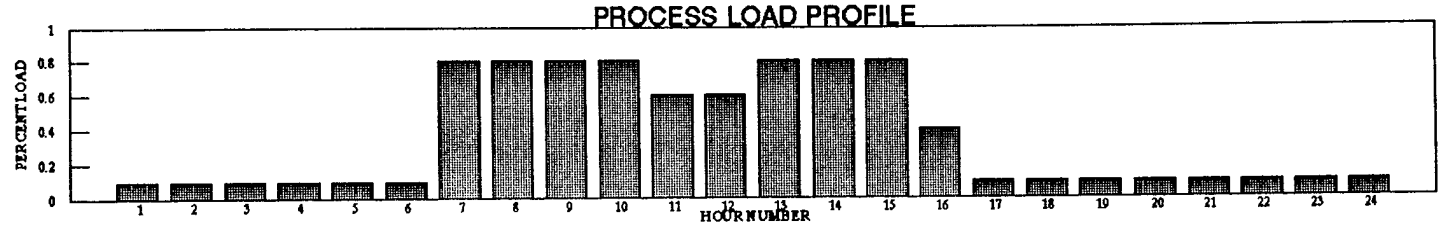
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z4
BLDG: 2100
ZONE: 4

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.8	0.8	0.8	0.6	0.6	0.8	0.8	0.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z5
BLDG: 2100 ZONE: 5

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
5	6	5	Standing, light work, or walking slowly	Retail store, bank	270	220	1,620	1,320
TOTAL	6					TOTAL	1,620	1,320

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
5	66	21	Incandescent - 150w	150	9,900
TOTAL	66			TOTAL	9,900

Peak Value for Internal Gains

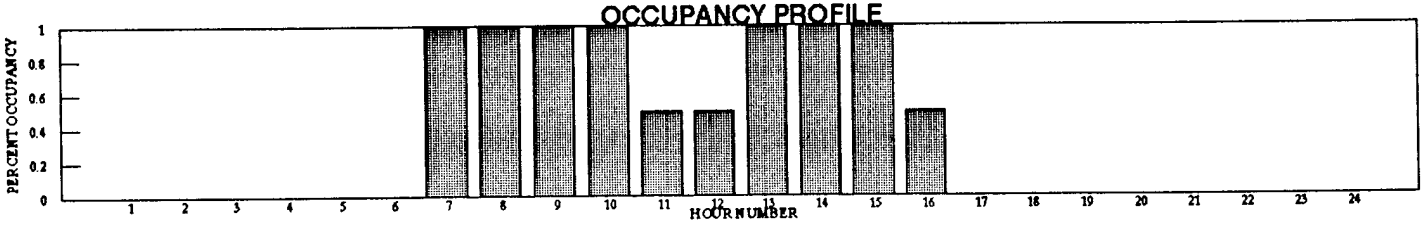
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
5	1	49	Radio	71	10%	71	242
	1	31	Fan (Circulating)	88	20%	88	300
				TOTAL	16%	159	543

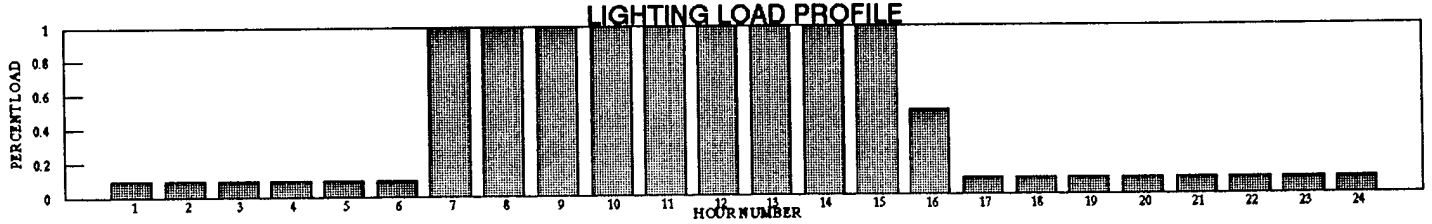
E M C Engineers, Inc.

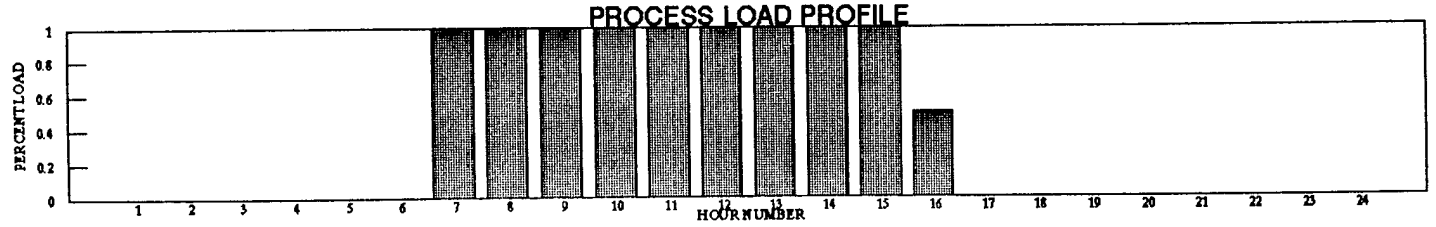
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z5
BLDG: 2100
ZONE: 5

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							1	1	1	1	1	1	1	1	1	0.5								







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z6
BLDG: 2100 ZONE: 6

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
6	15	4	Seated, light work, typing	Offices, hotels, apts	250	200	3,750	3,000
TOTAL	15					TOTAL	3,750	3,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
6	92	7	Fluorescent, 3 – 34w lamps, 16w ballast (2x4 ft. fixture)	118	10,856
	25	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	1,250
	3	60	Exit Light	20	60
	2	20	Incandescent – 100w	100	200
TOTAL	122			TOTAL	12,366

Peak Value for Internal Gains

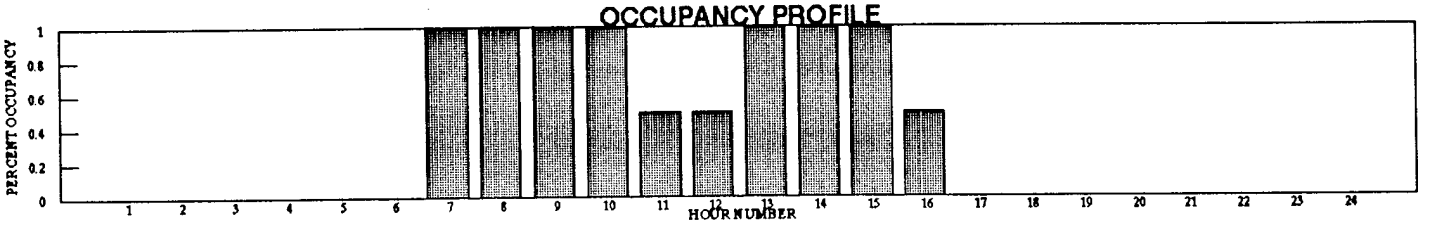
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
6	3	3	Microcomputer	350	91%	1,050	3,584
	2	5	Printer (laser)	870	34%	1,740	5,939
	2	49	Radio	71	10%	142	485
	1	12	Typewriter	100	10%	100	341
	1	46	Microwave Oven	600	65%	600	2,048
	1	76	Coffee Brewer	1,658	100%	1,658	5,659
	1	65	Vending Machine	700	36%	700	2,389
	2	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	642	2,191
	1	45	Micro Fiche Machine	250	50%	250	853
				TOTAL	62%	6,882	23,488

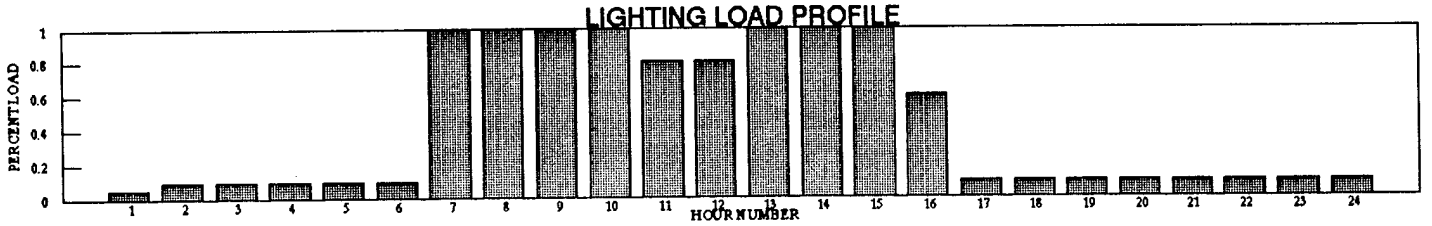
E M C Engineers, Inc.

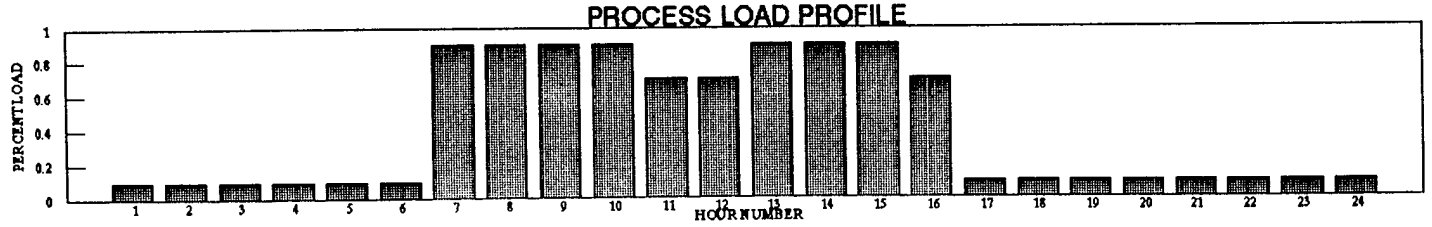
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z6
BLDG: 2100
ZONE: 6

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.5	0.5	1	1	1	0.5								
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.8	0.8	1	1	1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.9	0.9	0.9	0.7	0.7	0.9	0.9	0.9	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z7
BLDG: 2100 ZONE: 7

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
7	70	4	Seated, light work, typing	Offices, hotels, apts	250	200	17,500	14,000
TOTAL	70					TOTAL	17,500	14,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
7	12	31	Tungsten-Halogen - 400w	400	4,800
	31	21	Incandescent - 150w	150	4,650
	8	22	Incandescent - 300w	300	2,400
	15	18	Incandescent - 60w	60	900
	11	7	Fluorescent, 3 - 34w lamps, 16w ballast (2x4 ft. fixture)	118	1,298
	7	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	588
	10	5	Fluorescent, 1 - 34w lamp, 16w ballast (1x4 ft. fixture)	50	500
	4	60	Exit Light	20	80
TOTAL	98			TOTAL	15,216

Peak Value for Internal Gains

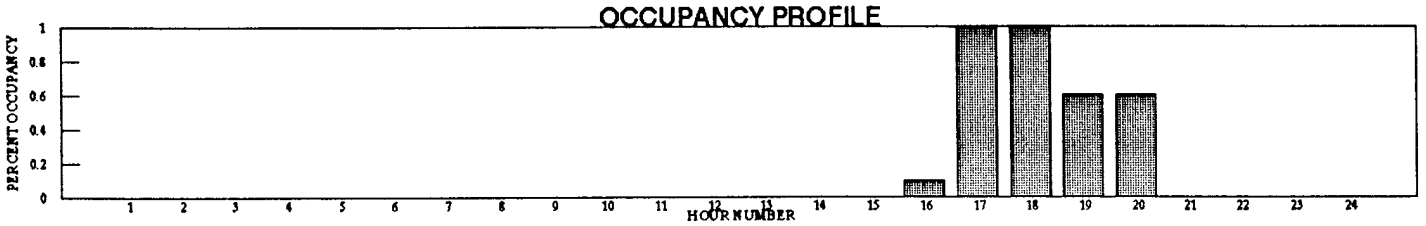
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
7	2	76	Coffee Brewer	1,658	100%	3,316	11,318
	2	46	Microwave Oven	600	65%	1,200	4,096
	1	49	Radio	71	10%	71	242
	1	65	Vending Machine	700	36%	700	2,389
	1	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	321	1,096
				TOTAL	80%	5,608	19,140

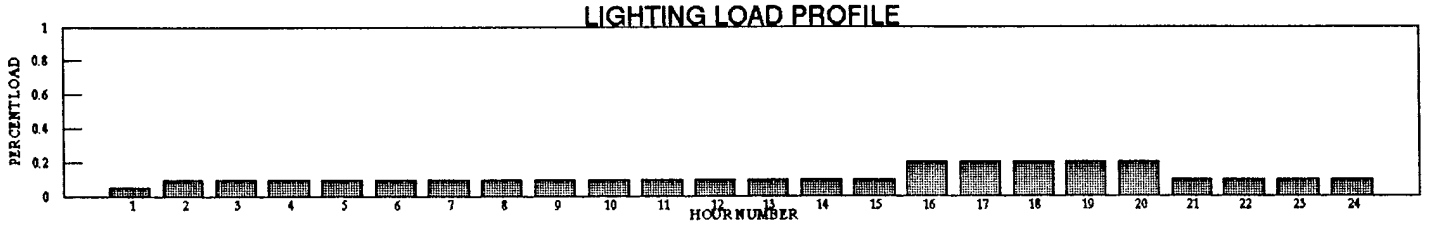
E M C Engineers, Inc.

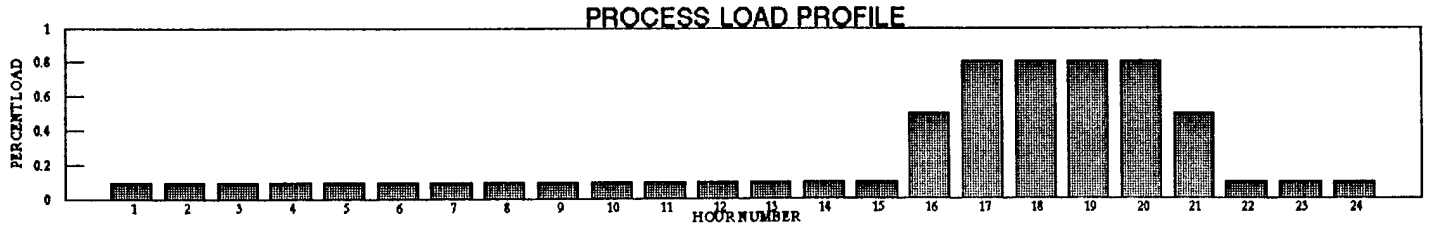
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 23-Feb-93
PREPARED BY: TMB
CHECKED BY: CEL
FILE: 2100Z7
BLDG: 2100
ZONE: 7

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Auditorium	OCCUPANCY																0.1	1	1	0.6	0.6				
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.8	0.8	0.8	0.8	0.5	0.1	0.1	0.1







01 Card - Job Information

Project: EEAP STUDY, EXPANSION OF EMCS
Location: FT. LEONARD WOOD, MO
Client: US ARMY
Program User: E M C ENGINEERS, INC.

-----CARD 08-- Climatic Information

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
SPRINGFM	.97	.97	94	78	3			

-----CARD 09-- Load Simulation Periods

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
MAY	SEP		JUN	SEP	APR	OCT

-----CARD 10 -- Load Simulation Parameters

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
TETD-TA1	TETD-TA1	OADB	ACTUAL	ACTUAL	MED-RCR	NO

-----CARD 11-- Energy Simulation Parameters

1st Month Energy Simulation	Last Month Energy Simulation	Level Of Calculation	Holiday Code	Calendar Code	Building Floor Area
JAN	DEC	ROOM	1978	1978	74789

-----CARD 13-- Daylighting Parameters

----------Atmospheric----------

---Moisture---		---Turbidity---		----Inside Visible Reflectivity----				Daylighting
Summer	Winter	Summer	Winter	Floor	Ceiling	Wall	Partition	Geometry
		.07	.07					

---------- Load Section Alternative #1 ----------

---- Load Alternative ----

Number	Description
1	BLDG 2100 BASERUN FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	ADMIN OFFICES	187.16	100	2	0		12			
2	2	COMPUTER ROOM	86.1	10	2	0		12			
3	3	ASSEMBLY HALL	100	76.67	2	0		18.9			
4	4	MEDICAL CLINIC	100	141.42	2	0		12			
5	5	CLOTHING ISSUE	100	126.8	2			20			
6	6	OFFICES-STORE	100	132.22	2	0		12			
7	7	CHAPEL-AUDTRM	100	75.01	2	0		17.7			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	75			CLG75SUM	70		HTG70WNT	ROOM	MED70	NO
1										YES
2				CLG75			HTGOFF			
3										
4										YES
5										
6										YES
7										YES

-----CARD 22-- Roof Parameters ----------

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
M	1				.029	50			.74
1	1	YES							
2	1	YES							
3	1	NO	100	80.81					
4	1	NO	141.87	100					
5	1	YES							
6	1	NO	100	98.87					
7	1	NO	100	79.63					

-----CARD 26-- Schedules ----------

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	P2100	L2100	AVAIL	AVAIL		AVAIL	AVAIL			
2	P2100	L2100	AVAIL	AVAIL		AVAIL	AVAIL			
3	P2100	L2100Z3	AVAIL	AVAIL		AVAIL	AVAIL			
4	P2100	L2100Z3	AVAIL	AVAIL		AVAIL	AVAIL			
5	P2100	L2100Z3	AVAIL	AVAIL		AVAIL	AVAIL			
6	P2100	L2100	AVAIL	AVAIL		AVAIL	AVAIL			
7	P2100Z7	L2100Z7	AVAIL	AVAIL		AVAIL	AVAIL			

-----CARD 27-- People and Lights ----------

Room Number M	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting --- Reference Point 1	Reference Point 2
		PEOPLE				WATTS	RECFL-NV				
1	112		250	200	24560						
2	6		255	255	1176	WATTS	RECFL-NV	1			
3	130	PEOPLE	230	190	15500	WATTS	RECFL-NV	1			
4	135	PEOPLE	230	190	14200	WATTS	RECFL-NV	1			
5	7	PEOPLE	315	325	15800	WATTS	RECFL-NV	1			
6	15	PEOPLE	315	325	12800	WATTS	RECFL-NV	1			
7	75	PEOPLE	210	140	12600	WATTS	RECFL-NV	1			

-----CARD 28--- Miscellaneous Equipment ----------

Room Number M	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
	1			WATTS		ELEC					SAME-RA
1	1	OFFICE EQUIP.	71896		E2100Z1			53			
2	1	OFFICE EQUIP.	23200		E2100Z2			62			
4	1	MEDICAL EQUIP.	19130		E2100Z4			40			
5	1	EQUIPMENT	159		E2100Z5			16			
6	1	OFFICE EQUIP.	6882		E2100Z6			62			
7	1	APPLIANCES	5608		E2100Z7			80			

-----CARD 29--- Room Airflows ----------

Room Number M	Ventilation --Cooling-- Value	Units CFM	Ventilation --Heating-- Value	Units CFM	Infiltration --Cooling-- Value	Units CFM	Infiltration --Heating-- Value	Units CFM	--Reheat Minimum-- Value	Units
1	1260		1260		963		963			
2					80		80			
3	770		770		445		445			
4	1270		1270		664		664			
5	770		770		662		662			
6	700		700		277		277			
7	2400		2400		740		740			

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
M	1				89			.74	
1	1	100	27.16	.094		0			
1	2	100	18.62	.092		180			
1	3	100	11.2	.103		90			
1	4	100	24.64	.1		270			
2	1	57.4	10	.092		180			
2	2	29.4	10	.092		270			
3	1	115.7	10	.092		0			
3	2	138.1	10	.097		180			
3	3	48.6	10	.092		90			
3	4	48.6	10	.092		270			
4	1	10.8	10	.092		0			
4	2	100	36.98	.094		180			
4	3	99	10	.092		90			
4	4	91	10	.092		270			
5	1	100	30.45	.135		0			
5	2	96.9	10	.092		90			
5	3	100	14.28	.092		270			
6	1	100	14.98	.101		0			
6	2	72.8	10	.109		90			
7	1	100	15.66	.105		0			
7	2	100	16.32	.092		180			
7	3	100	14.28	.096		90			
7	4	100	15.96	.096		270			

-----CARD 25-- Wall/Glass Parameters ----------

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
M	1			1	.621	.58		3		.8	
1	1	20.3	10								
1	2	18.2	10								
1	4	24	10								
2	1	10	9.3								
2	2	10	2.7								
3	1	10	17.1					1			
3	2	34.4	10					1			
3	3	10	8.5					1			
3	4	12.8	10					1			
4	2	49.4	10								
4	3	12.8	10								
4	4	12.8	10								
6	1	10	5.3								
7	1	34.9	10					1			

-----CARD 30- Fan Airflows ----------

Room	Main ----Cooling---- Value	Main Units	Main ----Heating---- Value	Main Units	Auxiliary ----Cooling---- Value	Auxiliary Units	Auxiliary ----Heating---- Value	Auxiliary Units	--Room Exhaust-- Value	Room Exhaust Units
Number										
M		CFM		CFM				CFM		
1	12530						12870			
2	5600									
3	7670		7670							
4	12690						3240			
5	7710		7710							
6	7010						1980			
7	12000		12000							

-----CARD 31-- Partition Parameters ----------

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
M	1				105	CONSTANT			
1	1	1303	8.5						
2	1	59	8.5						
3	1	315	23.3						
4	1	617.2	15						
5	1	250	23.5						
6	1	639	12						
7	1	393.2	23.3						

-----CARD 32-- Exposed Floor Parameters----------

Room Number	Exposed Floor Number	Slab Perimeter Length	Slab Loss Coefficient	Exposed Floor Area	Exposed Floor U-Value	Exposed Floor Const Type	Exposed Floor Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	627	.83							
2	1	62	.83							
3	1	16	.83							
4	1	219	.83							
5	1	199	.83							
6	1	132	.83							
7	1	232	.83							

-----CARD 34-- Internal Shading ----------

Shading Type	Overall U-Value	Overall Shading Coefficent	Schedule Code	Shade Location	Visible Transmittance	Lockouts Min OADB	Lockouts Max Solar	Lockouts Solar Ctrl Prob	Lockouts Max Glare	Lockouts Glare Ctrl Prob
3	.452	.58	FL-INSHD							

---------- System Section Alternative #1 ----------

-----CARD 39-- System Alternative -----

Number	Description
1	BLDG 2100 BASERUN FT LEONARD WOOD

-----CARD 40--- System Type ----------

System Set Number	System Type	Ventil Deck Location	OPTIONAL VENTILATION SYSTEM Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Fan Static Pressure
1	VAVFSK						
2	PTAC						
3	SZ						
4	VAVFSK						
5	SZ						
6	VAVFSK						
7	SZ						

-----CARD 41-- Zone Assignment ----------

System Set	Ref #1		Ref #2		Ref #3		Ref #4		Ref #5		Ref #6	
Number	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End	Begin	End
1	1	1										
2	2	2										
3	3	3										
4	4	4										
5	5	5										
6	6	6										
7	7	7										

-----CARD 42--- Fan SP and Duct Parameters----------

System Set Number	Cool Fan SP	Heat Fan SP	Return Fan SP	Mn Exh Fan SP	Aux Fan SP	Rm Exh Fan SP	Cool Fan Mtr Loc	Return Fan Mtr Loc	Supply Duct Ht Gn	Supply Duct Loc	Return Air Path
1	4				.25		OMIT			RETAIR	PLENUM
2	.5						SUPPLY			OTHER	ROOMDK
3	3						OMIT			OTHER	DUCTED
4	5				.25		OMIT			RETAIR	PLENUM
5	1.75						OMIT			OTHER	DUCTED
6	3.68				.25		OMIT			RETAIR	PLENUM
7	2.5						OMIT			RETAIR	PLENUM

-----CARD 43-- Airflow Design Temperatures ----------

System Set	Minimum Cooling	Maximum Cooling	Minimum Heating	Maximum Heating	Minimum Cooling	Maximum Cooling	Minimum Preheat	Maximum Preheat	Minimum Room	Design Ht Rec

-----CARD 43-- Airflow Design Temperatures ----------

System Set Number	Minimum Cooling SADB	Maximum Cooling SADB	Minimum Heating SADB	Maximum Heating SADB	Minimum Cooling Lv DB	Maximum Cooling Lv DB	Minimum Preheat Lv DB	Maximum Preheat Lv DB	Minimum Room RH	Design Ht Rec Diff
2										
3										
4										
5										
6										
7	68.6	68.6								

-----CARD 44-- System Options ----------

System Set Number	Econ Type Flag	Econ On Point	Max Pct Outside Air	Direct Evap Cooling	Indirect Evap Cooling	1st Stage Evap Cooling	Fan Cycling	--- Effectiveness --- System	--- Effectiveness --- Room	--- Control Method --- System	--- Control Method --- Room
1	DRY-BULB	65	100								
2											
3	DRY-BULB	65	100								
4	DRY-BULB	65	100								
5											
6	DRY-BULB	65	100								
7											

-----CARD 45--- Equipment Schedules ----------

System Set Number	Main Cooling Coil	Economizer	Direct Evap Coil	Indirect Evap Coil	Auxiliary Cooling Coil	Main Heating Coil	Main Preheat Coil	Reheat Coil	Mech. Humidity	Auxiliary Heating Coil
1	FLCCOIL	AVAIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	FLHCOIL
2	AVAIL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	AVAIL	OFF
3	FLCCOIL	AVAIL	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF
4	FLCCOIL	AVAIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	FLHCOIL
5	OFF	OFF	OFF	OFF	OFF	AVAIL	OFF	OFF	OFF	OFF
6	FLCCOIL	AVAIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	FLHCOIL
7	FLCCOIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF

-----CARD 48-- Cooling Capacity Overrides ----------

System Set Number	People Variance	Lights Variance	Misc Loads Variance	MAIN COOLING Capacity Value	MAIN COOLING Capacity Units	MAIN COOLING Capacity Sizing	MAIN COOLING Capacity Location	AUX COOLING Capacity Value	AUX COOLING Capacity Units
1				535.9	MBH				
2				122.6	MBH				
3				371.3	MBH				
4				539.9	MBH				

-----CARD 48-- Cooling Capacity Overrides ----------

System Set Number	People Variance	Lights Variance	Misc Loads Variance	MAIN COOLING Capacity Value	MAIN COOLING Capacity Units	MAIN COOLING Capacity Sizing	MAIN COOLING Capacity Location	AUX COOLING Capacity Value	AUX COOLING Capacity Units
5				0	MBH				
6				261.8	MBH				
7				562.6	MBH				

-----CARD 49-- Heating Capacity Overrides ----------

System Set Number	MAIN HEATING Capacity Value	MAIN HEATING Capacity Units	PREHEAT Capacity Value	PREHEAT Capacity Units	REHEAT Capacity Value	REHEAT Capacity Units	HUMIDIFICATION Capacity Value	HUMIDIFICATION Capacity Units	AUX HEATING Capacity Value	AUX HEATING Capacity Units
1			159.9	MBH					244.8	MBH
2	0	MBH								
3	319.2	MBH								
4			317.3	MBH					275.7	MBH
5	397.2	MBH								
6			183.6	MBH					111.3	MBH
7	438.8	MBH								

---------- Equipment Section Alternative #1 ----------

-----CARD 59-- Equipment Description / TOD Schedules ----------

Alternative Number	Elec Consump Time of Day Schedule	Elec Demand Time of Day Schedule	Demand Limit Max KW	Alternative Description
1				BLDG 2100 BASERUN FT LEONARD WOOD

-----CARD 60--- Cooling Load Assignment----------

Load Asgn Ref	All Coil Loads To Cool Ref	Cooling Equipment Sizing	Group 1 Begin	Group 1 End	Group 2 Begin	Group 2 End	Group 3 Begin	Group 3 End	Group 4 Begin	Group 4 End	Group 5 Begin	Group 5 End	Group 6 Begin	Group 6 End	Group 7 Begin	Group 7 End	Group 8 Begin	Group 8 End	Group 9 Begin	Group 9 End
1	1		1	1	3	3	4	4	6	6	7	7								
2	2		1	1	3	3	4	4	6	6	7	7								
3	3		2	2																

-----CARD 62-- Cooling Equipment Parameters ----------

Cool Equip Ref Num	Equip Code Name	Num Of Units	COOLING Capacity Value	COOLING Capacity Units	COOLING Energy Value	COOLING Energy Units	HEAT RECOVERY Capacity Value	HEAT RECOVERY Capacity Units	HEAT RECOVERY Energy Value	HEAT RECOVERY Energy Units	Seq Order Num	Seq Type	Demand Limit Number
1	EQ1100L	1	95	TONS							1	PAR	
2	EQ1100L	1	95	TONS							2	PAR	

-----CARD 62-- Cooling Equipment Parameters ----------

Cool Ref Num	Equip Code Name	Num Of Units	COOLING Capacity Value	COOLING Capacity Units	COOLING Energy Value	COOLING Energy Units	HEAT RECOVERY Capacity Value	HEAT RECOVERY Capacity Units	HEAT RECOVERY Energy Value	HEAT RECOVERY Energy Units	Seq Order Num	Seq Type	Demand Limit Number
3	EQ1161	1	10	TONS									

-----CARD 63-- Cooling Pumps and References ----------

Cool Ref Num	CHILLED WATER Full Load Value	CHILLED WATER Full Load Units	CONDENSER Full Load Value	CONDENSER Full Load Units	HT REC or AUX Full Load Value	HT REC or AUX Full Load Units	Switch-over Control	Cold Storage	Cooling Tower	Misc. Access.
1	124	FT-WATER								

-----CARD 65-- Heating Load Assignment ----------

Load Assignment Reference	All Coil Loads To Heating Ref	Group 1 Begin	Group 1 End	Group 2 Begin	Group 2 End	Group 3 Begin	Group 3 End	Group 4 Begin	Group 4 End	Group 5 Begin	Group 5 End	Group 6 Begin	Group 6 End	Group 7 Begin	Group 7 End	Group 8 Begin	Group 8 End	Group 9 Begin	Group 9 End
1	1	1	1	3	3	4	4	5	5	6	6	7	7						
2	2	1	1	3	3	4	4	5	5	6	6	7	7						

-----CARD 67-- Heating Equipment Parameters ----------

Heat Ref Number	Equip Code Name	Number Of Units	HW Pmp Full Ld Value	HW Pmp Full Ld Units	Cap'y Value	Cap'y Units	Energy Rate Value	Energy Rate Units	Seq Order Number	Switch over Control	Hot Strg	Misc. Acc.	Cogen	Demand Limit Number
1	EQ2001	1	3.73	KW	2400	MBH	80	PCTEFF	1					
2	EQ2001	1	3.73	KW	2400	MBH	80	PCTEFF	2					

-----CARD 69-- Fan Equipment Parameters ----------

System Set Number	Cooling Fan	Heating Fan	Return Fan	Exhaust Fan	Auxiliary Supply	Room Exhaust	Optional Ventilation
1	EQ4002				EQ4003		
2	EQ4003						
3	EQ4002						
4	EQ4002				EQ4003		
5	EQ4002						
6	EQ4002				EQ4003		
7	EQ4002						

-----CARD 70-- Fan Equipment KW Overrides ----------

System Set Number	MAIN SYSTEM Cool Fan KW	MAIN SYSTEM Heat Fan KW	MAIN SYSTEM Ret Fan KW	MAIN SYSTEM Exh Fan KW	OTHER SYSTEM Aux Sup KW	OTHER SYSTEM Room Exh KW	OTHER SYSTEM Opt Vent KW	DEMAND LIMIT PRIORITY Cool Fan	DEMAND LIMIT PRIORITY Heat Fan	DEMAND LIMIT PRIORITY Aux	DEMAND LIMIT PRIORITY Room Exh Fan	DEMAND LIMIT PRIORITY Opt Vent Fan
1	13.055				2.66							

-----CARD 70-- Fan Equipment KW Overrides ----------

System Set Number	-----MAIN SYSTEM----- Cool Fan KW	Heat Fan KW	Ret Fan KW	Exh Fan KW	--OTHER SYSTEM-- Aux Sup KW	Room Exh KW	Opt Vent KW	----DEMAND LIMIT PRIORITY--- Cool Fan	Heat Fan	Aux Fan	Room Exh Fan	Opt Vent Fan
2	3.73											
3	7.46											
4	11.19				1.306							
5	5.595											
6	9.325				.433							
7	7.46											

---------- Load Section Alternative #2 ----------

---- Load Alternative ----

Number	Description
2	BLDG 2100 NIGHT SETBACK FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	ADMIN OFFICES	187.16	100	2	0		12			
2	2	COMPUTER ROOM	86.1	10	2	0		12			
3	3	ASSEMBLY HALL	100	76.67	2	0		18.9			
4	4	MEDICAL CLINIC	100	141.42	2	0		12			
5	5	CLOTHING ISSUE	100	126.8	2			20			
6	6	OFFICES-STORE	100	132.22	2	0		12			
7	7	CHAPEL-AUDTRM	100	75.01	2	0		17.7			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	75			CSB75SUM	70		HSB70WNT	ROOM	MED70	NO
1										YES
2				CLG75			HTGOFF			
3										
4										YES
5										
6										YES

Utility Description Reference Table

Schedules:

AVAIL AVAILABLE (100%)
CDDC78SM CLG DDC T-STAT AT 78 (MAY THRU SEPT)
CLG75 COOLING TSTAT SCHEDULE - 75
CLG75SUM COOLING TSTAT AT 75 (MAY THRU SEPT)
CSB75SUM COOLING SB TSTAT AT 75 (MAY THRU SEPT)
E2100Z1 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 1
E2100Z2 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 2
E2100Z4 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 4
E2100Z5 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 5
E2100Z6 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 6
E2100Z7 EQUIPMENT SCHEDULE - BLDG 2100 ZONE 7
FL-INSHD INTERNAL SHADING: VENITIAN BLINDS
FLCCOIL COOLING COIL SCHEDULE - MAY THRU SEPT
FLHCOIL HEATING COIL SCHEDULE - OCT THRU APR
HDDC68WT HEATING DDC T-STAT AT 68 (OCT TO APR)
HSB70WNT HEATING SB T-STAT AT 70 (OCT TO APR)
HTG70WNT HEATING T-STAT AT 70 (OCT TO APR)
HTGOFF HEATING ALWAYS OFF
L2100 LIGHTING SCHEDULE - BLDG 2100 ZONE 8
L2100Z3 LIGHTING SCHEDULE - BLDG 2100 ZONE 3
L2100Z7 LIGHTING SCHEDULE - BLDG 2100 ZONE 7
OFF ALWAYS OFF
P2100 PEOPLE SCHEDULE - BLDG 2100 ZONE 8
P2100Z7 PEOPLE SCHEDULE - BLDG 2100 ZONE 7

System:

PTAC PACKAGED TERMINAL AIR COND.
SZ SINGLE ZONE
VAVFSK VAV WITH FORCED FLO SKIN

Equipment:

Cooling:

EQ1100L AIR-CLD RECIP >45 TONS
EQ1161 AIR-CLD COND COMP <15 TONS

Heating:

EQ2001 GAS FIRE TUBE HOT WATER

Fan:

EQ4002 BI CENTRIF. FAN C.V.
EQ4003 FC CENTRIF. FAN C.V.

Schedule Name: AVAIL
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: CDDC78SM
Project: CLG DDC T-STAT AT 78 (MAY THRU
Location:
Client:
Program User:
Comments: CLG DDC T-STAT AT 78 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	78
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CLG75
Project: COOLING TSTAT SCHEDULE - 75
Location:
Client:
Program User:
Comments: COOLING THERMOSTAT - SET AT 75

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Schedule Name: CLG75SUM
Project: COOLING TSTAT AT 75 (MAY THRU S
Location:
Client:
Program User:
Comments: COOLING TSTAT AT 75 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CSB75SUM
Project: COOLING SB TSTAT AT 75 (MAY THR
Location:
Client:
Program User:
Comments: COOLING SB TSTAT AT 75 (MAY TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	75
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: E2100Z1
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 1

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	4
7	100
16	60
17	4
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	4
24	

Schedule Name: E2100Z2
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 2

Starting Month: JAN **Ending Month:** DEC
Starting Day Type: DSGN **Ending Day Type:** WKDY

Hour	Util Percent
0	70
7	100
16	90
17	70
24	

Starting Month: JAN **Ending Month:** DEC
Starting Day Type: SAT **Ending Day Type:** SUN

Hour	Util Percent
0	70
24	

Schedule Name: E2100Z4
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 4

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	80
16	40
17	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: E2100Z5
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 5

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	80
16	50
17	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: E2100Z6
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 6

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	90
11	70
13	90
16	70
17	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: E2100Z7
Project: EQUIPMENT SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - ZONE 7

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
16	50
17	80
21	50
22	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: FL-INSHD
Project: INTERNAL SHADING: VENITIAN BLIN
Location: FT LEONARD WOOD
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: INTERNAL SHADING SCHEDULE

Starting Month: JAN Ending Month: APR
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	25
24	

Schedule Name: FLCCOIL
Project: COOLING COIL SCHEDULE - MAY THR
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: COOLING COIL SCHEDULE - MAY TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: FLHCOIL
Project: HEATING COIL SCHEDULE - OCT THR
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: HEATING COIL SCHEDULE - OCT TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: HDDC68WT
Project: HEATING DDC T-STAT AT 68 (OCT T
Location:
Client:
Program User:
Comments: HEATING DDC T-STAT AT 68 (OCT

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Schedule Name: HSB70WNT
Project: HEATING SB T-STAT AT 70 (OCT TO
Location:
Client:
Program User:
Comments: HEATING SB T-STAT AT 70 (OCT T

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Schedule Name: HTG70WNT
Project: HEATING T-STAT AT 70 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 70 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Schedule Name: HTGOFF
Project: HEATING ALWAYS OFF
Location:
Client:
Program User:
Comments: HEATING ALWAYS OFF

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	0
24	

Schedule Name: L2100
Project: LIGHTING SCHEDULE - BLDG 2100 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - DINING FAC

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
6	100
9	50
11	100
14	50
16	100
19	10
24	

Schedule Name: L2100Z3
Project: LIGHTING SCHEDULE - BLDG 2100 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - ZONE 3

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
11	100
13	100
16	60
17	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: L2100Z7
Project: LIGHTING SCHEDULE - BLDG 2100 Z
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - AUDITORIUM

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SAT

Hour	Util Percent
0	10
16	20
21	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SUN Ending Day Type: SUN

Hour	Util Percent
0	10
10	100
12	10
16	20
21	10
24	

Schedule Name: OFF
Project: ALWAYS OFF
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: DTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P2100
Project: PEOPLE SCHEDULE - BLDG 2100 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - DINING FACIL

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
6	20
7	100
8	50
9	20
11	50
12	100
13	50
14	20
17	100
18	50
19	0
24	

Schedule Name: P2100Z7
Project: PEOPLE SCHEDULE - BLDG 2100 ZON
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - AUDITORIUM

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SAT

Hour	Util Percent
0	0
16	10
17	100
19	60
21	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SUN Ending Day Type: SUN

Hour	Util Percent
0	0
10	100
12	0
16	10
17	100
19	60
21	0
24	

****
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**
** TRACE 600 ANALYSIS **
**
** by **
**
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EEAP STUDY, EXPANSION OF EMCS
FT. LEONARD WOOD, MO
US ARMY
E M C ENGINEERS, INC.

Weather File Code:	SPRINGFM	
Location:	SPRINGFIELD, MISSOURI	
Latitude:	37.0	(deg)
Longitude:	93.0	(deg)
Time Zone:	6	
Elevation:	1,265	(ft)
Barometric Pressure:	28.5	(in. Hg)
Summer Clearness Number:	0.97	
Winter Clearness Number:	0.97	
Summer Design Dry Bulb:	94	(F)
Summer Design Wet Bulb:	78	(F)
Winter Design Dry Bulb:	3	(F)
Summer Ground Relectance:	0.20	
Winter Ground Relectance:	0.20	
Air Density:	0.0724	(Lbm/cuft)
Air Specific Heat:	0.2444	(Btu/lbm/F)
Density-Specific Heat Prod:	1.0621	(Btu-min./hr/cuft/F)
Latent Heat Factor:	4,675.1	(Btu-min./hr/cuft)
Enthalpy Factor:	4.3449	(Lb-min./hr/cuft)

Design Simulation Period: May To September
System Simulation Period: January To December
Cooling Load Methodology: TETD/Time Averaging

Time/Date Program was Run: 13:29:13 3/17/93
Dataset Name: 2100 .TM

AIRFLOW - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Airflow Quantities)

System Number	System Type	Main: Outside Airflow (Cfm)	Main: Cooling Airflow (Cfm)	Main: Heating Airflow (Cfm)	Main: Return Airflow (Cfm)	Main: Exhaust Airflow (Cfm)	Auxil. Supply Airflow (Cfm)	Room Exhaust Airflow (Cfm)
1	VAVFSK	1,260	12,530	0	13,493	12,530	12,870	0
2	PTAC	0	5,600	0	5,680	80	0	0
3	SZ	770	7,670	7,670	8,115	7,670	0	0
4	VAVFSK	1,270	10,740	0	11,404	10,740	3,240	0
5	SZ	770	0	7,710	8,372	1,432	0	0
6	VAVFSK	700	5,032	0	5,309	5,032	1,980	0
7	SZ	2,400	12,000	12,000	12,740	3,140	0	0
Totals		7,170	53,572	27,380	65,113	40,624	18,090	0

CAPACITY - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Capacity Quantities)

System Number	System Type	Cooling: Main Sys. Capacity (Tons)	Cooling: Aux. Sys. Capacity (Tons)	Cooling: Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Heating: Main Sys. Capacity (Btuh)	Heating: Aux. Sys. Capacity (Btuh)	Heating: Preheat Capacity (Btuh)	Heating: Reheat Capacity (Btuh)	Heating: Humidif. Capacity (Btuh)	Heating: Opt. Vent Capacity (Btuh)	Heating Totals (Btuh)
1	VAVFSK	44.7	0.0	0.0	44.7	0	-244,800	-159,900	0	0	0	-404,700
2	PTAC	10.2	0.0	0.0	10.2	0	0	-376,259	0	0	0	0
3	SZ	30.9	0.0	0.0	30.9	-319,200	0	0	0	0	0	-319,200
4	VAVFSK	45.0	0.0	0.0	45.0	0	-275,700	-317,300	0	0	0	-593,000
5	SZ	0.0	0.0	0.0	0.0	-397,200	0	0	0	0	0	-397,200
6	VAVFSK	21.8	0.0	0.0	21.8	0	-111,300	-183,600	0	0	0	-294,900
7	SZ	46.9	0.0	0.0	46.9	-438,800	0	-136,938	0	0	0	-438,800
Totals		199.5	0.0	0.0	199.5	-1,155,200	-631,800	-1,173,998	0	0	0	-2,447,800

The building peaked at hour 15 month 7 with a capacity of 125.7 tons

ENGINEERING CHECKS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- E N G I N E E R I N G C H E C K S ----------

System Number	Main/ Auxiliary	System Type	Percent Outside Air	Cooling Cfm/ Sq Ft	Cooling Cfm/ Ton	Cooling Sq Ft /Ton	Cooling Btuh/ Sq Ft	Heating Cfm/ Sq Ft	Heating Btuh/ Sq Ft	Floor Area Sq Ft
1	Main	VAVFSK	10.06	0.67	280.6	419.1	28.63	0.00	-8.54	18,716
1	Auxiliary	VAVFSK	0.00	0.69	0.0	0.0	0.00	0.00	-13.08	18,716
2	Main	PTAC	0.00	6.50	548.1	84.3	142.39	0.00	0.00	861
3	Main	SZ	10.04	1.00	247.9	247.8	48.43	1.00	-41.63	7,667
4	Main	VAVFSK	11.82	0.76	238.7	314.3	38.18	0.00	-22.44	14,142
4	Auxiliary	VAVFSK	0.00	0.23	0.0	0.0	0.00	0.00	-19.50	14,142
5	Main	SZ	9.99	0.00	0.0	0.0	0.00	0.61	-31.32	12,680
6	Main	VAVFSK	13.91	0.38	230.7	606.1	19.80	0.00	-13.89	13,222
6	Auxiliary	VAVFSK	0.00	0.15	0.0	0.0	0.00	0.00	-8.42	13,222
7	Main	SZ	20.00	1.60	256.0	160.0	75.00	1.60	-58.50	7,501

System 1 Block VAVFSK - VAV WITH FORCED FLO SKIN

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15		Mo/Hr: 0/ 0		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94		OADB: 0		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percn Of To (%
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.0
Roof Cond	38,808	0		38,808	7.60	38,808	18.15	0	0	0.0
Glass Solar	24,812	0		24,812	4.86	24,812	11.60	0	0	0.0
Glass Cond	7,032	0		7,032	1.38	7,032	3.29	0	0	0.0
Wall Cond	10,402	0		10,402	2.04	10,402	4.87	0	0	0.0
Partition	0			0	0.00	0	0.00	0	0	0.0
Exposed Floor	0			0	0.00	0	0.00	0	0	0.0
Infiltration	55,376			55,376	10.85	19,433	9.09	0	0	0.0
Sub Total==>	136,430	0		136,430	26.74	100,486	47.00	0	0	0.0
Internal Loads										
Lights	81,309	0		81,309	15.93	81,309	38.03	0	0	0.0
People	47,880			47,880	9.38	25,480	11.92	0	0	0.0
Misc	130,052	0	0	130,052	25.49	130,052	60.83	0	0	0.0
Sub Total==>	259,241	0	0	259,241	50.80	236,841	110.77	0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.0
Outside Air	0	0	0	72,455	14.20	0	0.00	0	0	0.0
Sup. Fan Heat				42,174	8.26		0.00		0	0.0
Ret. Fan Heat		0		0	0.00		0.00		0	0.0
Duct Heat Pkup		0		0	0.00		0.00		0	0.0
OV/UNDR Sizing	0			0	0.00	-123,523	-57.77	0	0	0.0
Exhaust Heat		0	0	0	0.00		0.00		0	0.0
Terminal Bypass		0	0	0	-0.00		0.00		0	0.0
Grand Total==>	395,670	0	0	510,299	100.00	213,804	100.00	0	0	0.0

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains
Main Clg	44.7	535.9	425.2	19,769	76.2	63.5	71.7	56.9	54.3	61.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	44.7	535.9								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	18,716		
Part	11,076		
ExFlr	627		
Roof	18,716	0	
Wall	8,162	636	

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-244.8	12,870	62.9	80.8
Preheat	-159.9	1,260	3.0	56.9
Reheat	-0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-404.7			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	1,260	0
Infil	963	0
Supply	12,530	0
Mincfm	0	0
Return	19,769	0
Exhaust	1,260	0
Rm Exh	0	0
Auxil	0	12,870

ENGINEERING CHECKS

Clg % OA	10.1
Clg Cfm/Sqft	0.67
Clg Cfm/Ton	280.57
Clg Sqft/Ton	419.09
Clg Btuh/Sqft	28.63
No. People	112
Htg % OA	0.0
Htg Cfm/SqFt	0.00
Htg Btuh/SqFt	-8.54

TEMPERATURES (F)

Type	Clg	Htg
SADB	58.9	0.
Plenum	75.0	0.
Return	75.0	0.
Ret/OA	76.2	0.
Runarnd	75.0	0.
Fn MtrTD	0.7	0.
Fn BldTD	0.5	0.
Fn Frict	1.5	0.

System 2 Peak PTAC - PACKAGED TERMINAL AIR COND.

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 9/15					Mo/Hr: 9/15		Mo/Hr: 0/ 0	
Outside Air ==>	OADB/WB/HR: 83/ 70/ 94.8					OADB: 83		OADB: 0	
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percn Of To (%
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.0
Roof Cond	1,261	0		1,261	1.74	1,261	1.86	0	0	0.0
Glass Solar	10,440	0		10,440	14.41	10,440	15.39	0	0	0.0
Glass Cond	507	0		507	0.70	507	0.75	0	0	0.0
Wall Cond	564	0		564	0.78	564	0.83	0	0	0.0
Partition	0			0	0.00	0	0.00	0	0	0.0
Exposed Floor	0			0	0.00	0	0.00	0	0	0.0
Infiltration	1,803			1,803	2.49	670	0.99	0	0	0.0
Sub Total==>	14,575	0		14,575	20.11	13,441	19.82	0	0	0.0
Internal Loads										
Lights	3,893	0		3,893	5.37	3,893	5.74	0	0	0.0
People	2,922			2,922	4.03	1,392	2.05	0	0	0.0
Misc	49,093	0	0	49,093	67.74	49,093	72.39	0	0	0.0
Sub Total==>	55,908	0	0	55,908	77.14	54,378	80.18	0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.0
Outside Air	0	0	0	0	0.00	0	0.00	0	0	0.0
Sup. Fan Heat				1,991	2.75		0.00		0	0.0
Ret. Fan Heat		0		0	0.00		0.00		0	0.0
Duct Heat Pkup		0		0	0.00		0.00		0	0.0
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.0
Exhaust Heat		0	0	0	0.00		0.00		0	0.0
Terminal Bypass		0	0	0	0.00		0.00		0	0.0
Grand Total==>	70,484	0	0	72,475	100.00	67,820	100.00	0	0	0.0

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains
Main Clg	10.2	122.6	118.1	5,600	75.1	63.4	73.2	63.4	56.2	59.3
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	10.2	122.6								

AREAS

Gross Total	Glass (sf)	(%)
Floor 861		
Part 501		
ExFlr 62		
Roof 861	0	
Wall 868	120	1

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-0.0	0	0.0	0.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-376.3	5,600	0.0	63.3
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	0.0			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	0
Infil	80	0
Supply	5,600	0
Mincfm	0	0
Return	5,600	0
Exhaust	0	0
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	6.50
Clg Cfm/Ton	548.12
Clg Sqft/Ton	84.27
Clg Btuh/Sqft	142.39
No. People	6
Htg % OA	0.0
Htg Cfm/SqFt	0.00
Htg Btuh/SqFt	0.00

TEMPERATURES (F)

Type	Clg	Htg
SADB	63.6	0.
Plenum	75.0	0.
Return	75.0	0.
Ret/OA	75.0	0.
Runarnd	75.0	0.
Fn MtrTD	0.1	0.
Fn BldTD	0.1	0.
Fn Frict	0.2	0.

System 3 Peak SZ - SINGLE ZONE

********** COOLING COIL PEAK **********						CLG SPACE PEAK **********			HEATING COIL PEAK *******		
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94			OADB: 3		
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot	Space Peak Space Sens	Coil Peak Tot Sens	Percn Of To
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)	(Btuh)	(Btuh)	(%
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.0
Roof Cond	16,756	0		16,756	6.93	16,756	11.47	-15,701	-15,701	11.2
Glass Solar	28,392	0		28,392	11.74	28,392	19.44	0	0	0.0
Glass Cond	8,047	0		8,047	3.33	8,047	5.51	-31,917	-31,917	22.7
Wall Cond	3,786	0		3,786	1.57	3,786	2.59	-17,496	-17,496	12.4
Partition	0			0	0.00	0	0.00	0	0	0.0
Exposed Floor	0			0	0.00	0	0.00	-890	-890	0.6
Infiltration	24,790			24,790	10.25	8,980	6.15	-31,666	-31,666	22.5
Sub Total==>	81,771	0		81,771	33.82	65,961	45.16	-97,670	-97,670	69.6
Internal Loads										
Lights	52,902	0		52,902	21.88	52,902	36.22	0	0	0.0
People	51,909			51,909	21.47	27,209	18.63	0	0	0.0
Misc	0	0	0	0	0.00	0	0.00	0	0	0.0
Sub Total==>	104,810	0	0	104,810	43.36	80,111	54.84	0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.0
Outside Air	0	0	0	42,894	17.74	0	0.00	0	-54,792	39.0
Sup. Fan Heat				12,272	5.08		0.00		12,272	-8.7
Ret. Fan Heat		0		0	0.00		0.00		0	0.0
Duct Heat Pkup		0		0	0.00		0.00		0	0.0
OV/UNDR Sizing	0			0	-0.00	0	-0.00	0	0	-0.0
Exhaust Heat		0	0	0	0.00		0.00		0	0.0
Terminal Bypass		0	0	0	0.00		0.00		0	0.0
Grand Total==>	186,582	0	0	241,748	100.00	146,072	100.00	-97,670	-140,190	100.0

----------COOLING COIL SELECTION----------

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering HR Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving HR Grains
Main Clg	30.9	371.3	267.1	7,670	76.9	64.6	76.2	55.6	47.4	38.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	30.9	371.3								

----------AREAS----------

	Gross Total	Glass (sf)	(%)
Floor	7,667		
Part	7,340		
ExFlr	16		
Roof	8,081	0	
Wall	3,510	728	2

----------HEATING COIL SELECTION----------

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-319.2	7,670	41.3	80.5
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	7,670	63.3	55.6
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-319.2			

--------AIRFLOWS (cfm)--------

Type	Cooling	Heating
Vent	770	770
Infil	445	445
Supply	7,670	7,670
Mincfm	0	0
Return	7,670	7,670
Exhaust	770	770
Rm Exh	0	0
Auxil	0	0

--ENGINEERING CHECKS--

Clg % OA	10.0
Clg Cfm/Sqft	1.00
Clg Cfm/Ton	247.89
Clg Sqft/Ton	247.79
Clg Btuh/Sqft	48.43
No. People	130
Htg % OA	10.0
Htg Cfm/SqFt	1.00
Htg Btuh/SqFt	-41.63

--TEMPERATURES (F)--

Type	Clg	Htg
SADB	57.1	82.
Plenum	75.0	70.
Return	75.0	70.
Ret/OA	76.9	63.
Runarnd	75.0	70.
Fn MtrTD	0.5	0.
Fn BldTD	0.4	0.
Fn Frict	1.1	0.

System 4 Block VAVFSK - VAV WITH FORCED FLO SKIN

	COOLING COIL PEAK						CLG SPACE PEAK			HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 7/15						Mo/Hr: 9/15			Mo/Hr: 0/ 0	
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0						OADB: 83			OADB: 0	
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot		Space Sensible	Percnt Of Tot		Space Peak Space Sens	Coil Peak Tot Sens	Percn Of To
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)		(Btuh)	(%)		(Btuh)	(Btuh)	(%
Skylite Solr	0	0		0	0.00		0	0.00		0	0	0.0
Skylite Cond	0	0		0	0.00		0	0.00		0	0	0.0
Roof Cond	29,417	0		29,417	8.65		20,777	10.98		0	0	0.0
Glass Solar	32,296	0		32,296	9.50		57,082	30.18		0	0	0.0
Glass Cond	8,302	0		8,302	2.44		3,172	1.68		0	0	0.0
Wall Cond	7,396	0		7,396	2.17		5,224	2.76		0	0	0.0
Partition	0			0	0.00		0	0.00		0	0	0.0
Exposed Floor	0			0	0.00		0	0.00		0	0	0.0
Infiltration	38,183			38,183	11.23		5,557	2.94		0	0	0.0
Sub Total==>	115,594	0		115,594	33.99		91,811	48.54		0	0	0.0
Internal Loads												
Lights	48,465	0		48,465	14.25		48,465	25.62		0	0	0.0
People	53,905			53,905	15.85		28,256	14.94		0	0	0.0
Misc	20,632	0	0	20,632	6.07		20,632	10.91		0	0	0.0
Sub Total==>	123,002	0	0	123,002	36.16		97,352	51.46		0	0	0.0
Ceiling Load	0	0		0	0.00		0	0.00		0	0	0.0
Outside Air	0	0	0	73,030	21.47		0	0.00		0	0	0.0
Sup. Fan Heat				28,489	8.38			0.00			0	0.0
Ret. Fan Heat		0		0	0.00			0.00			0	0.0
Duct Heat Pkup		0		0	0.00			0.00			0	0.0
OV/UNDR Sizing	0			0	0.00		0	0.00		0	0	0.0
Exhaust Heat		0	0	0	0.00			0.00			0	0.0
Terminal Bypass		0	0	0	-0.00			0.00			0	0.0
Grand Total==>	238,596	0	0	340,115	100.00		189,163	100.00		0	0	0.0

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	WB Deg F	HR Grains	Leaving DB Deg F	WB Deg F	HR Grains
Main Clg	45.0	539.9	384.6	10,683	77.3	64.5	74.8	55.9	46.3	33.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	45.0	539.9								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	14,142		
Part	9,258		
ExFlr	219		
Roof	14,187	0	
Wall	5,706	751	1

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-275.7	3,240	20.0	100.1
Preheat	-317.3	1,270	3.0	55.9
Reheat	-0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-593.0			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	1,270	0
Infil	664	0
Supply	10,740	0
Mincfm	0	0
Return	10,740	0
Exhaust	1,270	0
Rm Exh	0	0
Auxil	0	3,240

ENGINEERING CHECKS

Clg % OA	11.8
Clg Cfm/Sqft	0.76
Clg Cfm/Ton	238.71
Clg Sqft/Ton	314.32
Clg Btuh/Sqft	38.18
No. People	135
Htg % OA	0.0
Htg Cfm/SqFt	0.00
Htg Btuh/SqFt	-22.44

TEMPERATURES (F)

Type	Clg	Htg
SADB	58.4	0.
Plenum	75.0	0.
Return	75.0	0.
Ret/OA	77.3	0.
Runarnd	75.0	0.
Fn MtrTD	0.8	0.
Fn BldTD	0.6	0.
Fn Frict	1.9	0.

System 5 Peak SZ - SINGLE ZONE

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 0/ 0					Mo/Hr: 0/ 0			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0					OADB: 0			OADB: 3		
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot		Space Peak Space Sens	Coil Peak Tot Sens	Percn Of To
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)		(Btuh)	(Btuh)	(%
Skylite Solr	0	0		0	0.00	0	0.00		0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00		0	0	0.0
Roof Cond	0	0		0	0.00	0	0.00		0	-22,251	12.9
Glass Solar	0	0		0	0.00	0	0.00		0	0	0.0
Glass Cond	0	0		0	0.00	0	0.00		-2,386	-2,386	1.3
Wall Cond	0	0		0	0.00	0	0.00		-37,662	-41,484	24.1
Partition	0			0	0.00	0	0.00		0	0	0.0
Exposed Floor	0			0	0.00	0	0.00		-11,066	-11,066	6.4
Infiltration	0			0	0.00	0	0.00		-47,107	-47,107	27.4
Sub Total==>	0	0		0	0.00	0	0.00		-98,222	-124,294	72.4
Internal Loads											
Lights	0	0		0	0.00	0	0.00		0	0	0.0
People	0			0	0.00	0	0.00		0	0	0.0
Misc	0	0	0	0	0.00	0	0.00		0	0	0.0
Sub Total==>	0	0	0	0	0.00	0	0.00		0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00		-26,073	0	0.0
Outside Air	0	0	0	0	0.00	0	0.00		0	-54,792	31.9
Sup. Fan Heat				0	0.00		0.00			7,402	-4.3
Ret. Fan Heat		0		0	0.00		0.00			0	0.0
Duct Heat Pkup		0		0	0.00		0.00			0	0.0
OV/UNDR Sizing	0			0	0.00	0	0.00		0	0	-0.0
Exhaust Heat		0	0	0	0.00		0.00			0	0.0
Terminal Bypass		0	0	0	0.00		0.00			0	0.0
Grand Total==>	0	0	0	0	0.00	0	0.00		-124,294	-171,685	100.0

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	12,680		
Part	5,875		
ExFlr	199		
Roof	12,680		0
Wall	5,442		54

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-397.2	7,710	35.8	84.3
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	7,710	63.3	-0.9
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-397.2			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	770
Infil	0	662
Supply	0	7,710
Mincfm	0	0
Return	0	7,710
Exhaust	0	770
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	10.0
Htg Cfm/SqFt	0.61
Htg Btuh/SqFt	-31.32

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	85.
Plenum	0.0	63.
Return	0.0	70.
Ret/OA	0.0	63.
Runarnd	0.0	70.
Fn MtrTD	0.3	0.
Fn BldTD	0.2	0.
Fn Frict	0.7	0.

System 6 Block VAVFSK - VAV WITH FORCED FLO SKIN

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15		Mo/Hr: 0/ 0		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94		OADB: 0		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percn Of To (%
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.0
Roof Cond	20,501	0		20,501	13.10	20,501	22.51	0	0	0.0
Glass Solar	1,326	0		1,326	0.85	1,326	1.46	0	0	0.0
Glass Cond	666	0		666	0.43	666	0.73	0	0	0.0
Wall Cond	3,929	0		3,929	2.51	3,929	4.31	0	0	0.0
Partition	0			0	0.00	0	0.00	0	0	0.0
Exposed Floor	0			0	0.00	0	0.00	0	0	0.0
Infiltration	15,929			15,929	10.18	5,590	6.14	0	0	0.0
Sub Total==>	42,351	0		42,351	27.07	32,012	35.15	0	0	0.0
Internal Loads										
Lights	42,376	0		42,376	27.08	42,376	46.53	0	0	0.0
People	9,175			9,175	5.86	4,300	4.72	0	0	0.0
Misc	12,378	0	0	12,378	7.91	12,378	13.59	0	0	0.0
Sub Total==>	63,929	0	0	63,929	40.86	59,054	64.85	0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.0
Outside Air	0	0	0	40,253	25.73	0	0.00	0	0	0.0
Sup. Fan Heat				9,930	6.35		0.00		0	0.0
Ret. Fan Heat		0		0	0.00		0.00		0	0.0
Duct Heat Pkup		0		0	0.00		0.00		0	0.0
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.0
Exhaust Heat		0	0	0	0.00		0.00		0	0.0
Terminal Bypass		0	0	0	-0.00		0.00		0	0.0
Grand Total==>	106,279	0	0	156,462	100.00	91,066	100.00	0	0	0.0

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains
Main Clg	21.8	261.8	192.6	5,032	77.6	64.8	75.9	56.1	46.1	32.7
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	21.8	261.8								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	13,222		
Part	7,668		
ExFlr	132		
Roof	9,887	0	
Wall	2,226	60	

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	0.0	0	0.0	0.0
Aux Htg	-111.3	1,980	38.1	91.0
Preheat	-183.6	700	3.0	56.1
Reheat	-0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-294.9			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	700	0
Infil	277	0
Supply	5,032	0
Mincfm	0	0
Return	5,032	0
Exhaust	700	0
Rm Exh	0	0
Auxil	0	1,980

ENGINEERING CHECKS

Clg % OA	13.9
Clg Cfm/Sqft	0.38
Clg Cfm/Ton	230.65
Clg Sqft/Ton	606.05
Clg Btuh/Sqft	19.80
No. People	15
Htg % OA	0.0
Htg Cfm/SqFt	0.00
Htg Btuh/SqFt	-13.89

TEMPERATURES (F)

Type	Clg	Htg
SADB	58.0	0.
Plenum	75.0	0.
Return	75.0	0.
Ret/OA	77.6	0.
Runarnd	75.0	0.
Fn MtrTD	0.6	0.
Fn BldTD	0.5	0.
Fn Frict	1.4	0.

System 7 Peak SZ - SINGLE ZONE

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 7/16					Mo/Hr: 7/18			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 93/ 77/124.1					OADB: 89			OADB: 3		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percn Of To (%
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.0
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.0
Roof Cond	17,412	0		17,412	9.27	16,003	19.62	-15,472	-15,472	5.3
Glass Solar	9,098	0		9,098	4.85	8,702	10.67	0	0	0.0
Glass Cond	4,471	0		4,471	2.38	3,930	4.82	-17,342	-17,342	5.9
Wall Cond	10,713	0		10,713	5.71	13,870	17.00	-37,777	-37,777	12.9
Partition	0			0	0.00	0	0.00	0	0	0.0
Exposed Floor	0			0	0.00	0	0.00	-12,902	-12,902	4.4
Infiltration	27,574			27,574	14.69	11,219	13.75	-52,658	-52,658	18.1
Sub Total==>	69,268	0		69,268	36.89	53,725	65.87	-136,150	-136,150	46.8
Internal Loads										
Lights	6,881	0		6,881	3.66	7,741	9.49	0	0	0.0
People	1,680			1,680	0.89	10,395	12.74	0	0	0.0
Misc	4,134	0	0	4,134	2.20	9,340	11.45	0	0	0.0
Sub Total==>	12,695	0	0	12,695	6.76	27,476	33.69	0	0	0.0
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.0
Outside Air	0	0	0	89,430	47.63	0	0.00	0	-170,781	58.7
Sup. Fan Heat				16,000	8.52		0.00		16,000	-5.5
Ret. Fan Heat		0		0	0.00		0.00		0	0.0
Duct Heat Pkup		0		0	0.00		0.00		0	0.0
OV/UNDR Sizing	366			366	0.19	366	0.45	0	0	-0.0
Exhaust Heat		0	0	0	0.00		0.00		0	0.0
Terminal Bypass		0	0	0	0.00		0.00		0	0.0
Grand Total==>	82,328	0	0	187,758	100.00	81,567	100.00	-136,150	-290,931	100.0

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	46.9	562.6	392.0	12,000	78.7	70.1	102.8	67.3	55.8	51.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	46.9	562.6								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	7,501		
Part	9,162		
ExFlr	232		
Roof	7,963	0	
Wall	6,222	396	

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-438.8	12,000	45.0	79.4
Aux Htg	0.0	0	0.0	0.0
Preheat	-136.9	12,000	56.6	67.3
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-438.8			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	2,400	2,400
Infil	740	740
Supply	12,000	12,000
Mincfm	0	0
Return	12,000	12,000
Exhaust	2,400	2,400
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	20.0
Clg Cfm/Sqft	1.60
Clg Cfm/Ton	255.95
Clg Sqft/Ton	159.99
Clg Btuh/Sqft	75.00
No. People	75
Htg % OA	20.0
Htg Cfm/SqFt	1.60
Htg Btuh/SqFt	-58.50

TEMPERATURES (F)

Type	Clg	Htg
SADB	68.6	80.
Plenum	75.0	70.
Return	75.0	70.
Ret/OA	78.7	56.
Runarnd	75.0	70.
Fn MtrTD	0.4	0.
Fn BldTD	0.3	0.
Fn Frict	0.9	0.

MAIN SYSTEM COOLING - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

P E A K C O O L I N G L O A D S
(Main System)

Room Number	Description	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Space Lat. Load (Btuh)	Peak Time Mo/Hr	OA Cond. DB/WB (F)	Rm Dry Blb (F)	Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)	Coil Lat. Load (Btuh)
1	ADMIN OFFICES	7/15	94	78	75 58.9	12,530	213,804	58,344	7/15	94	78	75 58.9	19,769	404,927	105,373
Zone 1	Total/Ave.		94	78	75 58.9	12,530	213,804	58,344		94	78	75 58.9	19,769	404,927	105,373
Zone 1	Block	7/15	94	78	75 58.9	12,530	213,804	58,344	7/15	94	78	75 58.9	19,769	404,927	105,373
System 1	Total/Ave.		94	78	75 58.9	12,530	213,804	58,344		94	78	75 58.9	19,769	404,927	105,373
System 1	Block	7/15	94	78	75 58.9	12,530	213,804	58,344	7/15	94	78	75 58.9	19,769	404,927	105,373
2	COMPUTER ROOM	9/15	83	70	75 63.6	5,600	67,820	2,664	9/15	83	70	75 63.6	5,600	69,811	2,664
Zone 2	Total/Ave.		83	70	75 63.6	5,600	67,820	2,664		83	70	75 63.6	5,600	69,811	2,664
Zone 2	Block	9/15	83	70	75 63.6	5,600	67,820	2,664	9/15	83	70	75 63.6	5,600	69,811	2,664
System 2	Total/Ave.		83	70	75 63.6	5,600	67,820	2,664		83	70	75 63.6	5,600	69,811	2,664
System 2	Block	9/15	83	70	75 63.6	5,600	67,820	2,664	9/15	83	70	75 63.6	5,600	69,811	2,664
3	ASSEMBLY HALL	7/15	94	78	75 57.1	7,670	146,072	40,510	7/15	94	78	75 57.1	7,670	173,882	67,866
Zone 3	Total/Ave.		94	78	75 57.1	7,670	146,072	40,510		94	78	75 57.1	7,670	173,882	67,866
Zone 3	Block	7/15	94	78	75 57.1	7,670	146,072	40,510	7/15	94	78	75 57.1	7,670	173,882	67,866
System 3	Total/Ave.		94	78	75 57.1	7,670	146,072	40,510		94	78	75 57.1	7,670	173,882	67,866
System 3	Block	7/15	94	78	75 57.1	7,670	146,072	40,510	7/15	94	78	75 57.1	7,670	173,882	67,866
4	MEDICAL CLINIC	9/15	83	70	75 58.4	12,690	223,505	37,446	7/15	94	78	75 58.4	10,683	242,279	97,836
Zone 4	Total/Ave.		83	70	75 58.4	12,690	223,505	37,446		94	78	75 58.4	10,683	242,279	97,836
Zone 4	Block	9/15	83	70	75 58.4	12,690	223,505	37,446	7/15	94	78	75 58.4	10,683	242,279	97,836
System 4	Total/Ave.		83	70	75 58.4	12,690	223,505	37,446		94	78	75 58.4	10,683	242,279	97,836
System 4	Block	9/15	83	70	75 58.4	10,740	189,163	37,446	7/15	94	78	75 58.4	10,683	242,279	97,836
6	OFFICES-STORE	7/15	94	78	75 58.0	7,010	126,861	15,214	7/15	94	78	75 58.0	5,032	115,121	41,341
Zone 6	Total/Ave.		94	78	75 58.0	7,010	126,861	15,214		94	78	75 58.0	5,032	115,121	41,341
Zone 6	Block	7/15	94	78	75 58.0	7,010	126,861	15,214	7/15	94	78	75 58.0	5,032	115,121	41,341
System 6	Total/Ave.		94	78	75 58.0	7,010	126,861	15,214		94	78	75 58.0	5,032	115,121	41,341
System 6	Block	7/15	94	78	75 58.0	5,032	91,066	15,214	7/15	94	78	75 58.0	5,032	115,121	41,341
7	CHAPEL-AUDTRM	7/18	89	75	75 68.6	12,000	81,567	19,931	7/16	93	77	75 69.7	12,000	130,816	56,942
Zone 7	Total/Ave.		89	75	75 68.6	12,000	81,567	19,931		93	77	75 69.7	12,000	130,816	56,942
Zone 7	Block	7/18	89	75	75 68.6	12,000	81,567	19,931	7/16	93	77	75 69.7	12,000	130,816	56,942
System 7	Total/Ave.		89	75	75 68.6	12,000	81,567	19,931		93	77	75 69.7	12,000	130,816	56,942
System 7	Block	7/18	89	75	75 68.6	12,000	81,567	19,931	7/16	93	77	75 69.7	12,000	130,816	56,942

MAIN SYSTEM HEATING - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

PEAK HEATING LOADS
(Main System)

Room Number	Description	Floor Area (Sq Ft)	Space Peak Time Mo/Hr	Space OA Cond. DB/WB (F)	Space Rm Dry Blb (F)	Space Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Coil Peak Time Mo/Hr	Coil OA Cond. DB/WB (F)	Coil Rm Dry Blb (F)	Coil Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)
3	ASSEMBLY HALL	7,667	13/ 1	3	1 70	82.0	7,670	-97,670	13/ 1	3	1 70	82.0	7,670	-140,190
Zone	3 Total/Ave.	7,667		3	1 70	82.0	7,670	-97,670		3	1 70	82.0	7,670	-140,190
Zone	3 Block	7,667	13/ 1	3	1 70	82.0	7,670	-97,670	13/ 1	3	1 70	82.0	7,670	-140,190
System	3 Total/Ave.	7,667		3	1 70	82.0	7,670	-97,670		3	1 70	82.0	7,670	-140,190
System	3 Block	7,667	13/ 1	3	1 70	82.0	7,670	-97,670	13/ 1	3	1 70	82.0	7,670	-140,190
5	CLOTHING ISSUE	12,680	13/ 1	3	1 70	85.2	7,710	-124,294	13/ 1	3	1 70	85.2	7,710	-171,685
Zone	5 Total/Ave.	12,680		3	1 70	85.2	7,710	-124,294		3	1 70	85.2	7,710	-171,685
Zone	5 Block	12,680	13/ 1	3	1 70	85.2	7,710	-124,294	13/ 1	3	1 70	85.2	7,710	-171,685
System	5 Total/Ave.	12,680		3	1 70	85.2	7,710	-124,294		3	1 70	85.2	7,710	-171,685
System	5 Block	12,680	13/ 1	3	1 70	85.2	7,710	-124,294	13/ 1	3	1 70	85.2	7,710	-171,685
7	CHAPEL-AUDTRM	7,501	13/ 1	3	1 70	80.7	12,000	-136,150	13/ 1	3	1 70	80.7	12,000	-290,931
Zone	7 Total/Ave.	7,501		3	1 70	80.7	12,000	-136,150		3	1 70	80.7	12,000	-290,931
Zone	7 Block	7,501	13/ 1	3	1 70	80.7	12,000	-136,150	13/ 1	3	1 70	80.7	12,000	-290,931
System	7 Total/Ave.	7,501		3	1 70	80.7	12,000	-136,150		3	1 70	80.7	12,000	-290,931
System	7 Block	7,501	13/ 1	3	1 70	80.7	12,000	-136,150	13/ 1	3	1 70	80.7	12,000	-290,931

AUXILIARY SYSTEM HEATING - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

PEAK HEATING LOADS
(Auxiliary System)

Room Number	Description	Floor Area (Sq Ft)	Space: Peak Time Mo/Hr	Space: OA Cond. DB/WB (F)	Space: Rm Dry Blb (F)	Space: Supp. Dry Bulb (F)	Space: Space Air Flow (Cfm)	Space: Space Sens. Load (Btuh)	Coil: Peak Time Mo/Hr	Coil: OA Cond. DB/WB (F)	Coil: Rm Dry Blb (F)	Coil: Supp. Dry Bulb (F)	Coil: Coil Air Flow (Cfm)	Coil: Coil Sens. Load (Btuh)
1	ADMIN OFFICES	18,716	13/ 1	3	1 70	80.8	12,870	-147,860	13/ 1	3	1 70	80.8	12,870	-147,860
Zone 1	Total/Ave.	18,716		3	1 70	80.8	12,870	-147,860		3	1 70	80.8	12,870	-147,860
Zone 1	Block	18,716	13/ 1	3	1 70	80.8	12,870	-147,860	13/ 1	3	1 70	80.8	12,870	-147,860
System 1	Total/Ave.	18,716		3	1 70	80.8	12,870	-147,860		3	1 70	80.8	12,870	-147,860
System 1	Block	18,716	13/ 1	3	1 70	80.8	12,870	-147,860	13/ 1	3	1 70	80.8	12,870	-147,860
4	MEDICAL CLINIC	14,142	13/ 1	3	1 70	100.1	3,240	-103,645	13/ 1	3	1 70	100.1	3,240	-103,645
Zone 4	Total/Ave.	14,142		3	1 70	100.1	3,240	-103,645		3	1 70	100.1	3,240	-103,645
Zone 4	Block	14,142	13/ 1	3	1 70	100.1	3,240	-103,645	13/ 1	3	1 70	100.1	3,240	-103,645
System 4	Total/Ave.	14,142		3	1 70	100.1	3,240	-103,645		3	1 70	100.1	3,240	-103,645
System 4	Block	14,142	13/ 1	3	1 70	100.1	3,240	-103,645	13/ 1	3	1 70	100.1	3,240	-103,645
6	OFFICES-STORE	13,222	13/ 1	3	1 70	91.0	1,980	-44,236	13/ 1	3	1 70	91.0	1,980	-44,236
Zone 6	Total/Ave.	13,222		3	1 70	91.0	1,980	-44,236		3	1 70	91.0	1,980	-44,236
Zone 6	Block	13,222	13/ 1	3	1 70	91.0	1,980	-44,236	13/ 1	3	1 70	91.0	1,980	-44,236
System 6	Total/Ave.	13,222		3	1 70	91.0	1,980	-44,236		3	1 70	91.0	1,980	-44,236
System 6	Block	13,222	13/ 1	3	1 70	91.0	1,980	-44,236	13/ 1	3	1 70	91.0	1,980	-44,236

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS

(At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	ADMIN OFFICES	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
Zone 1	Total/Ave.	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
Zone 1	Block	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
System 1	Total/Ave.	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
System 1	Block	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
2	COMPUTER ROOM	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
Zone 2	Total/Ave.	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
Zone 2	Block	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
System 2	Total/Ave.	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
System 2	Block	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
3	ASSEMBLY HALL	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
Zone 3	Total/Ave.	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
Zone 3	Block	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
System 3	Total/Ave.	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
System 3	Block	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
4	MEDICAL CLINIC	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
Zone 4	Total/Ave.	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
Zone 4	Block	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
System 4	Total/Ave.	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
System 4	Block	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
5	OFFICES-STORE	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
Zone 6	Total/Ave.	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
Zone 6	Block	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
System 6	Total/Ave.	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
System 6	Block	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
7	CHAPEL-AUDTRM	6,881	0	0.160	630	1,050	0.064	4,134	0	0	0.270	12,695
Zone 7	Total/Ave.	6,881	0	0.160	630	1,050	0.064	4,134	0	0	0.270	12,695
Zone 7	Block	6,881	0	0.160	630	1,050	0.064	4,134	0	0	0.270	12,695
System 7	Total/Ave.	6,881	0	0.160	630	1,050	0.064	4,134	0	0	0.270	12,695
System 7	Block	6,881	0	0.160	630	1,050	0.064	4,134	0	0	0.270	12,695

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	ADMIN OFFICES	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
Zone 1	Total/Ave.	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
Zone 1	Block	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
System 1	Total/Ave.	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
System 1	Block	81,309	0	0.970	25,480	22,400	0.950	130,052	0	0	1.000	259,241
2	COMPUTER ROOM	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
Zone 2	Total/Ave.	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
Zone 2	Block	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
System 2	Total/Ave.	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
System 2	Block	3,893	0	0.970	1,392	1,530	0.955	49,093	0	0	1.000	55,908
3	ASSEMBLY HALL	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
Zone 3	Total/Ave.	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
Zone 3	Block	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
System 3	Total/Ave.	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
System 3	Block	52,902	0	1.000	27,209	24,700	0.951	0	0	0	0.000	104,810
4	MEDICAL CLINIC	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
Zone 4	Total/Ave.	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
Zone 4	Block	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
System 4	Total/Ave.	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
System 4	Block	48,465	0	1.000	28,256	25,650	0.951	20,632	0	0	0.790	123,002
6	OFFICES-STORE	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
Zone 6	Total/Ave.	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
Zone 6	Block	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
System 6	Total/Ave.	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
System 6	Block	42,376	0	0.970	4,300	4,875	0.956	12,378	0	0	0.850	63,929
7	CHAPEL-AUDTRM	7,741	0	0.180	10,395	10,500	0.796	9,340	0	0	0.610	37,976
Zone 7	Total/Ave.	7,741	0	0.180	10,395	10,500	0.796	9,340	0	0	0.610	37,976
Zone 7	Block	7,741	0	0.180	10,395	10,500	0.796	9,340	0	0	0.610	37,976
System 7	Total/Ave.	7,741	0	0.180	10,395	10,500	0.796	9,340	0	0	0.610	37,976
System 7	Block	7,741	0	0.180	10,395	10,500	0.796	9,340	0	0	0.610	37,976

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS
(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	ADMIN OFFICES	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
2	COMPUTER ROOM	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
3	ASSEMBLY HALL	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
4	MEDICAL CLINIC	0	0.0	29,417	71.5	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	29,417	71.5	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	29,417	71.5	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	29,417	71.5	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	29,417	71.5	0	0	0.000	0	0.0	0	0.0
6	OFFICES-STORE	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
Zone 6	Total/Ave.	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
Zone 6	Block	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
System 6	Total/Ave.	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
System 6	Block	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	17,412	75.4	0	0	0.000	0	0.0	0	0.0
Zone 7	Total/Ave.	0	0.0	17,412	75.4	0	0	0.000	0	0.0	0	0.0
Zone 7	Block	0	0.0	17,412	75.4	0	0	0.000	0	0.0	0	0.0
System 7	Total/Ave.	0	0.0	17,412	75.4	0	0	0.000	0	0.0	0	0.0
System 7	Block	0	0.0	17,412	75.4	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS
(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	ADMIN OFFICES	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
Zone 1	Total/Ave.	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
Zone 1	Block	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
System 1	Total/Ave.	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
System 1	Block	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
2	COMPUTER ROOM	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
Zone 2	Total/Ave.	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
Zone 2	Block	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
System 2	Total/Ave.	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
System 2	Block	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
3	ASSEMBLY HALL	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
Zone 3	Total/Ave.	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
Zone 3	Block	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
System 3	Total/Ave.	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
System 3	Block	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
4	MEDICAL CLINIC	0	0.0	7,396	16.0	32,296	0	0.570	8,302	17.8	0	0.0
Zone 4	Total/Ave.	0	0.0	7,396	16.0	32,296	0	0.570	8,302	17.8	0	0.0
Zone 4	Block	0	0.0	7,396	16.0	32,296	0	0.570	8,302	17.8	0	0.0
System 4	Total/Ave.	0	0.0	7,396	16.0	32,296	0	0.570	8,302	17.8	0	0.0
System 4	Block	0	0.0	7,396	16.0	32,296	0	0.570	8,302	17.8	0	0.0
6	OFFICES-STORE	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
Zone 6	Total/Ave.	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
Zone 6	Block	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
System 6	Total/Ave.	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
System 6	Block	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
7	CHAPEL-AUDTRM	0	0.0	10,713	19.0	9,098	0	0.750	4,471	18.2	0	0.0
Zone 7	Total/Ave.	0	0.0	10,713	19.0	9,098	0	0.750	4,471	18.2	0	0.0
Zone 7	Block	0	0.0	10,713	19.0	9,098	0	0.750	4,471	18.2	0	0.0
System 7	Total/Ave.	0	0.0	10,713	19.0	9,098	0	0.750	4,471	18.2	0	0.0
System 7	Block	0	0.0	10,713	19.0	9,098	0	0.750	4,471	18.2	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	ADMIN OFFICES	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
Zone 1	Total/Ave.	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
Zone 1	Block	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
System 1	Total/Ave.	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
System 1	Block	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
2	COMPUTER ROOM	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
Zone 2	Total/Ave.	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
Zone 2	Block	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
System 2	Total/Ave.	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
System 2	Block	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	ASSEMBLY HALL	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
Zone	3 Total/Ave.	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
Zone	3 Block	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
System	3 Total/Ave.	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
System	3 Block	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
4	MEDICAL CLINIC	0	0.0	0	0.0	664	13,399	24,784	75.0	0	115,594
Zone	4 Total/Ave.	0	0.0	0	0.0	664	13,399	24,784	75.0	0	115,594
Zone	4 Block	0	0.0	0	0.0	664	13,399	24,784	75.0	0	115,594
System	4 Total/Ave.	0	0.0	0	0.0	664	13,399	24,784	75.0	0	115,594
System	4 Block	0	0.0	0	0.0	664	13,399	24,784	75.0	0	115,594
6	OFFICES-STORE	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
Zone	6 Total/Ave.	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
Zone	6 Block	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
System	6 Total/Ave.	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
System	6 Block	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
7	CHAPEL-AUDTRM	0	0.0	0	0.0	740	14,402	13,172	75.0	0	69,268
Zone	7 Total/Ave.	0	0.0	0	0.0	740	14,402	13,172	75.0	0	69,268
Zone	7 Block	0	0.0	0	0.0	740	14,402	13,172	75.0	0	69,268
System	7 Total/Ave.	0	0.0	0	0.0	740	14,402	13,172	75.0	0	69,268
System	7 Block	0	0.0	0	0.0	740	14,402	13,172	75.0	0	69,268

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)

(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	ADMIN OFFICES	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	38,808	71.5	0	0	0.000	0	0.0	0	0.0
2	COMPUTER ROOM	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	1,261	50.5	0	0	0.000	0	0.0	0	0.0
3	ASSEMBLY HALL	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	16,756	71.5	0	0	0.000	0	0.0	0	0.0
4	MEDICAL CLINIC	0	0.0	20,777	50.5	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	20,777	50.5	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	20,777	50.5	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	20,777	50.5	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	20,777	50.5	0	0	0.000	0	0.0	0	0.0
6	OFFICES-STORE	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
Zone 6	Total/Ave.	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
Zone 6	Block	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
System 6	Total/Ave.	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
System 6	Block	0	0.0	20,501	71.5	0	0	0.000	0	0.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	16,003	69.3	0	0	0.000	0	0.0	0	0.0
Zone 7	Total/Ave.	0	0.0	16,003	69.3	0	0	0.000	0	0.0	0	0.0
Zone 7	Block	0	0.0	16,003	69.3	0	0	0.000	0	0.0	0	0.0
System 7	Total/Ave.	0	0.0	16,003	69.3	0	0	0.000	0	0.0	0	0.0
System 7	Block	0	0.0	16,003	69.3	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)

(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	ADMIN OFFICES	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
Zone 1	Total/Ave.	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
Zone 1	Block	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
System 1	Total/Ave.	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0
System 1	Block	0	0.0	10,402	14.3	24,812	0	0.550	7,032	17.8	0	0.0

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
2	COMPUTER ROOM	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
Zone 2	Total/Ave.	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
Zone 2	Block	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
System 2	Total/Ave.	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
System 2	Block	0	0.0	564	8.2	10,440	0	0.790	507	6.8	0	0.0
3	ASSEMBLY HALL	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
Zone 3	Total/Ave.	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
Zone 3	Block	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
System 3	Total/Ave.	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
System 3	Block	0	0.0	3,786	14.5	28,392	0	0.580	8,047	17.8	0	0.0
4	MEDICAL CLINIC	0	0.0	5,224	11.3	57,082	0	0.690	3,172	6.8	0	0.0
Zone 4	Total/Ave.	0	0.0	5,224	11.3	57,082	0	0.690	3,172	6.8	0	0.0
Zone 4	Block	0	0.0	5,224	11.3	57,082	0	0.690	3,172	6.8	0	0.0
System 4	Total/Ave.	0	0.0	5,224	11.3	57,082	0	0.690	3,172	6.8	0	0.0
System 4	Block	0	0.0	5,224	11.3	57,082	0	0.690	3,172	6.8	0	0.0
6	OFFICES-STORE	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
Zone 6	Total/Ave.	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
Zone 6	Block	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
System 6	Total/Ave.	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
System 6	Block	0	0.0	3,929	17.5	1,326	0	0.640	666	17.8	0	0.0
7	CHAPEL-AUDTRM	0	0.0	13,870	24.6	8,702	0	0.720	3,930	16.0	0	0.0
Zone 7	Total/Ave.	0	0.0	13,870	24.6	8,702	0	0.720	3,930	16.0	0	0.0
Zone 7	Block	0	0.0	13,870	24.6	8,702	0	0.720	3,930	16.0	0	0.0
System 7	Total/Ave.	0	0.0	13,870	24.6	8,702	0	0.720	3,930	16.0	0	0.0
System 7	Block	0	0.0	13,870	24.6	8,702	0	0.720	3,930	16.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	ADMIN OFFICES	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
Zone 1	Total/Ave.	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
Zone 1	Block	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
System 1	Total/Ave.	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
System 1	Block	0	0.0	0	0.0	963	19,433	35,944	75.0	0	136,430
2	COMPUTER ROOM	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
Zone 2	Total/Ave.	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
Zone 2	Block	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
System 2	Total/Ave.	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575
System 2	Block	0	0.0	0	0.0	80	670	1,134	75.0	0	14,575

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	ASSEMBLY HALL	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
Zone	3 Total/Ave.	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
Zone	3 Block	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
System	3 Total/Ave.	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
System	3 Block	0	0.0	0	0.0	445	8,980	15,810	75.0	0	81,771
4	MEDICAL CLINIC	0	0.0	0	0.0	664	5,557	11,796	75.0	0	103,608
Zone	4 Total/Ave.	0	0.0	0	0.0	664	5,557	11,796	75.0	0	103,608
Zone	4 Block	0	0.0	0	0.0	664	5,557	11,796	75.0	0	103,608
System	4 Total/Ave.	0	0.0	0	0.0	664	5,557	11,796	75.0	0	103,608
System	4 Block	0	0.0	0	0.0	664	5,557	11,796	75.0	0	103,608
6	OFFICES-STORE	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
Zone	6 Total/Ave.	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
Zone	6 Block	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
System	6 Total/Ave.	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
System	6 Block	0	0.0	0	0.0	277	5,590	10,339	75.0	0	42,351
7	CHAPEL-AUDTRM	0	0.0	0	0.0	740	11,219	9,431	75.0	0	63,156
Zone	7 Total/Ave.	0	0.0	0	0.0	740	11,219	9,431	75.0	0	63,156
Zone	7 Block	0	0.0	0	0.0	740	11,219	9,431	75.0	0	63,156
System	7 Total/Ave.	0	0.0	0	0.0	740	11,219	9,431	75.0	0	63,156
System	7 Block	0	0.0	0	0.0	740	11,219	9,431	75.0	0	63,156

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	ASSEMBLY HALL	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Block	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
System	3 Total/Ave.	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
System	3 Block	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
5	CLOTHING ISSUE	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	5 Total/Ave.	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	5 Block	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
System	5 Total/Ave.	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
System	5 Block	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	7 Total/Ave.	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	7 Block	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
System	7 Total/Ave.	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
System	7 Block	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	ASSEMBLY HALL	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
Zone	3 Block	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
System	3 Total/Ave.	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
System	3 Block	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
5	CLOTHING ISSUE	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
Zone	5 Total/Ave.	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
Zone	5 Block	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
System	5 Total/Ave.	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
System	5 Block	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
Zone	7 Total/Ave.	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
Zone	7 Block	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
System	7 Total/Ave.	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
System	7 Block	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	ASSEMBLY HALL	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
Zone	3 Total/Ave.	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
Zone	3 Block	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
System	3 Total/Ave.	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
System	3 Block	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
5	CLOTHING ISSUE	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
Zone	5 Total/Ave.	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
Zone	5 Block	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
System	5 Total/Ave.	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
System	5 Block	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
7	CHAPEL-AUDTRM	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
Zone	7 Total/Ave.	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
Zone	7 Block	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
System	7 Total/Ave.	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
System	7 Block	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150

HEATING LOADS AT AUX COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Auxiliary Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	ADMIN OFFICES	0	0.0	-36,365	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-36,365	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-36,365	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-36,365	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-36,365	-67.0	0	0	0.000	0	0.0	0	0.0
4	MEDICAL CLINIC	0	0.0	-27,565	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-27,565	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-27,565	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-27,565	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-27,565	-67.0	0	0	0.000	0	0.0	0	0.0
6	OFFICES-STORE	0	0.0	-19,210	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Total/Ave.	0	0.0	-19,210	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Block	0	0.0	-19,210	-67.0	0	0	0.000	0	0.0	0	0.0
System 6	Total/Ave.	0	0.0	-19,210	-67.0	0	0	0.000	0	0.0	0	0.0
System 6	Block	0	0.0	-19,210	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Auxiliary Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	ADMIN OFFICES	0	0.0	-48,735	-67.0	0	0	0.000	-27,893	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-48,735	-67.0	0	0	0.000	-27,893	-67.0	0	0.0
Zone 1	Block	0	0.0	-48,735	-67.0	0	0	0.000	-27,893	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-48,735	-67.0	0	0	0.000	-27,893	-67.0	0	0.0
System 1	Block	0	0.0	-48,735	-67.0	0	0	0.000	-27,893	-67.0	0	0.0
4	MEDICAL CLINIC	0	0.0	-30,971	-67.0	0	0	0.000	-32,929	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-30,971	-67.0	0	0	0.000	-32,929	-67.0	0	0.0
Zone 4	Block	0	0.0	-30,971	-67.0	0	0	0.000	-32,929	-67.0	0	0.0
System 4	Total/Ave.	0	0.0	-30,971	-67.0	0	0	0.000	-32,929	-67.0	0	0.0
System 4	Block	0	0.0	-30,971	-67.0	0	0	0.000	-32,929	-67.0	0	0.0
6	OFFICES-STORE	0	0.0	-15,042	-67.0	0	0	0.000	-2,643	-67.0	0	0.0
Zone 6	Total/Ave.	0	0.0	-15,042	-67.0	0	0	0.000	-2,643	-67.0	0	0.0
Zone 6	Block	0	0.0	-15,042	-67.0	0	0	0.000	-2,643	-67.0	0	0.0
System 6	Total/Ave.	0	0.0	-15,042	-67.0	0	0	0.000	-2,643	-67.0	0	0.0
System 6	Block	0	0.0	-15,042	-67.0	0	0	0.000	-2,643	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Auxiliary Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	ADMIN OFFICES	-34,867	-67.0	0	0.0	963	-68,526	0	70.0	0	-216,386

HEATING LOADS AT AUX COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Auxiliary Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
Zone	1 Total/Ave.	-34,867	-67.0	0	0.0	963	-68,526	0	70.0	0	-216,386
Zone	1 Block	-34,867	-67.0	0	0.0	963	-68,526	0	70.0	0	-216,386
System	1 Total/Ave.	-34,867	-67.0	0	0.0	963	-68,526	0	70.0	0	-216,386
System	1 Block	-34,867	-67.0	0	0.0	963	-68,526	0	70.0	0	-216,386
4	MEDICAL CLINIC	-12,179	-67.0	0	0.0	664	-47,249	0	70.0	0	-150,894
Zone	4 Total/Ave.	-12,179	-67.0	0	0.0	664	-47,249	0	70.0	0	-150,894
Zone	4 Block	-12,179	-67.0	0	0.0	664	-47,249	0	70.0	0	-150,894
System	4 Total/Ave.	-12,179	-67.0	0	0.0	664	-47,249	0	70.0	0	-150,894
System	4 Block	-12,179	-67.0	0	0.0	664	-47,249	0	70.0	0	-150,894
6	OFFICES-STORE	-7,341	-67.0	0	0.0	277	-19,711	0	70.0	0	-63,947
Zone	6 Total/Ave.	-7,341	-67.0	0	0.0	277	-19,711	0	70.0	0	-63,947
Zone	6 Block	-7,341	-67.0	0	0.0	277	-19,711	0	70.0	0	-63,947
System	6 Total/Ave.	-7,341	-67.0	0	0.0	277	-19,711	0	70.0	0	-63,947
System	6 Block	-7,341	-67.0	0	0.0	277	-19,711	0	70.0	0	-63,947

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	ASSEMBLY HALL	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Block	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
System	3 Total/Ave.	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
System	3 Block	0	0.0	-15,701	-67.0	0	0	0.000	0	0.0	0	0.0
5	CLOTHING ISSUE	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	5 Total/Ave.	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	5 Block	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
System	5 Total/Ave.	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
System	5 Block	-22,251	-60.5	0	-67.0	0	0	0.000	0	0.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	7 Total/Ave.	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
Zone	7 Block	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
System	7 Total/Ave.	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0
System	7 Block	0	0.0	-15,472	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	ASSEMBLY HALL	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
Zone	3 Block	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
System	3 Total/Ave.	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
System	3 Block	0	0.0	-17,496	-67.0	0	0	0.000	-31,917	-67.0	0	0.0
5	CLOTHING ISSUE	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
Zone	5 Total/Ave.	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
Zone	5 Block	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
System	5 Total/Ave.	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
System	5 Block	-3,822	-60.5	-37,662	-67.0	0	0	0.000	-2,386	-67.0	0	0.0
7	CHAPEL-AUDTRM	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
Zone	7 Total/Ave.	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
Zone	7 Block	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
System	7 Total/Ave.	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0
System	7 Block	0	0.0	-37,777	-67.0	0	0	0.000	-17,342	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Exped Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	ASSEMBLY HALL	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
Zone	3 Total/Ave.	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
Zone	3 Block	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
System	3 Total/Ave.	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
System	3 Block	-890	-67.0	0	0.0	445	-31,666	0	70.0	0	-97,670
5	CLOTHING ISSUE	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
Zone	5 Total/Ave.	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
Zone	5 Block	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
System	5 Total/Ave.	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
System	5 Block	-11,066	-67.0	0	0.0	662	-47,107	0	63.5	-26,073	-150,367
7	CHAPEL-AUDTRM	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
Zone	7 Total/Ave.	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
Zone	7 Block	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
System	7 Total/Ave.	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150
System	7 Block	-12,902	-67.0	0	0.0	740	-52,658	0	70.0	0	-136,150

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

AIRFLOW COOLING LOADS
(At time of Coil Peak)

Room Number	Description	Ventilation Airflow (Cfm)	Ventilation Sensible (Btuh)	Ventilation Latent (Btuh)	Optional Ventilation Airflow (Cfm)	Optional Ventilation Sensible (Btuh)	Optional Ventilation Latent (Btuh)	Bypass Airflow (Cfm)	Bypass Sensible (Btuh)	Bypass Latent (Btuh)	Ov/Undr Sizing (Btuh)
1	ADMIN OFFICES	1,260	25,426	47,029	0	0	0	0	0	0	0
Zone	1 Total/Ave.	1,260	25,426	47,029	0	0	0	0	0	0	-123,523
Zone	1 Block	1,260	25,426	47,029	0	0	0	0	0	0	0
System	1 Total/Ave.	1,260	25,426	47,029	0	0	0	0	0	0	-123,523
System	1 Block	1,260	25,426	47,029	0	0	0	0	0	0	0
2	COMPUTER ROOM	0	0	0	0	0	0	0	0	0	0
Zone	2 Total/Ave.	0	0	0	0	0	0	0	0	0	0
Zone	2 Block	0	0	0	0	0	0	0	0	0	0
System	2 Total/Ave.	0	0	0	0	0	0	0	0	0	0
System	2 Block	0	0	0	0	0	0	0	0	0	0
3	ASSEMBLY HALL	770	15,538	27,356	0	0	0	0	0	0	0
Zone	3 Total/Ave.	770	15,538	27,356	0	0	0	0	0	0	0
Zone	3 Block	770	15,538	27,356	0	0	0	0	0	0	0
System	3 Total/Ave.	770	15,538	27,356	0	0	0	0	0	0	0
System	3 Block	770	15,538	27,356	0	0	0	0	0	0	0
4	MEDICAL CLINIC	1,270	25,628	47,402	0	0	0	0	0	0	34,342
Zone	4 Total/Ave.	1,270	25,628	47,402	0	0	0	0	0	0	0
Zone	4 Block	1,270	25,628	47,402	0	0	0	0	0	0	34,342
System	4 Total/Ave.	1,270	25,628	47,402	0	0	0	0	0	0	0
System	4 Block	1,270	25,628	47,402	0	0	0	0	0	0	0
6	OFFICES-STORE	700	14,126	26,127	0	0	0	0	0	0	35,795
Zone	6 Total/Ave.	700	14,126	26,127	0	0	0	0	0	0	0
Zone	6 Block	700	14,126	26,127	0	0	0	0	0	0	35,795
System	6 Total/Ave.	700	14,126	26,127	0	0	0	0	0	0	0
System	6 Block	700	14,126	26,127	0	0	0	0	0	0	366
7	CHAPEL-AUDTRM	2,400	46,710	42,720	0	0	0	0	0	0	366
Zone	7 Total/Ave.	2,400	46,710	42,720	0	0	0	0	0	0	366
Zone	7 Block	2,400	46,710	42,720	0	0	0	0	0	0	366
System	7 Total/Ave.	2,400	46,710	42,720	0	0	0	0	0	0	366
System	7 Block	2,400	46,710	42,720	0	0	0	0	0	0	366

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

AIRFLOW HEATING LOADS
(At time of Coil Peak)

Room Number	Description	--- Ventilation -- Airflow (Cfm)	Sensible (Btuh)	---- Op. Vent.---- Airflow (Cfm)	Sensible (Btuh)	----- Reheat ----- Airflow (Cfm)	Sensible (Btuh)	---- Humidif. ---- Airflow (Cfm)	Latent (Btuh)	Total (Btuh)
3	ASSEMBLY HALL	770	-54,792	0	0	0	0	0	0	-54,792
Zone	3 Total/Ave.	770	-54,792	0	0	0	0	0	0	-54,792
Zone	3 Block	770	-54,792	0	0	0	0	0	0	-54,792
System	3 Total/Ave.	770	-54,792	0	0	0	0	0	0	-54,792
System	3 Block	770	-54,792	0	0	0	0	0	0	-54,792
5	CLOTHING ISSUE	770	-54,792	0	0	0	0	0	0	-54,792
Zone	5 Total/Ave.	770	-54,792	0	0	0	0	0	0	-54,792
Zone	5 Block	770	-54,792	0	0	0	0	0	0	-54,792
System	5 Total/Ave.	770	-54,792	0	0	0	0	0	0	-54,792
System	5 Block	770	-54,792	0	0	0	0	0	0	-54,792
7	CHAPEL-AUDTRM	2,400	-170,781	0	0	0	0	0	0	-170,781
Zone	7 Total/Ave.	2,400	-170,781	0	0	0	0	0	0	-170,781
Zone	7 Block	2,400	-170,781	0	0	0	0	0	0	-170,781
System	7 Total/Ave.	2,400	-170,781	0	0	0	0	0	0	-170,781
System	7 Block	2,400	-170,781	0	0	0	0	0	0	-170,781

COOLING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Coil Peak)

Room Number	Description	Cooling: Duct Heat Pickup (Btuh)	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Airflow (Cfm)	Exhaust Airflow (Cfm)	Room Ducted Airflow (Cfm)	Exhaust Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	ADMIN OFFICES	0	42,174	0	0	42,174	1,260	0	19,769	0	0	0	19,769
Zone 1	Total/Ave.	0	42,174	0	0	42,174	1,260	0	19,769	0	0	0	19,769
Zone 1	Block	0	42,174	0	0	42,174	1,260	0	19,769	0	0	0	19,769
System 1	Total/Ave.	0	42,174	0	0	42,174	1,260	0	19,769	0	0	0	19,769
System 1	Block	0	42,174	0	0	42,174	1,260	0	19,769	0	0	0	19,769
2	COMPUTER ROOM	0	1,991	0	0	1,991	0	0	0	0	0	0	5,600
Zone 2	Total/Ave.	0	1,991	0	0	1,991	0	0	0	0	0	0	5,600
Zone 2	Block	0	1,991	0	0	1,991	0	0	0	0	0	0	5,600
System 2	Total/Ave.	0	1,991	0	0	1,991	0	0	0	0	0	0	5,600
System 2	Block	0	1,991	0	0	1,991	0	0	0	0	0	0	5,600
3	ASSEMBLY HALL	0	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
Zone 3	Total/Ave.	0	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
Zone 3	Block	0	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
System 3	Total/Ave.	0	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
System 3	Block	0	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
4	MEDICAL CLINIC	0	28,489	0	0	28,489	1,270	0	10,683	0	0	0	10,683
Zone 4	Total/Ave.	0	28,489	0	0	28,489	1,270	0	10,683	0	0	0	10,683
Zone 4	Block	0	28,489	0	0	28,489	1,270	0	10,683	0	0	0	10,683
System 4	Total/Ave.	0	28,489	0	0	28,489	1,270	0	10,683	0	0	0	10,683
System 4	Block	0	28,489	0	0	28,489	1,270	0	10,683	0	0	0	10,683
6	OFFICES-STORE	0	9,930	0	0	9,930	700	0	5,032	0	0	0	5,032
Zone 6	Total/Ave.	0	9,930	0	0	9,930	700	0	5,032	0	0	0	5,032
Zone 6	Block	0	9,930	0	0	9,930	700	0	5,032	0	0	0	5,032
System 6	Total/Ave.	0	9,930	0	0	9,930	700	0	5,032	0	0	0	5,032
System 6	Block	0	9,930	0	0	9,930	700	0	5,032	0	0	0	5,032
7	CHAPEL-AUDTRM	0	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
Zone 7	Total/Ave.	0	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
Zone 7	Block	0	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
System 7	Total/Ave.	0	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
System 7	Block	0	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000

HEATING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1

BLDG 2100 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Coil Peak)

Room Number	Description	Heating: Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
3	ASSEMBLY HALL	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
Zone	3 Total/Ave.	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
Zone	3 Block	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
System	3 Total/Ave.	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
System	3 Block	12,272	0	0	12,272	770	0	7,670	0	0	0	7,670
5	CLOTHING ISSUE	7,402	0	0	7,402	770	0	7,710	0	0	0	7,710
Zone	5 Total/Ave.	7,402	0	0	7,402	770	0	7,710	0	0	0	7,710
Zone	5 Block	7,402	0	0	7,402	770	0	7,710	0	0	0	7,710
System	5 Total/Ave.	7,402	0	0	7,402	770	0	7,710	0	0	0	7,710
System	5 Block	7,402	0	0	7,402	770	0	7,710	0	0	0	7,710
7	CHAPEL-AUDTRM	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
Zone	7 Total/Ave.	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
Zone	7 Block	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
System	7 Total/Ave.	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000
System	7 Block	16,000	0	0	16,000	2,400	0	12,000	0	0	0	12,000

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

AUX. HEAT AIR HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Auxiliary Coil Peak)

Room Number	Description	Heating: Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	ADMIN OFFICES	0	0	0	0	12,870	0	12,870	0	0	0	12,870
Zone 1	Total/Ave.	0	0	0	0	12,870	0	12,870	0	0	0	12,870
Zone 1	Block	0	0	0	0	12,870	0	12,870	0	0	0	12,870
System 1	Total/Ave.	0	0	0	0	12,870	0	12,870	0	0	0	12,870
System 1	Block	0	0	0	0	12,870	0	12,870	0	0	0	12,870
4	MEDICAL CLINIC	0	0	0	0	3,240	0	3,240	0	0	0	3,240
Zone 4	Total/Ave.	0	0	0	0	3,240	0	3,240	0	0	0	3,240
Zone 4	Block	0	0	0	0	3,240	0	3,240	0	0	0	3,240
System 4	Total/Ave.	0	0	0	0	3,240	0	3,240	0	0	0	3,240
System 4	Block	0	0	0	0	3,240	0	3,240	0	0	0	3,240
6	OFFICES-STORE	0	0	0	0	1,980	0	1,980	0	0	0	1,980
Zone 6	Total/Ave.	0	0	0	0	1,980	0	1,980	0	0	0	1,980
Zone 6	Block	0	0	0	0	1,980	0	1,980	0	0	0	1,980
System 6	Total/Ave.	0	0	0	0	1,980	0	1,980	0	0	0	1,980
System 6	Block	0	0	0	0	1,980	0	1,980	0	0	0	1,980

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

ROOM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Room 2

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	63.4	53.7	73.2	29.4	
Main System						0.0
Return Air Heat Pickup						0.0
Return Fan						
Return Air	75.0	63.4	53.7	73.2	29.4	
Outdoor Air	82.9	69.9	53.3	94.8	34.8	
Return/Outdoor Air Mix	75.0	63.4	53.7	73.2	29.4	
Blow through Fan						0.1
Entering Coil	75.1	63.4	53.4	73.2	29.5	
Leaving Coil	63.4	59.3	79.4	72.9	26.6	
Draw Through Fan						0.0
Duct Frictional Heat						0.2
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	63.6	59.4	78.9	72.9	26.6	
Supply Air	63.6	59.4	78.9	72.9	26.6	

Percent Outside Air	0.00	(%)
Sensible Heat Ratio (SHR)	0.962	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	5,600	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 3

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.9	51.9	70.8	29.1	
Main System						0.0
Return Air Heat Pickup						0.0
Return Fan						
Return Air	75.0	62.9	51.9	70.8	29.1	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	76.9	64.6	52.4	76.2	30.4	
Blow through Fan						0.0
Entering Coil	76.9	64.6	52.4	76.2	30.4	
Leaving Coil	55.6	54.1	91.4	63.2	23.1	
Draw Through Fan						0.4
Duct Frictional Heat						1.1
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	57.1	54.7	86.5	63.2	23.5	
Supply Air	57.1	54.7	86.5	63.2	23.5	

Percent Outside Air	10.04	(%)
Sensible Heat Ratio (SHR)	0.780	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	7,670	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 7

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	68.1	71.0	97.5	33.2	
Main System						0.0
Return Air Heat Pickup						0.0
Return Fan						
Return Air	75.0	68.1	71.0	97.5	33.2	
Outdoor Air	93.3	77.4	49.9	124.1	41.9	
Return/Outdoor Air Mix	78.7	70.1	66.3	102.8	35.0	
Blow through Fan						0.0
Entering Coil	78.7	70.1	66.3	102.8	35.0	
Leaving Coil	67.3	64.9	88.2	93.2	30.7	
Draw Through Fan						0.3
Duct Frictional Heat						0.9
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	68.6	65.3	84.5	93.2	31.0	
Supply Air	68.6	65.3	84.5	93.2	31.0	

Percent Outside Air	20.00	(%)
Sensible Heat Ratio (SHR)	0.703	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	12,000	(Cfm)

SYSTEM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

System 1

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.3	50.0	68.2	28.7	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	62.3	50.0	68.2	28.7	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	76.2	63.5	50.5	71.7	29.5	
Blow through Fan						0.0
Entering Coil	76.2	63.5	50.5	71.7	29.5	
Leaving Coil	56.9	54.9	88.4	64.2	23.6	
Draw Through Fan						0.5
Duct Frictional Heat						1.5
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	58.9	55.7	82.2	64.2	24.1	
Supply Air	58.9	55.7	82.2	64.2	24.1	

Percent Outside Air	6.37	(%)
Sensible Heat Ratio (SHR)	0.853	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	19,769	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

System 4

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.3	50.0	68.2	28.7	
Main System						0.0
Return Air Heat Pickup						0.0
Return Fan						
Return Air	75.0	62.3	50.0	68.2	28.7	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	77.2	64.4	50.8	74.8	30.2	
Blow through Fan						0.0
Entering Coil	77.2	64.4	50.8	74.8	30.2	
Leaving Coil	55.9	54.3	90.6	63.5	23.3	
Draw Through Fan						0.6
Duct Frictional Heat						1.9
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	58.4	55.3	82.7	63.5	23.9	
Supply Air	58.4	55.3	82.7	63.5	23.9	

Percent Outside Air	11.82	(%)
Sensible Heat Ratio (SHR)	0.835	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	10,740	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

System 6

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.3	50.0	68.2	28.7	
Main System						0.0
Return Air Heat Pickup						0.0
Return Fan						
Return Air	75.0	62.3	50.0	68.2	28.7	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	77.6	64.8	50.9	75.9	30.5	
Blow through Fan						0.0
Entering Coil	77.6	64.8	50.9	75.9	30.5	
Leaving Coil	56.1	54.5	90.9	64.1	23.4	
Draw Through Fan						0.5
Duct Frictional Heat						1.4
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	58.0	55.3	85.0	64.1	23.9	
Supply Air	58.0	55.3	85.0	64.1	23.9	

Percent Outside Air	13.91	(%)
Sensible Heat Ratio (SHR)	0.857	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	5,032	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING U-VALUES - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING U-VALUES

Room Number	Description	Room U-Values (Btu/hr/sqft/F) Part.	ExFlr	Summr Skylt	Wintr Skylt	Roof	Summr Windo	Wintr Windo	Wall	Ceil.	Room Mass (lb/ sqft)	Room Capac. (Btu/ sqft/F)
1	ADMIN OFFICES	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	45.8	9.81
Zone 1	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	45.8	9.81
System 1	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	45.8	9.81
2	COMPUTER ROOM	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.092	0.000	65.0	13.67
Zone 2	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.092	0.000	65.0	13.67
System 2	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.092	0.000	65.0	13.67
3	ASSEMBLY HALL	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.094	0.000	49.2	10.53
Zone 3	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.094	0.000	49.2	10.53
System 3	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.094	0.000	49.2	10.53
4	MEDICAL CLINIC	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.093	0.000	44.4	9.54
Zone 4	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.093	0.000	44.4	9.54
System 4	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.093	0.000	44.4	9.54
5	CLOTHING ISSUE	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.116	0.317	45.1	9.67
Zone 5	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.116	0.317	45.1	9.67
System 5	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.116	0.317	45.1	9.67
6	OFFICES-STORE	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.104	0.000	33.6	7.22
Zone 6	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.104	0.000	33.6	7.22
System 6	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.104	0.000	33.6	7.22
7	CHAPEL-AUDTRM	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	69.8	14.66
Zone 7	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	69.8	14.66
System 7	Total/Ave.	0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.097	0.000	69.8	14.66
Building		0.347	0.830	0.000	0.000	0.029	0.621	0.655	0.100	0.317	46.2	9.88

BUILDING AREAS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

B U I L D I N G A R E A S

Room Number	Description	Number of Duplicate Flr	Rm	Floor Area/Dupl Room (sqft)	Total Floor Area (sqft)	Partition Area (sqft)	Exposed Floor Area (sqft)	Skylight Area (sqft)	Skl /Rf (%)	Net Roof Area (sqft)	Window Area (sqft)	Win /Wl (%)	Net Wall Area (sqft)
1	ADMIN OFFICES	1	1	18,716	18,716	11,076	627	0	0	18,716	636	8	7,526
Zone	1 Total/Ave.				18,716	11,076	627	0	0	18,716	636	8	7,526
System	1 Total/Ave.				18,716	11,076	627	0	0	18,716	636	8	7,526
2	COMPUTER ROOM	1	1	861	861	501	62	0	0	861	120	14	748
Zone	2 Total/Ave.				861	501	62	0	0	861	120	14	748
System	2 Total/Ave.				861	501	62	0	0	861	120	14	748
3	ASSEMBLY HALL	1	1	7,667	7,667	7,340	16	0	0	8,081	728	21	2,782
Zone	3 Total/Ave.				7,667	7,340	16	0	0	8,081	728	21	2,782
System	3 Total/Ave.				7,667	7,340	16	0	0	8,081	728	21	2,782
4	MEDICAL CLINIC	1	1	14,142	14,142	9,258	219	0	0	14,187	751	13	4,955
Zone	4 Total/Ave.				14,142	9,258	219	0	0	14,187	751	13	4,955
System	4 Total/Ave.				14,142	9,258	219	0	0	14,187	751	13	4,955
5	CLOTHING ISSUE	1	1	12,680	12,680	5,875	199	0	0	12,680	54	1	5,388
Zone	5 Total/Ave.				12,680	5,875	199	0	0	12,680	54	1	5,388
System	5 Total/Ave.				12,680	5,875	199	0	0	12,680	54	1	5,388
6	OFFICES-STORE	1	1	13,222	13,222	7,668	132	0	0	9,887	60	3	2,166
Zone	6 Total/Ave.				13,222	7,668	132	0	0	9,887	60	3	2,166
System	6 Total/Ave.				13,222	7,668	132	0	0	9,887	60	3	2,166
7	CHAPEL-AUDTRM	1	1	7,501	7,501	9,162	232	0	0	7,963	396	6	5,826
Zone	7 Total/Ave.				7,501	9,162	232	0	0	7,963	396	6	5,826
System	7 Total/Ave.				7,501	9,162	232	0	0	7,963	396	6	5,826
Building					74,789	50,879	1,487	0	0	72,375	2,746	9	29,390

ASHRAE 90 ANALYSIS - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

A S H R A E 9 0 A N A L Y S I S

Overall Roof U-Value = 0.029 (Btu/Hr/Sq Ft/F)
Overall Wall U-Value = 0.144 (Btu/Hr/Sq Ft/F)
Overall Building U-Value = 0.064 (Btu/Hr/Sq Ft/F)

Roof Overall Thermal Transfer Value (OTTVr) = 1.51 (Btu/Hr/Sq Ft)
Wall Overall Thermal Transfer Value (OTTVw) = 10.38 (Btu/Hr/Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

Main System 1 VAVFSK VAV WITH FORCED FLO SKIN

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	2.2	18	509	-20,235	63	239	626.5	18	538	0.0	0	0
5 - 10	4.5	11	318	-40,470	25	95	1,253.0	10	297	0.0	0	0
10 - 15	6.7	9	262	-60,705	12	47	1,879.5	7	203	0.0	0	0
15 - 20	8.9	5	133	-80,940	0	0	2,506.0	6	178	0.0	0	0
20 - 25	11.2	5	149	-101,175	0	0	3,132.5	4	105	0.0	0	0
25 - 30	13.4	4	117	-121,410	0	0	3,759.0	5	135	0.0	0	0
30 - 35	15.6	3	75	-141,645	0	0	4,385.5	2	56	0.0	0	0
35 - 40	17.9	3	87	-161,880	0	0	5,012.0	4	112	0.0	0	0
40 - 45	20.1	1	40	-182,115	0	0	5,638.5	2	64	0.0	0	0
45 - 50	22.3	4	111	-202,350	0	0	6,265.0	0	0	0.0	0	0
50 - 55	24.6	8	213	-222,585	0	0	6,891.5	1	23	0.0	0	0
55 - 60	26.8	11	318	-242,820	0	0	7,518.0	3	89	0.0	0	0
60 - 65	29.0	10	283	-263,055	0	0	8,144.5	1	20	0.0	0	0
65 - 70	31.3	6	166	-283,290	0	0	8,771.0	1	20	0.0	0	0
70 - 75	33.5	0	0	-303,525	0	0	9,397.5	0	0	0.0	0	0
75 - 80	35.7	0	0	-323,760	0	0	10,024.0	1	20	0.0	0	0
80 - 85	38.0	0	0	-343,995	0	0	10,650.5	1	44	0.0	0	0
85 - 90	40.2	0	0	-364,230	0	0	11,277.0	1	43	0.0	0	0
90 - 95	42.4	0	0	-384,465	0	0	11,903.5	0	0	0.0	0	0
95 - 100	44.7	0	0	-404,700	0	0	12,530.0	35	1,048	0.0	0	0
Hours Off	0.0	0	5,979	0	0	8,379	0.0	0	5,765	0.0	0	8,760

Main System 2 PTAC PACKAGED TERMINAL AIR COND.

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.5	0	0	-18,813	0	0	280.0	0	0	0.0	0	0
5 - 10	1.0	0	0	-37,626	0	0	560.0	0	0	0.0	0	0
10 - 15	1.5	0	0	-56,439	0	0	840.0	0	0	0.0	0	0
15 - 20	2.0	0	0	-75,252	0	0	1,120.0	0	0	0.0	0	0
20 - 25	2.6	5	424	-94,065	0	0	1,400.0	0	0	0.0	0	0
25 - 30	3.1	36	3,155	-112,878	0	0	1,680.0	0	0	0.0	0	0
30 - 35	3.6	23	2,039	-131,691	0	0	1,960.0	0	0	0.0	0	0
35 - 40	4.1	9	829	-150,504	0	0	2,240.0	0	0	0.0	0	0
40 - 45	4.6	5	444	-169,317	0	0	2,520.0	0	0	0.0	0	0
45 - 50	5.1	13	1,171	-188,130	0	0	2,800.0	0	0	0.0	0	0
50 - 55	5.6	6	550	-206,943	0	0	3,080.0	0	0	0.0	0	0
55 - 60	6.1	2	148	-225,756	0	0	3,360.0	0	0	0.0	0	0
60 - 65	6.6	0	0	-244,569	0	0	3,640.0	0	0	0.0	0	0
65 - 70	7.2	0	0	-263,382	0	0	3,920.0	0	0	0.0	0	0
70 - 75	7.7	0	0	-282,194	0	0	4,200.0	0	0	0.0	0	0
75 - 80	8.2	0	0	-301,007	0	0	4,480.0	0	0	0.0	0	0
80 - 85	8.7	0	0	-319,820	0	0	4,760.0	0	0	0.0	0	0
85 - 90	9.2	0	0	-338,633	0	0	5,040.0	0	0	0.0	0	0
90 - 95	9.7	0	0	-357,446	0	0	5,320.0	0	0	0.0	0	0
95 - 100	10.2	0	0	-376,259	0	0	5,600.0	100	8,760	0.0	0	0
Hours Off	0.0	0	0	0	0	8,760	0.0	0	0	0.0	0	8,760

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

Main System 3 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	1.5	20	562	-15,960	19	160	383.5	0	0	0.0	0	0
5 - 10	3.1	13	349	-31,920	16	133	767.0	0	0	0.0	0	0
10 - 15	4.6	10	283	-47,880	26	221	1,150.5	0	0	0.0	0	0
15 - 20	6.2	9	260	-63,840	40	337	1,534.0	0	0	0.0	0	0
20 - 25	7.7	6	173	-79,800	0	0	1,917.5	0	0	0.0	0	0
25 - 30	9.3	9	240	-95,760	0	0	2,301.0	0	0	0.0	0	0
30 - 35	10.8	8	236	-111,720	0	0	2,684.5	0	0	0.0	0	0
35 - 40	12.4	7	194	-127,680	0	0	3,068.0	0	0	0.0	0	0
40 - 45	13.9	5	129	-143,640	0	0	3,451.5	0	0	0.0	0	0
45 - 50	15.5	7	190	-159,600	0	0	3,835.0	0	0	0.0	0	0
50 - 55	17.0	4	108	-175,560	0	0	4,218.5	0	0	0.0	0	0
55 - 60	18.6	2	62	-191,520	0	0	4,602.0	0	0	0.0	0	0
60 - 65	20.1	0	0	-207,480	0	0	4,985.5	0	0	0.0	0	0
65 - 70	21.7	0	0	-223,440	0	0	5,369.0	0	0	0.0	0	0
70 - 75	23.2	0	0	-239,400	0	0	5,752.5	0	0	0.0	0	0
75 - 80	24.8	0	0	-255,360	0	0	6,136.0	0	0	0.0	0	0
80 - 85	26.3	0	0	-271,320	0	0	6,519.5	0	0	0.0	0	0
85 - 90	27.8	0	0	-287,280	0	0	6,903.0	0	0	0.0	0	0
90 - 95	29.4	0	0	-303,240	0	0	7,286.5	0	0	0.0	0	0
95 - 100	30.9	0	0	-319,200	0	0	7,670.0	100	8,760	0.0	0	0
Hours Off	0.0	0	5,974	0	0	7,909	0.0	0	0	0.0	0	8,760

Main System 4 VAVFSK VAV WITH FORCED FLO SKIN

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	2.2	14	342	-29,650	72	2,055	537.0	14	358	0.0	0	0
5 - 10	4.5	12	295	-59,300	28	795	1,074.0	9	238	0.0	0	0
10 - 15	6.7	13	310	-88,950	0	0	1,611.0	7	174	0.0	0	0
15 - 20	9.0	9	225	-118,600	0	0	2,148.0	7	165	0.0	0	0
20 - 25	11.2	8	184	-148,250	0	0	2,685.0	7	188	0.0	0	0
25 - 30	13.5	9	205	-177,900	0	0	3,222.1	5	120	0.0	0	0
30 - 35	15.7	12	289	-207,550	0	0	3,759.1	6	147	0.0	0	0
35 - 40	18.0	4	89	-237,200	0	0	4,296.1	6	148	0.0	0	0
40 - 45	20.2	6	143	-266,850	0	0	4,833.1	4	101	0.0	0	0
45 - 50	22.5	7	175	-296,500	0	0	5,370.1	2	62	0.0	0	0
50 - 55	24.7	4	105	-326,150	0	0	5,907.1	3	86	0.0	0	0
55 - 60	27.0	1	20	-355,800	0	0	6,444.1	3	87	0.0	0	0
60 - 65	29.2	0	0	-385,450	0	0	6,981.1	8	194	0.0	0	0
65 - 70	31.5	0	0	-415,100	0	0	7,518.1	2	62	0.0	0	0
70 - 75	33.7	0	0	-444,750	0	0	8,055.1	5	129	0.0	0	0
75 - 80	36.0	0	0	-474,400	0	0	8,592.1	4	108	0.0	0	0
80 - 85	38.2	0	0	-504,050	0	0	9,129.2	5	125	0.0	0	0
85 - 90	40.5	0	0	-533,700	0	0	9,666.2	2	43	0.0	0	0
90 - 95	42.7	0	0	-563,350	0	0	10,203.2	0	0	0.0	0	0
95 - 100	45.0	0	0	-593,000	0	0	10,740.2	0	0	0.0	0	0
Hours Off	0.0	0	6,378	0	0	5,910	0.0	0	6,225	0.0	0	8,760

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

Main System 5 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-19,860	13	314	385.5	0	0	0.0	0	0
5 - 10	0.0	0	0	-39,720	26	603	771.0	0	0	0.0	0	0
10 - 15	0.0	0	0	-59,580	35	809	1,156.5	0	0	0.0	0	0
15 - 20	0.0	0	0	-79,440	26	612	1,542.0	0	0	0.0	0	0
20 - 25	0.0	0	0	-99,300	0	0	1,927.5	0	0	0.0	0	0
25 - 30	0.0	0	0	-119,160	0	0	2,313.0	0	0	0.0	0	0
30 - 35	0.0	0	0	-139,020	0	0	2,698.5	0	0	0.0	0	0
35 - 40	0.0	0	0	-158,880	0	0	3,084.0	0	0	0.0	0	0
40 - 45	0.0	0	0	-178,740	0	0	3,469.5	0	0	0.0	0	0
45 - 50	0.0	0	0	-198,600	0	0	3,855.0	0	0	0.0	0	0
50 - 55	0.0	0	0	-218,460	0	0	4,240.5	0	0	0.0	0	0
55 - 60	0.0	0	0	-238,320	0	0	4,626.0	0	0	0.0	0	0
60 - 65	0.0	0	0	-258,180	0	0	5,011.5	0	0	0.0	0	0
65 - 70	0.0	0	0	-278,040	0	0	5,397.0	0	0	0.0	0	0
70 - 75	0.0	0	0	-297,900	0	0	5,782.5	0	0	0.0	0	0
75 - 80	0.0	0	0	-317,760	0	0	6,168.0	0	0	0.0	0	0
80 - 85	0.0	0	0	-337,620	0	0	6,553.5	0	0	0.0	0	0
85 - 90	0.0	0	0	-357,480	0	0	6,939.0	0	0	0.0	0	0
90 - 95	0.0	0	0	-377,340	0	0	7,324.5	0	0	0.0	0	0
95 - 100	0.0	0	0	-397,200	0	0	7,710.0	100	5,088	0.0	0	0
Hours Off	0.0	0	8,760	0	0	6,422	0.0	0	3,672	0.0	0	8,760

Main System 6 VAVFSK VAV WITH FORCED FLO SKIN

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	1.1	23	639	-14,745	87	2,440	251.6	21	613	0.0	0	0
5 - 10	2.2	15	413	-29,490	13	358	503.2	10	275	0.0	0	0
10 - 15	3.3	9	252	-44,235	0	0	754.8	10	302	0.0	0	0
15 - 20	4.4	8	208	-58,980	0	0	1,006.4	6	182	0.0	0	0
20 - 25	5.5	11	306	-73,725	0	0	1,258.0	7	210	0.0	0	0
25 - 30	6.5	9	258	-88,470	0	0	1,509.6	3	77	0.0	0	0
30 - 35	7.6	9	259	-103,215	0	0	1,761.2	4	115	0.0	0	0
35 - 40	8.7	4	102	-117,960	0	0	2,012.8	3	90	0.0	0	0
40 - 45	9.8	5	131	-132,705	0	0	2,264.4	2	64	0.0	0	0
45 - 50	10.9	5	129	-147,450	0	0	2,516.0	4	105	0.0	0	0
50 - 55	12.0	1	40	-162,195	0	0	2,767.6	2	67	0.0	0	0
55 - 60	13.1	0	0	-176,940	0	0	3,019.2	5	144	0.0	0	0
60 - 65	14.2	0	0	-191,685	0	0	3,270.8	6	179	0.0	0	0
65 - 70	15.3	0	0	-206,430	0	0	3,522.4	4	124	0.0	0	0
70 - 75	16.4	0	0	-221,175	0	0	3,774.0	4	127	0.0	0	0
75 - 80	17.5	0	0	-235,920	0	0	4,025.6	4	110	0.0	0	0
80 - 85	18.5	0	0	-250,665	0	0	4,277.2	3	85	0.0	0	0
85 - 90	19.6	0	0	-265,410	0	0	4,528.8	1	20	0.0	0	0
90 - 95	20.7	0	0	-280,155	0	0	4,780.4	0	0	0.0	0	0
95 - 100	21.8	0	0	-294,900	0	0	5,032.1	0	0	0.0	0	0
Hours Off	0.0	0	6,023	0	0	5,962	0.0	0	5,871	0.0	0	8,760

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

Main System 7 SZ SINGLE ZONE

Percent Design Load	---- Cooling Load ---- Cap. (Ton)	Hours (%)	Hours	------ Heating Load ------ Capacity (Btuh)	Hours (%)	Hours	---- Cooling Airflow ----- Cap. (Cfm)	Hours (%)	Hours	---- Heating Airflow ----- Cap. (Cfm)	Hours (%)	Hours
0 - 5	2.3	22	422	-28,787	11	408	600.0	0	0	0.0	0	0
5 - 10	4.7	17	319	-57,574	22	805	1,200.0	0	0	0.0	0	0
10 - 15	7.0	20	370	-86,361	26	971	1,800.0	0	0	0.0	0	0
15 - 20	9.4	21	402	-115,148	17	634	2,400.0	0	0	0.0	0	0
20 - 25	11.7	10	187	-143,935	24	869	3,000.0	0	0	0.0	0	0
25 - 30	14.1	10	186	-172,721	0	0	3,600.0	0	0	0.0	0	0
30 - 35	16.4	0	0	-201,508	0	0	4,200.0	0	0	0.0	0	0
35 - 40	18.8	0	0	-230,295	0	0	4,800.0	0	0	0.0	0	0
40 - 45	21.1	0	0	-259,082	0	0	5,400.0	0	0	0.0	0	0
45 - 50	23.4	0	0	-287,869	0	0	6,000.0	0	0	0.0	0	0
50 - 55	25.8	0	0	-316,656	0	0	6,600.0	0	0	0.0	0	0
55 - 60	28.1	0	0	-345,443	0	0	7,200.0	0	0	0.0	0	0
60 - 65	30.5	0	0	-374,230	0	0	7,800.0	0	0	0.0	0	0
65 - 70	32.8	0	0	-403,017	0	0	8,400.0	0	0	0.0	0	0
70 - 75	35.2	0	0	-431,804	0	0	9,000.0	0	0	0.0	0	0
75 - 80	37.5	0	0	-460,591	0	0	9,600.0	0	0	0.0	0	0
80 - 85	39.9	0	0	-489,378	0	0	10,200.0	0	0	0.0	0	0
85 - 90	42.2	0	0	-518,164	0	0	10,800.0	0	0	0.0	0	0
90 - 95	44.5	0	0	-546,951	0	0	11,400.0	0	0	0.0	0	0
95 - 100	46.9	0	0	-575,738	0	0	12,000.0	100	8,760	0.0	0	0
Hours Off	0.0	0	6,874	0	0	5,073	0.0	0	0	0.0	0	8,760

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

SYSTEM LOAD PROFILE

System Totals

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	10.0	74	6,486	-148,050	61	2,345	3,064.1	0	0	0.0	0	0
5 - 10	20.0	5	406	-296,100	30	1,165	6,128.2	0	0	0.0	0	0
10 - 15	29.9	3	256	-444,150	8	313	9,192.3	0	0	0.0	0	0
15 - 20	39.9	3	257	-592,199	0	0	12,256.4	0	0	0.0	0	0
20 - 25	49.9	2	154	-740,249	0	0	15,320.6	0	0	0.0	0	0
25 - 30	59.9	4	346	-888,299	0	0	18,384.7	0	0	0.0	0	0
30 - 35	69.8	4	345	-1,036,349	0	0	21,448.8	0	0	0.0	0	0
35 - 40	79.8	2	190	-1,184,399	0	0	24,512.9	0	0	0.0	0	0
40 - 45	89.8	2	173	-1,332,449	0	0	27,577.0	17	1,502	0.0	0	0
45 - 50	99.8	1	87	-1,480,499	0	0	30,641.1	5	424	0.0	0	0
50 - 55	109.7	1	60	-1,628,549	0	0	33,705.2	61	5,356	0.0	0	0
55 - 60	119.7	0	0	-1,776,599	0	0	36,769.3	3	238	0.0	0	0
60 - 65	129.7	0	0	-1,924,649	0	0	39,833.5	1	105	0.0	0	0
65 - 70	139.7	0	0	-2,072,698	0	0	42,897.6	1	109	0.0	0	0
70 - 75	149.6	0	0	-2,220,748	0	0	45,961.7	2	212	0.0	0	0
75 - 80	159.6	0	0	-2,368,798	0	0	49,025.8	5	452	0.0	0	0
80 - 85	169.6	0	0	-2,516,848	0	0	52,089.9	4	362	0.0	0	0
85 - 90	179.6	0	0	-2,664,898	0	0	55,154.0	0	0	0.0	0	0
90 - 95	189.5	0	0	-2,812,948	0	0	58,218.1	0	0	0.0	0	0
95 - 100	199.5	0	0	-2,960,998	0	0	61,282.2	0	0	0.0	0	0
Hours Off	0.0	0	0	0	0	4,937	0.0	0	0	0.0	0	8,760

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

January			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	24.1	19.9	-417,901	0.0	-261,536	2.6	-251,708	2.6	-337,713	2.6	-367,062	2.6
2	23.4	19.5	-437,905	0.0	-273,104	2.6	-262,513	2.6	-352,947	2.5	-381,414	2.5
3	23.7	20.0	-448,889	2.5	-275,424	2.5	-265,205	2.5	-357,692	2.5	-384,267	2.5
4	24.7	21.1	-458,606	2.5	-275,584	2.5	-298,697	2.5	-356,563	2.5	-381,376	2.5
5	26.3	22.8	-465,678	2.5	-268,059	2.5	-319,698	2.5	-349,721	2.5	-372,892	2.5
6	28.3	25.0	-457,225	2.4	-296,343	2.5	-297,442	2.5	-324,823	2.5	-346,464	2.5
7	30.8	27.9	-445,886	2.4	-290,422	2.5	-281,562	2.5	-305,438	2.5	-325,654	2.5
8	33.5	30.8	-344,656	3.0	-192,387	3.1	-259,555	2.5	-279,721	2.5	-220,896	3.1
9	36.4	33.5	-279,969	3.5	-165,366	3.6	-239,539	2.6	-255,603	2.6	-183,710	3.6
10	39.3	35.6	-223,844	4.1	-139,985	4.2	-211,063	2.7	-222,856	2.7	-145,898	4.1
11	42.1	36.8	-156,871	4.7	-110,805	4.7	-179,219	2.9	-155,005	2.9	-111,627	4.7
12	44.6	37.5	-103,174	5.0	-94,324	4.8	-148,294	3.1	-114,844	3.0	-95,102	4.8
13	46.6	38.2	-79,062	5.2	-76,476	4.9	-119,947	3.2	-110,360	3.2	-77,212	4.9
14	48.2	38.3	-57,253	5.4	-65,148	5.0	-104,122	3.3	-94,329	3.3	-65,844	5.0
15	49.2	39.0	-44,330	5.5	-53,224	5.0	-90,848	3.3	-88,450	3.3	-53,307	5.0
16	49.5	39.1	-44,159	5.6	-50,453	5.0	-85,678	3.3	-90,684	3.3	-49,792	5.0
17	48.8	38.9	-42,824	5.3	-42,584	4.7	-79,647	3.2	-84,470	3.2	-41,905	4.7
18	47.0	38.5	-48,416	4.5	-36,881	4.0	-80,672	3.1	-85,318	3.1	-37,455	4.0
19	44.1	37.3	-60,523	3.8	-46,991	3.5	-94,697	2.9	-101,446	2.9	-47,559	3.5
20	40.5	34.8	-80,012	3.2	-63,742	3.1	-118,151	2.8	-133,133	2.8	-64,278	3.1
21	36.4	31.2	-121,407	2.8	-120,508	2.7	-169,442	2.7	-193,640	2.7	-121,014	2.7
22	32.4	27.7	-181,068	2.7	-166,127	2.7	-223,562	2.7	-256,509	2.7	-166,604	2.7
23	28.8	24.3	-205,632	2.7	-204,563	2.7	-269,024	2.6	-304,043	2.6	-205,013	2.7
24	25.9	21.7	-230,084	2.6	-229,326	2.6	-306,936	2.6	-339,614	2.6	-229,751	2.6

February			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	31.5	28.3	-225,605	2.6	-191,602	2.6	-192,309	2.6	-250,872	2.6	-281,068	2.6
2	29.8	26.8	-239,699	2.6	-202,211	2.6	-201,778	2.6	-261,013	2.6	-296,613	2.6
3	28.3	25.5	-249,508	2.5	-220,934	2.6	-220,508	2.6	-282,305	2.6	-321,679	2.6
4	27.1	24.4	-284,397	2.5	-230,503	2.6	-230,084	2.6	-299,103	2.5	-337,884	2.5
5	26.2	23.6	-324,182	2.5	-239,559	2.5	-289,534	2.5	-314,406	2.5	-350,622	2.5
6	25.6	23.5	-325,637	2.5	-268,970	2.5	-305,434	2.5	-329,103	2.5	-362,929	2.5
7	25.5	23.4	-318,363	2.5	-309,571	2.5	-309,175	2.5	-335,258	2.5	-366,858	2.5
8	26.2	24.4	-230,181	3.1	-233,617	3.1	-309,096	2.5	-335,701	2.5	-287,355	3.1
9	28.3	26.1	-192,253	3.6	-201,388	3.6	-293,148	2.6	-317,220	2.6	-245,530	3.6
10	31.5	28.7	-159,351	4.2	-175,883	4.2	-263,625	2.7	-282,804	2.7	-206,036	4.2
11	35.2	31.3	-116,768	4.9	-138,942	4.7	-221,877	2.9	-203,310	2.8	-151,633	4.7
12	39.0	33.9	-87,150	5.0	-106,413	4.8	-176,412	3.0	-146,031	3.0	-118,641	4.8
13	42.2	35.9	-64,106	5.2	-84,268	4.8	-144,151	3.1	-137,526	3.1	-96,051	4.8
14	44.3	36.9	-52,426	5.4	-69,415	5.0	-121,095	3.2	-114,161	3.2	-80,664	5.0
15	45.0	36.8	-44,581	5.5	-65,931	5.0	-113,056	3.3	-113,418	3.3	-73,698	5.0
16	44.8	36.3	-45,922	5.6	-62,069	5.1	-106,048	3.3	-113,718	3.3	-68,336	5.1
17	44.3	35.8	-40,871	5.3	-57,346	4.8	-104,854	3.3	-112,247	3.3	-63,015	4.8
18	43.4	35.6	-40,594	4.5	-49,637	4.1	-100,289	3.1	-107,417	3.1	-56,306	4.1
19	42.2	36.1	-49,348	3.9	-43,081	3.6	-99,318	3.0	-106,190	3.0	-52,190	3.6
20	40.7	35.9	-66,342	3.2	-81,753	3.1	-113,923	2.8	-120,548	2.8	-91,074	3.1
21	39.0	34.5	-118,253	2.8	-100,558	2.8	-152,259	2.7	-163,640	2.7	-109,541	2.8
22	37.1	33.2	-158,613	2.8	-123,521	2.7	-180,493	2.7	-197,180	2.7	-132,180	2.7
23	35.2	31.5	-180,459	2.7	-146,735	2.7	-202,775	2.7	-224,625	2.7	-155,081	2.7
24	33.3	29.9	-203,265	2.6	-172,462	2.7	-228,667	2.6	-255,474	2.6	-180,506	2.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

March			------ Design -----		----- Weekday -----		-----Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	40.0	36.8	-171,300	2.7	-80,869	2.8	-109,291	2.8	-132,081	2.7	-137,818	2.7
2	37.3	34.5	-184,232	2.7	-107,106	2.7	-143,368	2.7	-171,276	2.7	-177,914	2.7
3	34.9	32.2	-199,888	2.6	-160,770	2.7	-160,186	2.7	-211,996	2.7	-218,396	2.7
4	32.9	30.3	-206,885	2.6	-176,033	2.7	-175,474	2.6	-229,527	2.6	-238,917	2.6
5	31.4	28.8	-247,414	2.6	-198,000	2.6	-197,451	2.6	-257,496	2.6	-272,014	2.6
6	30.4	28.0	-263,610	2.6	-206,174	2.6	-205,639	2.6	-266,655	2.6	-284,978	2.6
7	30.1	27.6	-256,421	2.5	-211,139	2.6	-210,624	2.6	-272,234	2.6	-292,797	2.6
8	30.7	28.0	-160,751	3.2	-181,216	3.2	-212,769	2.6	-270,863	2.6	-213,709	3.2
9	32.5	28.9	-126,600	3.7	-166,888	3.7	-206,219	2.6	-259,145	2.6	-188,808	3.7
10	35.4	30.6	-84,993	4.3	-141,094	4.2	-207,867	2.7	-232,228	2.7	-156,271	4.2
11	38.9	32.6	-54,572	4.9	-106,664	4.7	-184,433	2.9	-163,071	2.9	-121,289	4.7
12	42.9	35.4	-32,580	5.1	-80,679	4.8	-136,488	3.1	-107,159	3.1	-95,171	4.8
13	46.8	38.5	-18,243	5.2	-59,026	4.9	-99,006	3.2	-92,972	3.2	-66,347	4.9
14	50.4	41.3	-4,597	5.4	-45,502	5.1	-72,343	3.3	-60,759	3.3	-45,502	5.1
15	53.2	43.6	0	5.5	-30,894	5.1	-51,585	3.4	-43,990	3.4	-30,894	5.1
16	55.0	45.1	0	5.5	-25,191	5.1	-42,070	3.3	-42,070	3.3	-25,191	5.1
17	55.6	45.4	0	5.3	-16,888	4.8	-31,239	3.3	-31,239	3.3	-16,888	4.8
18	55.3	45.9	0	4.6	-3,986	4.1	-21,797	3.2	-21,797	3.2	-3,986	4.1
19	54.4	46.1	0	4.0	0	3.6	-22,958	3.0	-22,958	3.0	0	3.6
20	52.8	46.3	-18,709	3.4	-5,417	3.2	-28,473	2.9	-28,473	2.9	-5,417	3.2
21	50.8	45.5	-30,999	3.0	-10,706	2.9	-38,849	2.9	-42,100	2.8	-10,706	2.9
22	48.4	43.7	-53,777	2.9	-30,270	2.8	-63,729	2.8	-71,121	2.8	-30,270	2.8
23	45.7	41.6	-79,412	2.8	-45,293	2.8	-82,919	2.8	-90,326	2.8	-48,770	2.8
24	42.9	39.2	-94,152	2.8	-58,402	2.8	-105,113	2.8	-112,255	2.8	-68,947	2.8

April			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	56.3	50.9	-16,845	3.0	0	2.9	0	2.9	0	2.9	0	2.9
2	54.2	48.9	-30,095	2.9	0	2.9	0	2.9	0	2.9	0	2.9
3	52.3	47.7	-40,895	2.9	0	2.9	0	2.9	0	2.9	0	2.9
4	50.7	46.4	-48,901	2.9	0	2.9	0	2.9	0	2.9	0	2.9
5	49.5	45.4	-53,514	2.8	0	2.8	0	2.8	0	2.8	-3,232	2.8
6	48.8	44.7	-52,189	2.8	0	2.8	0	2.8	0	2.8	-4,826	2.8
7	48.5	44.7	-33,951	3.4	0	3.4	0	2.8	-4,407	2.8	-5,413	3.4
8	49.2	44.5	-25,363	3.9	0	3.8	-23,092	2.8	-42,363	2.8	-31,759	3.8
9	51.2	44.6	-12,471	4.3	-21,424	4.3	-35,243	2.8	-35,243	2.8	-35,123	4.3
10	54.2	46.1	0	4.8	-23,600	4.8	-23,736	2.9	0	2.9	-23,600	4.8
11	57.8	48.8	0	4.9	-9,916	4.8	-9,970	3.1	0	3.1	-9,916	4.8
12	61.8	51.6	0	5.1	0	4.9	0	3.2	0	3.2	0	4.9
13	65.4	54.4	0	5.3	0	5.1	0	3.3	0	3.3	0	5.1
14	68.4	56.7	0	5.4	0	5.2	0	3.4	0	3.4	0	5.2
15	70.4	58.3	0	5.5	0	5.2	0	3.4	0	3.4	0	5.2
16	71.0	58.2	0	5.3	0	4.9	0	3.4	0	3.4	0	4.9
17	70.8	58.5	0	4.8	0	4.4	0	3.4	0	3.4	0	4.4
18	70.1	58.2	0	4.3	0	3.9	0	3.3	0	3.3	0	3.9
19	68.9	58.3	0	3.7	0	3.4	0	3.2	0	3.2	0	3.4
20	67.3	58.5	0	3.3	0	3.1	0	3.1	0	3.1	0	3.1
21	65.4	57.9	0	3.2	0	3.1	0	3.1	0	3.1	0	3.1
22	63.3	56.3	0	3.1	0	3.0	0	3.0	0	3.0	0	3.0
23	61.0	54.8	0	3.0	0	3.0	0	3.0	0	3.0	0	3.0
24	58.6	53.0	0	3.0	0	3.0	0	3.0	0	3.0	0	3.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

May			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	63.3	59.6	0	40.9	0	3.9	0	3.9	0	3.9	0	3.9
2	61.3	57.9	0	37.3	0	3.0	0	3.0	0	3.0	0	3.0
3	59.7	56.5	0	30.8	0	3.0	0	3.0	0	3.0	0	3.0
4	58.4	55.5	0	18.8	0	2.9	0	2.9	0	2.9	0	2.9
5	57.6	54.8	0	18.3	0	2.9	0	2.9	0	2.9	0	2.9
6	57.4	54.7	0	16.1	0	2.9	0	2.9	0	2.9	0	2.9
7	57.9	55.2	0	19.7	0	4.3	0	2.9	0	2.9	0	4.3
8	59.4	55.6	0	26.3	0	9.3	0	2.9	0	2.9	0	9.3
9	61.7	56.5	0	51.4	0	17.4	0	3.0	0	3.0	0	17.4
10	64.6	57.7	0	58.8	0	28.1	0	3.0	0	3.0	0	28.1
11	67.8	59.7	0	59.5	0	50.6	0	3.1	0	3.1	0	50.6
12	71.0	62.0	0	62.7	0	52.7	0	5.2	0	5.2	0	52.7
13	73.9	63.9	0	69.2	0	58.5	0	15.1	0	15.1	0	58.5
14	76.3	65.3	0	73.8	0	62.8	0	19.8	0	19.8	0	62.8
15	77.7	66.4	0	81.6	0	66.2	0	22.6	0	24.3	0	66.2
16	78.2	66.4	0	76.5	0	61.5	0	23.6	0	27.6	0	61.5
17	78.0	66.3	0	65.2	0	55.3	0	28.0	0	29.1	0	55.4
18	77.2	66.2	0	56.9	0	50.1	0	27.7	0	27.6	0	50.1
19	76.0	66.5	0	47.9	0	34.3	0	24.3	0	24.3	0	34.3
20	74.3	66.4	0	39.9	0	22.3	0	21.5	0	21.5	0	22.3
21	72.3	66.5	0	27.7	0	18.0	0	17.3	0	17.3	0	18.0
22	70.1	64.9	0	11.2	0	12.3	0	11.8	0	11.8	0	12.3
23	67.8	63.2	0	5.7	0	7.5	0	7.2	0	7.2	0	7.5
24	65.5	61.4	0	4.5	0	4.8	0	4.8	0	4.8	0	4.8

June			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	66.2	65.3	0	8.4	0	4.0	0	4.0	0	4.0	0	4.0
2	65.3	63.9	0	6.0	0	3.0	0	3.0	0	3.0	0	3.0
3	64.5	62.4	0	4.3	0	3.0	0	3.0	0	3.0	0	3.0
4	64.0	61.3	0	3.3	0	3.0	0	3.0	0	3.0	0	3.0
5	63.8	60.8	0	3.2	0	3.0	0	3.0	0	3.0	0	3.0
6	64.2	61.2	0	3.4	0	2.9	0	2.9	0	2.9	0	2.9
7	65.1	61.7	0	29.9	0	15.7	0	3.0	0	3.0	0	15.8
8	66.8	62.3	0	47.2	0	38.8	0	3.0	0	3.0	0	39.2
9	69.3	63.3	0	61.9	0	54.1	0	3.1	0	3.1	0	54.4
10	72.1	65.2	0	75.3	0	65.8	0	6.2	0	6.2	0	65.8
11	75.4	67.5	0	79.6	0	68.1	0	9.9	0	13.7	0	68.1
12	78.4	69.8	0	85.3	0	72.3	0	27.7	0	34.7	0	72.2
13	80.7	71.6	0	94.2	0	88.8	0	45.1	0	46.0	0	88.8
14	82.2	72.7	0	100.6	0	92.0	0	47.7	0	48.6	0	92.0
15	82.8	72.8	0	105.4	0	95.6	0	51.5	0	51.4	0	95.6
16	82.2	73.1	0	99.6	0	89.4	0	51.6	0	51.6	0	89.4
17	80.9	72.7	0	86.1	0	76.8	0	49.7	0	49.7	0	76.8
18	78.8	71.6	0	76.6	0	67.5	0	44.5	0	44.5	0	67.5
19	76.3	71.3	0	67.4	0	55.9	0	36.2	0	36.2	0	55.9
20	73.8	72.0	0	59.3	0	34.1	0	30.1	0	30.1	0	34.1
21	71.8	71.8	0	42.0	0	23.0	0	22.3	0	22.3	0	23.0
22	69.9	71.0	0	27.0	0	16.2	0	15.6	0	15.6	0	16.2
23	68.3	68.9	0	19.1	0	9.0	0	8.6	0	8.6	0	9.0
24	67.2	66.8	0	12.0	0	5.1	0	5.1	0	5.1	0	5.1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

July			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	70.9	71.0	0	21.4	0	12.7	0	12.6	0	12.6	0	12.6
2	69.8	68.8	0	17.7	0	9.2	0	9.2	0	9.2	0	9.2
3	68.9	67.0	0	14.4	0	6.8	0	6.8	0	6.8	0	6.8
4	68.2	65.9	0	11.5	0	5.7	0	5.7	0	5.7	0	5.7
5	68.0	65.2	0	10.1	0	4.2	0	4.2	0	4.2	0	4.2
6	68.4	64.9	0	9.7	0	4.3	0	4.2	0	4.2	0	4.3
7	69.6	65.3	0	45.4	0	34.6	0	5.5	0	5.5	0	34.5
8	71.6	65.6	0	59.9	0	50.0	0	7.7	0	7.7	0	49.9
9	74.5	65.7	0	75.0	0	65.3	0	14.9	0	14.9	0	65.3
10	77.9	66.5	0	85.3	0	78.5	0	27.6	0	31.6	0	78.5
11	81.7	67.9	0	89.7	0	80.9	0	37.2	0	41.7	0	80.9
12	85.3	69.9	0	96.6	0	87.4	0	47.1	0	48.7	0	87.4
13	88.0	71.3	0	106.2	0	98.5	0	57.0	0	58.6	0	98.5
14	89.8	72.5	0	111.4	0	102.4	0	60.6	0	61.2	0	102.4
15	90.5	73.9	0	114.3	0	105.2	0	63.7	0	63.7	0	105.2
16	89.8	75.3	0	109.1	0	100.1	0	64.5	0	64.5	0	100.1
17	88.2	75.5	0	95.8	0	86.1	0	60.9	0	60.9	0	86.1
18	85.8	76.2	0	87.5	0	75.2	0	55.3	0	55.3	0	75.2
19	82.8	76.7	0	75.6	0	65.1	0	48.0	0	48.0	0	65.1
20	79.9	78.6	0	71.6	0	58.4	0	42.3	0	42.3	0	58.4
21	77.4	78.8	0	65.2	0	36.7	0	35.9	0	35.9	0	36.7
22	75.2	78.0	0	44.7	0	30.0	0	29.7	0	29.7	0	30.0
23	73.4	75.4	0	32.8	0	22.2	0	21.9	0	21.9	0	22.2
24	72.0	73.0	0	26.5	0	16.1	0	16.0	0	16.0	0	16.1

August			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.0	65.3	0	11.5	0	4.7	0	4.7	0	4.7	0	4.7
2	67.0	63.5	0	9.1	0	3.3	0	3.3	0	3.3	0	3.3
3	66.2	62.2	0	7.0	0	3.0	0	3.0	0	3.0	0	3.0
4	65.6	61.1	0	5.4	0	3.0	0	3.0	0	3.0	0	3.0
5	65.4	60.7	0	3.8	0	3.0	0	3.0	0	3.0	0	3.0
6	65.8	60.7	0	4.1	0	3.0	0	3.0	0	3.0	0	3.0
7	66.8	61.2	0	31.2	0	19.6	0	3.0	0	3.0	0	19.6
8	68.6	61.6	0	46.7	0	40.3	0	3.0	0	3.0	0	40.3
9	71.2	62.5	0	62.8	0	53.2	0	3.9	0	3.9	0	53.2
10	74.3	63.6	0	75.3	0	64.2	0	7.0	0	7.0	0	64.2
11	77.7	65.1	0	76.9	0	66.9	0	20.0	0	27.0	0	66.9
12	80.9	66.8	0	83.7	0	75.8	0	34.0	0	35.5	0	75.8
13	83.4	68.2	0	91.9	0	85.2	0	43.0	0	44.4	0	85.2
14	85.0	69.7	0	99.8	0	89.7	0	46.9	0	47.6	0	89.7
15	85.6	70.7	0	103.6	0	93.0	0	50.7	0	50.7	0	93.0
16	85.0	70.5	0	96.4	0	86.6	0	49.9	0	49.9	0	86.6
17	83.6	70.4	0	81.6	0	73.6	0	47.5	0	47.5	0	73.6
18	81.3	70.7	0	73.1	0	63.6	0	42.0	0	42.0	0	63.6
19	78.7	70.7	0	63.2	0	51.8	0	33.2	0	33.2	0	51.8
20	76.1	71.9	0	56.9	0	36.0	0	28.5	0	28.5	0	36.0
21	73.9	72.4	0	43.9	0	22.6	0	22.0	0	22.0	0	22.6
22	71.8	71.1	0	26.2	0	16.4	0	16.0	0	16.0	0	16.4
23	70.2	69.3	0	19.2	0	10.7	0	10.4	0	10.4	0	10.7
24	69.0	67.2	0	16.2	0	8.0	0	7.8	0	7.8	0	8.0

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

September			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.8	61.5	0	3.4	0	3.0	0	3.0	0	3.0	0	3.0
2	60.8	59.7	0	3.0	0	2.9	0	2.9	0	2.9	0	2.9
3	60.0	58.4	0	3.0	0	2.9	0	2.9	0	2.9	0	2.9
4	59.4	57.1	0	2.9	0	2.9	0	2.9	0	2.9	0	2.9
5	59.2	56.3	0	2.9	0	2.8	0	2.8	0	2.8	0	2.8
6	59.6	56.1	0	2.9	0	2.8	0	2.8	0	2.8	0	2.8
7	60.6	56.7	0	5.5	0	3.4	0	2.8	0	2.8	0	3.4
8	62.4	57.9	0	31.5	0	11.0	0	2.9	0	2.9	0	10.8
9	65.1	58.6	0	51.3	0	42.5	0	2.9	0	2.9	0	41.9
10	68.1	59.6	0	62.6	0	59.0	0	3.1	0	3.1	0	59.2
11	71.6	61.1	0	65.2	0	58.8	0	3.3	0	3.3	0	58.8
12	74.8	62.7	0	68.1	0	62.2	0	3.9	0	3.9	0	62.2
13	77.2	64.6	0	78.5	0	69.7	0	14.6	0	14.6	0	69.7
14	78.9	66.0	0	88.5	0	74.6	0	22.0	0	23.3	0	74.6
15	79.5	67.1	0	91.5	0	75.8	0	30.0	0	35.0	0	75.8
16	78.9	67.5	0	85.6	0	74.7	0	36.5	0	38.0	0	73.8
17	77.4	67.9	0	74.3	0	62.1	0	34.3	0	34.3	0	62.1
18	75.2	68.0	0	62.6	0	51.7	0	27.8	0	27.8	0	51.7
19	72.6	69.3	0	52.7	0	36.5	0	23.3	0	23.3	0	36.5
20	69.9	70.0	0	38.8	0	17.5	0	16.7	0	16.7	0	17.5
21	67.7	69.0	0	18.1	0	11.0	0	10.2	0	10.2	0	11.0
22	65.7	67.3	0	11.3	0	5.0	0	4.4	0	4.4	0	5.0
23	64.0	65.4	0	6.9	0	3.1	0	3.1	0	3.1	0	3.1
24	62.8	63.6	0	4.1	0	3.0	0	3.0	0	3.0	0	3.0

October			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	50.7	45.9	-17,671	2.9	0	2.9	0	2.9	0	2.9	0	2.9
2	48.4	44.0	-20,580	2.9	0	2.9	0	2.9	0	2.9	-6,530	2.9
3	46.3	42.0	-23,075	2.8	-2,226	2.8	0	2.8	-5,972	2.8	-11,685	2.8
4	44.6	40.8	-25,149	2.8	-7,291	2.8	0	2.8	-10,427	2.8	-15,934	2.8
5	43.4	39.7	-25,707	2.8	-39,394	2.8	-30,594	2.8	-68,714	2.8	-58,359	2.8
6	42.6	39.1	-24,766	2.7	-73,780	2.8	-66,989	2.8	-76,686	2.8	-81,804	2.8
7	42.3	38.9	-29,671	3.3	-76,844	3.3	-70,803	2.7	-80,148	2.7	-84,576	3.3
8	43.4	39.8	-66,214	3.8	-70,574	3.8	-66,151	2.8	-75,156	2.8	-78,025	3.8
9	46.3	41.5	-43,141	4.4	-55,753	4.3	-54,178	2.9	-62,231	2.8	-63,295	4.3
10	50.7	43.0	-19,810	4.9	-38,885	4.8	-39,027	3.0	-8,780	3.0	-38,885	4.8
11	56.0	45.7	0	5.1	-20,888	4.9	-20,923	3.2	0	3.2	-20,888	4.9
12	61.2	49.1	0	5.4	0	5.0	0	3.3	0	3.3	0	5.0
13	65.6	52.3	0	5.6	0	5.2	0	3.5	0	3.5	0	5.2
14	68.5	54.1	0	5.8	0	5.3	0	3.6	0	3.6	0	5.3
15	69.6	54.8	0	5.9	0	5.4	0	3.6	0	3.6	0	5.4
16	69.3	54.0	0	5.6	0	5.1	0	3.6	0	3.6	0	5.1
17	68.5	54.2	0	4.9	0	4.4	0	3.5	0	3.5	0	4.4
18	67.3	54.6	0	4.3	0	3.9	0	3.3	0	3.3	0	3.9
19	65.6	55.9	0	3.7	0	3.4	0	3.2	0	3.2	0	3.4
20	63.5	55.7	0	3.2	0	3.1	0	3.1	0	3.1	0	3.1
21	61.2	54.5	0	3.1	0	3.0	0	3.0	0	3.0	0	3.0
22	58.6	52.4	0	3.0	0	3.0	0	3.0	0	3.0	0	3.0
23	56.0	50.0	0	3.0	0	3.0	0	2.9	0	2.9	0	3.0
24	53.3	48.0	0	2.9	0	2.9	0	2.9	0	2.9	0	2.9

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

November			------ Design -----		----- Weekday -----		-----Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	43.8	40.3	-1,799	2.8	-55,282	2.8	-56,430	2.8	-95,877	2.8	-102,505	2.8
2	42.0	38.9	-5,719	2.8	-66,783	2.8	-68,308	2.8	-112,699	2.8	-120,195	2.8
3	40.5	37.5	-23,128	2.7	-77,182	2.7	-77,546	2.7	-123,602	2.7	-130,829	2.7
4	39.4	36.3	-90,537	2.7	-84,945	2.7	-85,288	2.7	-135,936	2.7	-142,903	2.7
5	38.7	35.8	-92,896	2.7	-94,134	2.7	-94,456	2.7	-146,171	2.7	-154,632	2.7
6	38.4	35.6	-95,891	2.7	-97,557	2.7	-136,054	2.7	-150,300	2.7	-187,004	2.7
7	39.1	36.3	-90,820	2.6	-94,730	2.7	-135,973	2.7	-148,697	2.7	-187,601	2.7
8	41.0	38.2	-79,929	3.3	-85,815	3.3	-126,053	2.7	-138,311	2.7	-112,446	3.3
9	43.8	40.6	-63,990	3.8	-74,869	3.8	-113,686	2.8	-125,497	2.8	-92,733	3.8
10	47.3	42.8	-48,668	4.5	-60,577	4.4	-93,709	2.9	-104,476	2.9	-73,570	4.4
11	51.1	45.4	-33,073	5.2	-42,768	4.9	-68,963	3.1	-40,541	3.1	-45,825	4.9
12	54.6	47.5	-13,470	5.4	-29,777	5.0	-48,907	3.3	-19,144	3.3	-29,777	5.0
13	57.4	49.2	0	5.5	-19,129	5.1	-32,102	3.4	-12,989	3.4	-19,129	5.1
14	59.3	50.0	0	5.7	-7,889	5.2	-16,418	3.5	-8,504	3.5	-7,889	5.2
15	59.9	50.3	0	5.8	-4,468	5.2	-7,103	3.5	-2,607	3.5	-4,468	5.2
16	59.7	50.1	0	5.7	0	5.2	0	3.5	0	3.5	0	5.2
17	59.0	50.0	0	5.3	0	4.8	-2,721	3.3	-2,721	3.3	0	4.8
18	57.9	50.8	0	4.5	0	4.1	0	3.2	0	3.2	0	4.1
19	56.4	51.0	0	3.9	0	3.6	-4,939	3.0	-4,939	3.0	0	3.6
20	54.6	49.7	0	3.3	0	3.2	-8,488	2.9	-8,488	2.9	0	3.2
21	52.5	48.2	0	2.9	0	2.9	-14,358	2.9	-9,855	2.9	0	2.9
22	50.3	46.2	0	2.9	0	2.9	-41,557	2.9	-43,146	2.9	0	2.9
23	48.1	44.0	-21,041	2.9	-26,243	2.8	-57,514	2.8	-65,700	2.8	-26,243	2.8
24	45.9	42.4	-52,225	2.8	-44,352	2.8	-78,366	2.8	-86,434	2.8	-48,499	2.8

December			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	32.1	29.4	-162,594	2.6	-188,844	2.6	-190,233	2.6	-248,377	2.6	-281,066	2.6
2	30.2	27.8	-170,539	2.5	-210,102	2.6	-210,327	2.6	-271,173	2.6	-309,597	2.6
3	28.5	25.9	-227,364	2.5	-223,171	2.6	-223,382	2.6	-286,059	2.6	-328,448	2.6
4	27.1	24.9	-262,084	2.5	-236,883	2.6	-270,524	2.6	-309,226	2.5	-350,091	2.5
5	26.1	24.0	-264,882	2.5	-249,496	2.5	-302,535	2.5	-324,012	2.5	-362,170	2.5
6	25.4	23.6	-263,424	2.5	-319,133	2.5	-319,305	2.5	-344,575	2.5	-380,211	2.5
7	25.2	23.3	-261,128	2.5	-323,921	2.5	-324,080	2.5	-351,859	2.5	-385,145	2.5
8	25.8	24.0	-220,512	3.1	-248,603	3.1	-324,472	2.5	-353,007	2.5	-306,390	3.1
9	27.5	25.7	-193,734	3.6	-215,280	3.6	-310,332	2.6	-337,249	2.6	-264,269	3.6
10	30.2	27.9	-161,931	4.2	-186,725	4.2	-281,811	2.7	-304,826	2.7	-222,592	4.2
11	33.4	30.3	-124,633	4.9	-158,305	4.7	-247,310	2.9	-233,556	2.9	-177,995	4.7
12	36.9	32.7	-88,588	5.1	-133,077	4.8	-210,759	3.0	-183,524	3.0	-146,097	4.8
13	40.2	35.1	-70,015	5.3	-108,163	4.8	-175,761	3.2	-169,350	3.2	-120,712	4.8
14	42.8	36.9	-55,944	5.5	-80,041	5.0	-136,776	3.2	-130,049	3.2	-92,137	5.0
15	44.6	38.1	-52,420	5.5	-70,366	5.0	-123,815	3.3	-124,378	3.3	-80,341	5.0
16	45.2	38.5	-50,258	5.5	-66,022	5.0	-114,271	3.3	-122,134	3.3	-72,805	5.0
17	44.9	38.7	-50,681	5.1	-56,723	4.6	-105,016	3.1	-112,597	3.1	-62,631	4.6
18	44.3	39.6	-46,361	4.3	-47,759	3.9	-101,221	3.0	-108,531	3.0	-54,227	3.9
19	43.3	39.6	-54,367	3.7	-64,445	3.5	-109,561	2.9	-116,608	2.8	-73,108	3.5
20	41.9	38.6	-108,005	3.1	-83,719	3.0	-137,401	2.7	-145,454	2.7	-94,148	3.0
21	40.2	37.1	-137,449	2.8	-98,286	2.7	-152,005	2.7	-165,060	2.7	-107,867	2.7
22	38.3	35.3	-169,608	2.7	-130,884	2.7	-188,984	2.7	-207,292	2.7	-140,121	2.7
23	36.2	33.4	-190,629	2.7	-151,651	2.7	-207,932	2.7	-231,685	2.7	-160,556	2.7
24	34.1	31.4	-206,169	2.6	-171,149	2.7	-227,493	2.6	-256,446	2.6	-179,735	2.7

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

BUILDING TEMPERATURE PROFILES

Temperature Range (F)	Room Number 1	2	3	4	5	6	7
Max. Temp.	90.0	75.0	82.2	84.4	85.8	80.3	75.0
Mo./Hr.	4 18	1 3	4 17	4 17	8 16	4 17	5 17
Day Type	2	1	2	2	2	2	1
	Number of Hours						
Above 100	0	0	0	0	0	0	0
95 - 100	0	0	0	0	0	0	0
90 - 95	0	0	0	0	0	0	0
85 - 90	1,027	0	0	0	450	0	0
80 - 85	2,372	0	354	2,616	2,323	112	0
75 - 80	2,273	0	1,440	2,472	1,323	4,645	0
70 - 75	3,088	8,760	5,987	3,672	1,942	4,003	4,873
65 - 70	0	0	979	0	2,722	0	3,887
60 - 65	0	0	0	0	0	0	0
55 - 60	0	0	0	0	0	0	0
50 - 55	0	0	0	0	0	0	0
Below 50	0	0	0	0	0	0	0
Min. Temp.	70.2	72.5	70.0	70.2	70.0	70.1	69.9
Mo./Hr.	1 1	1 1	1 1	1 1	1 1	1 1	1 19
Day Type	1	1	1	1	1	1	1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 OA NIGHTIME FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	85,309	248	716	4
Feb	76,603	248	581	4
March	86,696	255	245	2
April	78,510	255	0	0
May	109,972	370	0	0
June	119,685	421	0	0
July	129,180	442	0	0
Aug	125,659	424	0	0
Sept	104,464	379	0	0
Oct	83,686	255	0	0
Nov	79,024	255	0	0
Dec	83,288	248	739	4
Total	1,162,077	442	2,281	4

Building Energy Consumption = 56,082 (Btu/Sq Ft/Year)
Source Energy Consumption = 162,321 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	85,959	248	1,633	6
Feb	77,949	248	1,429	5
March	88,280	255	870	4
April	78,855	255	0	1
May	108,962	368	0	0
June	118,996	421	0	0
July	131,786	442	0	0
Aug	124,928	424	0	0
Sept	103,152	379	0	0
Oct	84,780	255	117	1
Nov	81,185	255	398	2
Dec	84,575	248	1,700	5
Total	1,169,408	442	6,147	6

Building Energy Consumption = 61,586 (Btu/Sq Ft/Year)
Source Energy Consumption = 168,766 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													266,597
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3
1	MISC LD													428,839
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1100L	AIR-CLD RECIP >45 TONS												126,768
	ELEC	0	0	0	0	17902	26992	35178	28718	17979	0	0	0	
	PK	0.0	0.0	0.0	0.0	84.0	102.0	105.0	103.9	91.6	0.0	0.0	0.0	105.0
1	EQ5200	CONDENSER FANS												12,524
	ELEC	0	0	0	0	1637	2765	3504	2889	1729	0	0	0	
	PK	0.0	0.0	0.0	0.0	9.5	11.8	11.8	11.7	10.6	0.0	0.0	0.0	11.8
1	EQ5001	CHILLED WATER PUMP C.V.												17,383
	ELEC	0	0	0	0	3051	3422	4729	3595	2587	0	0	0	
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	6.6
1	EQ5303	CONTROLS												786
	ELEC	0	0	0	0	138	155	214	163	117	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1100L	AIR-CLD RECIP >45 TONS												2,607
	ELEC	0	0	0	0	0	0	2607	0	0	0	0	0	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	65.5	74.3	66.5	0.0	0.0	0.0	0.0	74.3
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	0	257	0	0	0	0	0		257
	PK	0.0	0.0	0.0	0.0	0.0	6.5	7.2	6.4	0.0	0.0	0.0	0.0	7.2
2	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	0	0	0	0	0	0	0		0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303	CONTROLS												
	ELEC	0	0	0	0	9	9	21	9	3	0	0		52
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
3	EQ1161	AIR-CLD COND COMP <15 TONS												
	ELEC	2872	2612	3005	3010	3224	3348	3662	3540	3186	3151	2935	2850	37,396
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200	CONDENSER FANS												
	ELEC	112	97	131	198	270	307	350	331	272	192	146	106	2,511
	PK	0.3	0.3	0.4	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.8
3	EQ5303	CONTROLS												
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	0	0	0	0	3659	3873	4305	4191	3096	0	0	0	19,124
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	0	0	0	0	1726	1948	2397	2293	1693	0	0	0	10,056
	PK	0.0	0.0	0.0	0.0	11.2	10.1	11.0	11.2	11.2	0.0	0.0	0.0	11.2
4	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	4163	3760	4163	4028	0	0	0	0	0	4163	4028	4163	28,467
	PK	5.6	5.6	5.6	5.6	5.6	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 BASERUN FT LEONARD WOOD

6 EQ4002	BI CENTRIF. FAN C.V.												
ELEC	0	0	0	0	1577	1712	2039	1817	1269	0	0	0	8,414
PK	0.0	0.0	0.0	0.0	9.3	8.8	9.2	8.8	7.9	0.0	0.0	0.0	9.3
6 EQ4003	FC CENTRIF. FAN C.V.												
ELEC	161	145	161	156	161	156	161	161	156	161	156	161	1,897
PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7 EQ4002	BI CENTRIF. FAN C.V.												
ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1 EQ2001	GAS FIRE TUBE HOT WATER												
GAS	1633	1429	870	0	0	0	0	0	0	117	398	1700	6,147
PK	5.8	4.6	3.7	0.7	0.0	0.0	0.0	0.0	0.0	1.1	2.3	4.8	5.8
1 EQ5020	HEAT WATER CIRC. PUMP C.V.												
ELEC	2540	2447	1824	112	0	0	0	0	0	615	1380	2712	11,630
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7
1 EQ5240	BOILER FORCED DRAFT FAN												
ELEC	1634	1574	1174	72	0	0	0	0	0	396	888	1745	7,483
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	2.4
1 EQ5307	BOILER CONTROLS												
ELEC	340	328	244	15	0	0	0	0	0	83	185	363	1,559
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
2 EQ2001	GAS FIRE TUBE HOT WATER												
GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 EQ5020	HEAT WATER CIRC. PUMP C.V.												
ELEC	78	60	201	112	0	0	0	0	0	231	201	63	947
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7
2 EQ5240	BOILER FORCED DRAFT FAN												
ELEC	50	38	130	72	0	0	0	0	0	149	130	41	610
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	2.4
2 EQ5307	BOILER CONTROLS												
ELEC	10	8	27	15	0	0	0	0	0	31	27	9	127
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 NIGHT SETBACK FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	84,255	248	1,204	9
Feb	76,238	248	1,141	9
March	86,815	255	755	8
April	78,855	255	0	3
May	107,108	373	0	0
June	117,360	421	0	0
July	125,300	442	0	0
Aug	122,913	424	0	0
Sept	103,147	379	0	0
Oct	84,508	248	123	2
Nov	79,926	255	337	6
Dec	82,579	248	1,373	9
Total	1,149,006	442	4,933	9

Building Energy Consumption = 59,031 (Btu/Sq Ft/Year)
Source Energy Consumption = 164,264 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 NIGHT SETBACK FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													266,597
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	85.3
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	
1	MISC LD													428,839
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	117.3
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1	EQ1100L	AIR-CLD RECIP >45 TONS												110,121
	ELEC	0	0	0	0	14826	24652	27933	26109	16600	0	0	0	105.4
	PK	0.0	0.0	0.0	0.0	87.0	102.0	105.4	103.9	91.6	0.0	0.0	0.0	
1	EQ5200	CONDENSER FANS												10,952
	ELEC	0	0	0	0	1390	2506	2835	2630	1592	0	0	0	11.9
	PK	0.0	0.0	0.0	0.0	9.9	11.8	11.9	11.7	10.6	0.0	0.0	0.0	
1	EQ5001	CHILLED WATER PUMP C.V.												12,203
	ELEC	0	0	0	0	2374	2454	2673	2540	2162	0	0	0	6.6
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	
1	EQ5303	CONTROLS												552
	ELEC	0	0	0	0	107	111	121	115	98	0	0	0	0.3
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	
2	EQ1100L	AIR-CLD RECIP >45 TONS												4,438
	ELEC	0	0	0	0	0	0	4438	0	0	0	0	0	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 NIGHT SETBACK FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	65.5	74.3	66.5	0.0	0.0	0.0	0.0	74.3
2	EQ5200			CONDENSER FANS										
	ELEC	0	0	0	0	0	399	0	0	0	0	0		399
	PK	0.0	0.0	0.0	0.0	0.0	6.5	7.2	6.4	0.0	0.0	0.0	0.0	7.2
2	EQ5001			CHILLED WATER PUMP C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0		0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303			CONTROLS										
	ELEC	0	0	0	0	4	2	21	2	2	0	0		31
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
3	EQ1161			AIR-CLD COND COMP <15 TONS										
	ELEC	2872	2612	3005	3010	3224	3348	3662	3540	3186	3151	2935	2850	37,396
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200			CONDENSER FANS										
	ELEC	112	97	131	198	270	307	350	331	272	192	146	106	2,511
	PK	0.3	0.3	0.4	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.8
3	EQ5303			CONTROLS										
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	3933	3949	4053	4205	3202	0	0	0	19,342
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	1737	1975	2369	2308	1704	0	0	0	10,092
	PK	0.0	0.0	0.0	0.0	11.2	10.1	11.2	11.2	11.2	0.0	0.0	0.0	11.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	4163	3760	4163	4028	1908	1846	1908	1908	1846	4163	4028	4163	37,884
	PK	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 NIGHT SETBACK FT LEONARD WOOD

6	EQ4002	BI CENTRIF. FAN C.V.												8,428
	ELEC	0	0	0	0	1565	1743	2013	1843	1263	0	0	0	9.3
	PK	0.0	0.0	0.0	0.0	9.3	8.8	9.3	9.3	7.9	0.0	0.0	0.0	
6	EQ4003	FC CENTRIF. FAN C.V.												1,897
	ELEC	161	145	161	156	161	156	161	161	156	161	156	161	0.2
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
7	EQ4002	BI CENTRIF. FAN C.V.												65,350
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	7.5
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
1	EQ2001	GAS FIRE TUBE HOT WATER												4,933
	GAS	1204	1141	755	0	0	0	0	0	0	123	337	1373	9.5
	PK	9.5	9.3	7.9	3.0	0.0	0.0	0.0	0.0	0.0	1.6	6.0	9.4	
1	EQ5020	HEAT WATER CIRC. PUMP C.V.												6,643
	ELEC	1458	1380	970	112	0	0	0	0	0	578	671	1473	3.7
	PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	
1	EQ5240	BOILER FORCED DRAFT FAN												4,274
	ELEC	938	888	624	72	0	0	0	0	0	372	432	948	2.4
	PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	
1	EQ5307	BOILER CONTROLS												890
	ELEC	195	185	130	15	0	0	0	0	0	78	90	198	0.5
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	
2	EQ2001	GAS FIRE TUBE HOT WATER												0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2	EQ5020	HEAT WATER CIRC. PUMP C.V.												1,205
	ELEC	201	164	231	112	0	0	0	0	0	116	201	179	3.7
	PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	
2	EQ5240	BOILER FORCED DRAFT FAN												775
	ELEC	130	106	149	72	0	0	0	0	0	74	130	115	2.4
	PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	
2	EQ5307	BOILER CONTROLS												161
	ELEC	27	22	31	15	0	0	0	0	0	15	27	24	0.5
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 2100 DDC CONTROL FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	83,287	248	703	9
Feb	75,652	248	702	8
March	86,426	248	403	5
April	78,506	255	0	0
May	103,319	366	0	0
June	113,059	388	0	0
July	119,793	436	0	0
Aug	118,928	391	0	0
Sept	99,000	373	0	0
Oct	83,320	242	0	0
Nov	79,240	255	109	3
Dec	82,164	248	867	8
Total	1,122,695	436	2,784	9

Building Energy Consumption = 54,957 (Btu/Sq Ft/Year)
Source Energy Consumption = 157,636 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 2100 DDC CONTROL FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	266,597
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3
1	MISC LD													
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	428,839
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	12038	21306	26970	23042	13687	0	0	0	97,043
	PK	0.0	0.0	0.0	0.0	79.4	100.2	106.1	101.9	86.6	0.0	0.0	0.0	106.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	1152	2123	2754	2266	1303	0	0	0	9,597
	PK	0.0	0.0	0.0	0.0	8.8	11.4	11.7	11.4	9.9	0.0	0.0	0.0	11.7
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1844	2374	2560	2514	1791	0	0	0	11,082
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	6.6
1	EQ5303	CONTROLS												
	ELEC	0	0	0	0	83	107	116	114	81	0	0	0	501
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	0	0	856	0	0	0	0	0	856

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 2100 DDC CONTROL FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	71.4
2	EQ5200			CONDENSER FANS										
	ELEC	0	0	0	0	0	0	65	0	0	0	0	0	65
	PK	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	6.8
2	EQ5001			CHILLED WATER PUMP C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303			CONTROLS										
	ELEC	0	0	0	0	2	2	8	0	8	0	0	0	20
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.3	0.0	0.0	0.0	0.3
3	EQ1161			AIR-CLD COND COMP <15 TONS										
	ELEC	2911	2654	3052	3056	3265	3354	3680	3546	3198	3193	2976	2891	37,776
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200			CONDENSER FANS										
	ELEC	113	99	133	202	274	308	351	332	274	195	148	107	2,535
	PK	0.3	0.3	0.4	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.5	0.3	0.8
3	EQ5303			CONTROLS										
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	3860	3743	3914	3990	2982	0	0	0	18,490
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	1643	1790	2222	2108	1518	0	0	0	9,281
	PK	0.0	0.0	0.0	0.0	11.2	10.0	11.2	11.1	11.1	0.0	0.0	0.0	11.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	4163	3760	4163	4028	1908	1846	1908	1908	1846	4163	4028	4163	37,884
	PK	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 2100 DDC CONTROL FT LEONARD WOOD

6	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	0	0	0	0	1480	1639	1865	1727	1091	0	0	0	7,802
	PK	0.0	0.0	0.0	0.0	9.3	8.6	9.3	8.6	8.0	0.0	0.0	0.0	9.3
6	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	161	145	161	156	161	156	161	161	156	161	156	161	1,897
	PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001	GAS FIRE TUBE HOT WATER												
	GAS	703	702	403	0	0	0	0	0	0	0	109	867	2,784
	PK	8.7	7.7	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	7.8	8.7
1	EQ5020	HEAT WATER CIRC. PUMP C.V.												
	ELEC	862	1000	809	0	0	0	0	0	0	0	351	1205	4,226
	PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7
1	EQ5240	BOILER FORCED DRAFT FAN												
	ELEC	554	643	521	0	0	0	0	0	0	0	226	775	2,719
	PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4
1	EQ5307	BOILER CONTROLS												
	ELEC	116	134	108	0	0	0	0	0	0	0	47	161	567
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5
2	EQ2001	GAS FIRE TUBE HOT WATER												
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5020	HEAT WATER CIRC. PUMP C.V.												
	ELEC	231	190	145	0	0	0	0	0	0	0	112	190	869
	PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7
2	EQ5240	BOILER FORCED DRAFT FAN												
	ELEC	149	122	94	0	0	0	0	0	0	0	72	122	559
	PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4
2	EQ5307	BOILER CONTROLS												
	ELEC	31	25	20	0	0	0	0	0	0	0	15	25	117
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 2100 ECONOMIZER FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	83,287	248	703	9
Feb	75,652	248	702	8
March	86,426	248	403	5
April	78,506	255	0	0
May	102,721	366	0	0
June	112,500	388	0	0
July	119,325	436	0	0
Aug	117,921	391	0	0
Sept	98,116	373	0	0
Oct	83,320	242	0	0
Nov	79,240	255	109	3
Dec	82,164	248	867	8
Total	1,119,179	436	2,784	9

Building Energy Consumption = 54,796 (Btu/Sq Ft/Year)
Source Energy Consumption = 157,155 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 2100 ECONOMIZER FT LEONARD WOOD

---------- E Q U I P M E N T E N E R G Y C O N S U M P T I O N ----------

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													266,597
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3
1	MISC LD													428,839
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1100L	AIR-CLD RECIP >45 TONS												94,667
	ELEC	0	0	0	0	11503	20791	27382	22119	12873	0	0	0	
	PK	0.0	0.0	0.0	0.0	79.4	100.2	106.1	101.9	86.6	0.0	0.0	0.0	106.1
1	EQ5200	CONDENSER FANS												9,384
	ELEC	0	0	0	0	1089	2079	2801	2182	1234	0	0	0	
	PK	0.0	0.0	0.0	0.0	8.8	11.4	11.7	11.4	9.9	0.0	0.0	0.0	11.7
1	EQ5001	CHILLED WATER PUMP C.V.												11,082
	ELEC	0	0	0	0	1844	2374	2560	2514	1791	0	0	0	
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	6.6
1	EQ5303	CONTROLS												501
	ELEC	0	0	0	0	83	107	116	114	81	0	0	0	
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1100L	AIR-CLD RECIP >45 TONS												0
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 2100 ECONOMIZER FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	71.4
2	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	6.8
2	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303	CONTROLS												
	ELEC	0	0	0	0	2	2	3	0	8	0	0	0	15
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.3	0.0	0.0	0.0	0.3
3	EQ1161	AIR-CLD COND COMP <15 TONS												
	ELEC	2911	2654	3052	3056	3265	3354	3680	3546	3198	3193	2976	2891	37,776
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200	CONDENSER FANS												
	ELEC	113	99	133	202	274	308	351	332	274	195	148	107	2,535
	PK	0.3	0.3	0.4	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.5	0.3	0.8
3	EQ5303	CONTROLS												
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	0	0	0	0	3860	3743	3914	3990	2982	0	0	0	18,490
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	0	0	0	0	1643	1790	2222	2108	1518	0	0	0	9,281
	PK	0.0	0.0	0.0	0.0	11.2	10.0	11.2	11.1	11.1	0.0	0.0	0.0	11.2
4	EQ4003	FC CENTRIF. FAN C.V.												
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002	BI CENTRIF. FAN C.V.												
	ELEC	4163	3760	4163	4028	1908	1846	1908	1908	1846	4163	4028	4163	37,884
	PK	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 2100 ECONOMIZER FT LEONARD WOOD

6 EQ4002	BI CENTRIF. FAN C.V.												7,802
ELEC	0	0	0	0	1480	1639	1865	1727	1091	0	0	0	9.3
PK	0.0	0.0	0.0	0.0	9.3	8.6	9.3	8.6	8.0	0.0	0.0	0.0	
6 EQ4003	FC CENTRIF. FAN C.V.												1,897
ELEC	161	145	161	156	161	156	161	161	156	161	156	161	0.2
PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
7 EQ4002	BI CENTRIF. FAN C.V.												65,350
ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	7.5
PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
1 EQ2001	GAS FIRE TUBE HOT WATER												2,784
GAS	703	702	403	0	0	0	0	0	0	0	109	867	8.7
PK	8.7	7.7	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	7.8	
1 EQ5020	HEAT WATER CIRC. PUMP C.V.												4,226
ELEC	862	1000	809	0	0	0	0	0	0	0	351	1205	3.7
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	
1 EQ5240	BOILER FORCED DRAFT FAN												2,719
ELEC	554	643	521	0	0	0	0	0	0	0	226	775	2.4
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	
1 EQ5307	BOILER CONTROLS												567
ELEC	116	134	108	0	0	0	0	0	0	0	47	161	0.5
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	
2 EQ2001	GAS FIRE TUBE HOT WATER												0
GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2 EQ5020	HEAT WATER CIRC. PUMP C.V.												869
ELEC	231	190	145	0	0	0	0	0	0	0	112	190	3.7
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	3.7	3.7	
2 EQ5240	BOILER FORCED DRAFT FAN												559
ELEC	149	122	94	0	0	0	0	0	0	0	72	122	2.4
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4	2.4	
2 EQ5307	BOILER CONTROLS												117
ELEC	31	25	20	0	0	0	0	0	0	0	15	25	0.5
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 OA NIGHTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	266,597
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3
1	MISC LD													
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	428,839
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	18055	26858	32686	28526	18688	0	0	0	124,812
	PK	0.0	0.0	0.0	0.0	85.5	102.0	105.0	103.9	91.6	0.0	0.0	0.0	105.0
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	1625	2686	3184	2815	1771	0	0	0	12,081
	PK	0.0	0.0	0.0	0.0	9.7	11.8	11.8	11.7	10.6	0.0	0.0	0.0	11.8
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	3873	4271	4934	4543	3117	0	0	0	20,739
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	6.6
1	EQ5303	CONTROLS												
	ELEC	0	0	0	0	175	193	223	205	141	0	0	0	938
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	0	0	2607	0	0	0	0	0	2,607

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 OA NIGHTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	65.5	74.3	66.5	0.0	0.0	0.0	0.0	74.3
2	EQ5200			CONDENSER FANS										
	ELEC	0	0	0	0	0	0	257	0	0	0	0	0	257
	PK	0.0	0.0	0.0	0.0	0.0	6.5	7.2	6.4	0.0	0.0	0.0	0.0	7.2
2	EQ5001			CHILLED WATER PUMP C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303			CONTROLS										
	ELEC	0	0	0	0	19	23	12	15	9	0	0	0	78
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
3	EQ1161			AIR-CLD COND COMP <15 TONS										
	ELEC	2872	2612	3005	3010	3224	3348	3662	3540	3186	3151	2935	2850	37,396
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200			CONDENSER FANS										
	ELEC	112	97	131	198	270	307	350	331	272	192	146	106	2,511
	PK	0.3	0.3	0.4	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.8
3	EQ5303			CONTROLS										
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	3659	3873	4305	4191	3096	0	0	0	19,124
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	0	0	0	0	1726	1948	2397	2293	1693	0	0	0	10,056
	PK	0.0	0.0	0.0	0.0	11.2	10.1	11.0	11.2	11.2	0.0	0.0	0.0	11.2
4	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	4163	3760	4163	4028	0	0	0	0	0	4163	4028	4163	28,467
	PK	5.6	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 2100 OA NIGHTIME FT LEONARD WOOD

6 EQ4002	BI CENTRIF. FAN C.V.												
ELEC	0	0	0	0	1577	1712	2039	1817	1269	0	0	0	8,414
PK	0.0	0.0	0.0	0.0	9.3	8.8	9.2	8.8	7.9	0.0	0.0	0.0	9.3
6 EQ4003	FC CENTRIF. FAN C.V.												
ELEC	161	145	161	156	161	156	161	161	156	161	156	161	1,897
PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7 EQ4002	BI CENTRIF. FAN C.V.												
ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1 EQ2001	GAS FIRE TUBE HOT WATER												
GAS	716	581	245	0	0	0	0	0	0	0	0	739	2,281
PK	3.6	3.5	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.8
1 EQ5020	HEAT WATER CIRC. PUMP C.V.												
ELEC	2137	1641	903	15	0	0	0	0	0	116	183	1928	6,923
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7
1 EQ5240	BOILER FORCED DRAFT FAN												
ELEC	1375	1056	581	10	0	0	0	0	0	74	118	1241	4,454
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	2.4
1 EQ5307	BOILER CONTROLS												
ELEC	287	220	121	2	0	0	0	0	0	15	25	258	928
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
2 EQ2001	GAS FIRE TUBE HOT WATER												
GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 EQ5020	HEAT WATER CIRC. PUMP C.V.												
ELEC	116	108	231	15	0	0	0	0	0	116	183	123	891
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7
2 EQ5240	BOILER FORCED DRAFT FAN												
ELEC	74	70	149	10	0	0	0	0	0	74	118	79	574
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	2.4
2 EQ5307	BOILER CONTROLS												
ELEC	15	15	31	2	0	0	0	0	0	15	25	16	119
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 OA DAYTIME FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	84,872	255	1,101	5
Feb	76,921	255	858	4
March	87,511	255	513	3
April	78,510	255	0	0
May	108,538	360	0	0
June	117,207	375	0	0
July	127,047	388	0	0
Aug	123,196	379	0	0
Sept	102,625	368	0	0
Oct	84,303	255	58	1
Nov	80,403	255	266	1
Dec	83,693	255	1,031	4
Total	1,154,827	388	3,827	5

Building Energy Consumption = 57,818 (Btu/Sq Ft/Year)
Source Energy Consumption = 163,504 (Btu/Sq Ft/Year)

Floor Area = 74,789 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 OA DAYTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	22374	20222	23744	21406	23059	22798	21667	23744	21406	23059	21451	21667	266,597
	PK	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3	85.3
1	MISC LD													
	ELEC	36048	32590	37903	34586	36976	36441	35121	37903	34586	36976	34586	35121	428,839
	PK	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3	117.3
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	17306	25185	33318	26992	17424	0	0	0	120,225
	PK	0.0	0.0	0.0	0.0	77.3	88.3	101.1	91.1	82.2	0.0	0.0	0.0	101.1
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	1584	2498	3240	2636	1646	0	0	0	11,605
	PK	0.0	0.0	0.0	0.0	8.5	9.8	11.0	9.9	9.2	0.0	0.0	0.0	11.0
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	3051	3475	4729	3595	2520	0	0	0	17,370
	PK	0.0	0.0	0.0	0.0	6.6	6.6	6.6	6.6	6.6	0.0	0.0	0.0	6.6
1	EQ5303	CONTROLS												
	ELEC	0	0	0	0	138	157	214	163	114	0	0	0	786
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1100L	AIR-CLD RECIP >45 TONS												
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 CA DAYTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200			CONDENSER FANS									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001			CHILLED WATER PUMP C.V.									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5303			CONTROLS									
	ELEC	0	0	0	0	9	9	9	9	0	0	0	0	37
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
3	EQ1161			AIR-CLD COND COMP <15 TONS									
	ELEC	2872	2612	3005	3010	3224	3348	3662	3540	3186	3151	2935	2850	37,396
	PK	11.8	11.8	11.8	11.9	12.8	13.3	14.2	13.6	12.8	11.8	11.8	11.8	14.2
3	EQ5200			CONDENSER FANS									
	ELEC	112	97	131	198	270	307	350	331	272	192	146	106	2,511
	PK	0.3	0.3	0.4	0.7	0.7	0.8	0.8	0.8	0.8	0.7	0.5	0.3	0.8
3	EQ5303			CONTROLS									
	ELEC	223	202	223	216	223	216	223	223	216	223	216	223	2,628
	PK	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
1	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	3884	4101	4565	4439	3279	0	0	0	20,267
	PK	0.0	0.0	0.0	0.0	13.1	13.1	13.1	13.1	13.1	0.0	0.0	0.0	13.1
1	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	990	894	990	958	990	958	990	990	958	990	958	990	11,651
	PK	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
2	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	2775	2507	2775	2686	2775	2686	2775	2775	2686	2775	2686	2775	32,675
	PK	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
3	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
4	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	1726	1948	2397	2293	1693	0	0	0	10,056
	PK	0.0	0.0	0.0	0.0	11.2	10.1	11.0	11.2	11.2	0.0	0.0	0.0	11.2
4	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	486	439	486	470	486	470	486	486	470	486	470	486	5,720
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
5	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	4163	3760	4163	4028	0	0	0	0	0	4163	4028	4163	28,467
	PK	5.6	5.6	5.6	5.6	0.0	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 2100 OA DAYTIME FT LEONARD WOOD

6 EQ4002	BI CENTRIF. FAN C.V.												8,414
ELEC	0	0	0	0	1577	1712	2039	1817	1269	0	0	0	9.3
PK	0.0	0.0	0.0	0.0	9.3	8.8	9.2	8.8	7.9	0.0	0.0	0.0	
6 EQ4003	FC CENTRIF. FAN C.V.												1,897
ELEC	161	145	161	156	161	156	161	161	156	161	156	161	0.2
PK	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
7 EQ4002	BI CENTRIF. FAN C.V.												65,350
ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	7.5
PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
1 EQ2001	GAS FIRE TUBE HOT WATER												3,827
GAS	1101	858	513	0	0	0	0	0	0	58	266	1031	5.4
PK	5.4	4.1	3.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.5	4.4	
1 EQ5020	HEAT WATER CIRC. PUMP C.V.												8,482
ELEC	1876	1764	1361	15	0	0	0	0	0	347	1018	2100	3.7
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	
1 EQ5240	BOILER FORCED DRAFT FAN												5,458
ELEC	1207	1135	876	10	0	0	0	0	0	223	655	1351	2.4
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	
1 EQ5307	BOILER CONTROLS												1,137
ELEC	251	237	183	2	0	0	0	0	0	47	136	281	0.5
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	
2 EQ2001	GAS FIRE TUBE HOT WATER												0
GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2 EQ5020	HEAT WATER CIRC. PUMP C.V.												1,074
ELEC	131	164	231	15	0	0	0	0	0	231	123	179	3.7
PK	3.7	3.7	3.7	3.7	0.0	0.0	0.0	0.0	0.0	3.7	3.7	3.7	
2 EQ5240	BOILER FORCED DRAFT FAN												691
ELEC	84	106	149	10	0	0	0	0	0	149	79	115	2.4
PK	2.4	2.4	2.4	2.4	0.0	0.0	0.0	0.0	0.0	2.4	2.4	2.4	
2 EQ5307	BOILER CONTROLS												144
ELEC	18	22	31	2	0	0	0	0	0	31	16	24	0.5
PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	

COMPUTER SIMULATIONS

BUILDING 4109

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 4109
BLDG. TYPE: OFFICERS CLUB

ENERGY CONSTANT CALCULATIONS

ECC	30000 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	28820 CFM	* 1952 HR/YR		
ECHC	30000 kWH	– 0 kWH	=	0.00E+00 kWH/CFM-HR
	28820 CFM	* 5840 HR/YR		
NSUCHC	45308 kWH	– 39497 kWH	=	6.91E-05 kWH/CFM-HR
	28820 CFM	* 2920 HR/YR		
NSUCC	45308 kWH	– 39497 kWH	=	2.07E-04 kWH/CFM-HR
	28820 CFM	* 976 HR/YR		
DDCCHC	39497 kWH	– 30000 kWH	=	5.64E-05 kWH/CFM-HR
	28820 CFM	* 5840 HR/YR		
DDCCC	39497 kWH	– 30000 kWH	=	1.69E-04 kWH/CFM-HR
	28820 CFM	* 1952 HR/YR		
NSC	792.6 MBtu	– 741.7 MBtu	=	9.68E+03 Btu/UA
	5257 UA			
DSC	741.7 MBtu	– 628.4 MBtu	=	2.16E+04 Btu/UA
	5257 UA			
OPT	(2 HR/DAY X 272 DAY/YR) –	294 HR/YR	=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR *	0.01	=	5.06 HR/YR

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	01-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z1R1

BUILDING HEATING LOAD CALCULATION SHEET

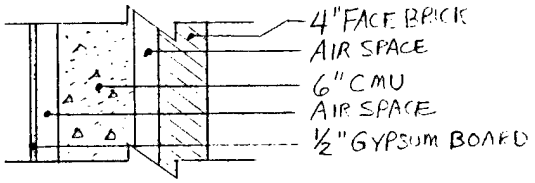
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB - ZONE 1 (RM 1)
BLDG FUNCTION: PACKAGE STORE / BARBER SHOP
FLOOR AREA: (SQ. FT) 2,187 # FLOORS 1
SLAB PERIMETER: (FT) 102

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	743	0	0	635	1,377
GLASS	(SQ. FT)	0	0	0	29	29
PERSONNEL DOOR	(SQ. FT)	0	0	0	22	22
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	743	0	0	584	1,326
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	2,187
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	22
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

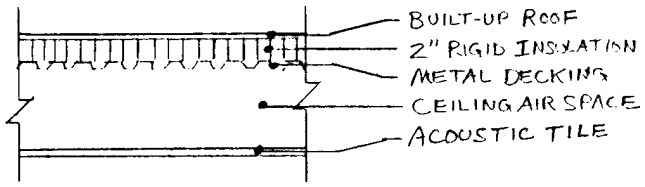
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	1377	X CFM / SQ.FT.	0.115	=	158
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		20	X CFM /OPENING /HR	1.385	=	28
			TOTAL INFILTRATION (CFM)		=	186

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	22	X DOOR "U"	0.391	=	9
UA WALL	= WALL AREA	1,326	X WALL "U"	0.184	=	244
UA ROOF	= ROOF AREA	2,187	X ROOF "U"	0.094	=	205
UA GLASS	= GLASS AREA	29	X GLASS "U"	0.621	=	18
UA SLAB	= SLAB PERIM.	102	X SLF	0.670	=	68
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	186	X A. T. F.	1.035	=	193
			TOTAL UA (BTU/HR°F)			736

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	01-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z2R2

BUILDING HEATING LOAD CALCULATION SHEET

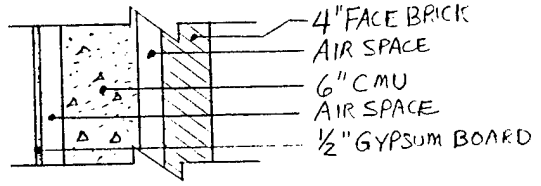
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB – ZONE 2 (RM 2)
BLDG FUNCTION: ADMINISTRATION OFFICES
FLOOR AREA: (SQ. FT) 3,420 # FLOORS 1
SLAB PERIMETER: (FT) 100

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,350	0	0	0	1,350
GLASS	(SQ. FT)	94	0	0	0	94
PERSONNEL DOOR	(SQ. FT)	44	0	0	0	44
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	1,212	0	0	0	1,212
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	3,420
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	44
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

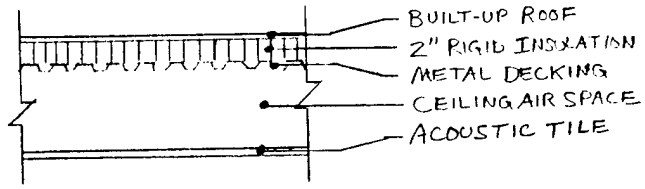
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	1350	X CFM / SQ.FT.	0.115	=	155
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR – SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR – DOUBLE DOORS		30	X CFM /OPENING /HR	1.385	=	42
			TOTAL INFILTRATION (CFM)		=	197

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	=PDOOR AREA	44	X DOOR "U"	0.391	=	17
UA WALL	= WALL AREA	1,212	X WALL "U"	0.184	=	223
UA ROOF	= ROOF AREA	3,420	X ROOF "U"	0.094	=	321
UA GLASS	= GLASS AREA	94	X GLASS "U"	0.621	=	58
UA SLAB	= SLAB PERIM.	100	X SLF	0.670	=	67
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	197	X A. T. F.	1.035	=	204
			TOTAL UA (BTU/HR°F)			890

E M C ENGINEERS, INC.

DATE:	01-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z3R3

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

BUILDING HEATING LOAD CALCULATION SHEET

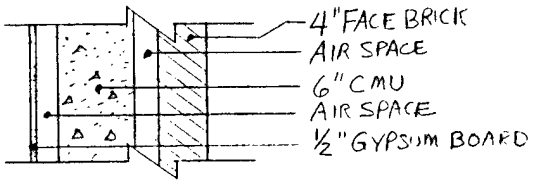
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB - ZONE 3 (RM 3)
BLDG FUNCTION: COCKTAIL LOUNGE
FLOOR AREA: (SQ. FT) 1,200 # FLOORS 1
SLAB PERIMETER: (FT) 68

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	459	0	459	0	918
GLASS	(SQ. FT)	54	0	144	0	198
PERSONNEL DOOR	(SQ. FT)	0	0	42	0	42
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	405	0	273	0	678
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	1,200
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

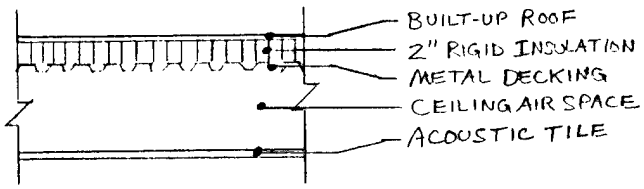
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M 918	X CFM / SQ.FT.	0.115	=	106
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	25	X CFM /OPENING /HR	1.385	=	35
		TOTAL INFILTRATION (CFM)		=	140

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	678	X WALL "U"	0.184	=	125
UA ROOF	= ROOF AREA	1,200	X ROOF "U"	0.094	=	113
UA GLASS	= GLASS AREA	198	X GLASS "U"	0.621	=	123
UA SLAB	= SLAB PERIM.	68	X SLF	0.830	=	56
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	140	X A. T. F.	1.035	=	145
			TOTAL UA (BTU/HR°F)			578

E M C ENGINEERS, INC.

DATE:	03-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z4R4

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

BUILDING HEATING LOAD CALCULATION SHEET

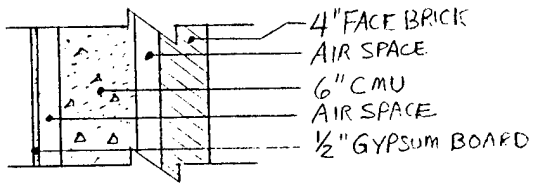
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB - ZONE 4 (RM 4)
BLDG FUNCTION: BAR - GAME ROOM
FLOOR AREA: (SQ. FT) 2,444 # FLOORS 1
SLAB PERIMETER: (FT) 119

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	635	0	972	1,607
GLASS	(SQ. FT)	0	36	0	72	108
PERSONNEL DOOR	(SQ. FT)	0	42	0	0	42
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	557	0	900	1,457
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	2,444
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

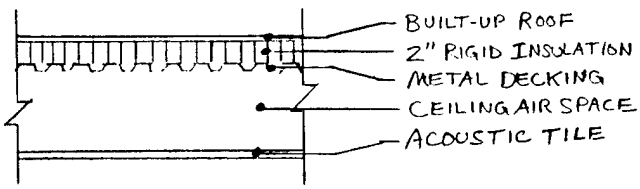
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	1607	X CFM / SQ.FT.	0.115	=	185
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		15	X CFM /OPENING /HR	1.385	=	21
			TOTAL INFILTRATION (CFM)		=	206

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	1,457	X WALL "U"	0.184	=	268
UA ROOF	= ROOF AREA	2,444	X ROOF "U"	0.094	=	229
UA GLASS	= GLASS AREA	108	X GLASS "U"	0.621	=	67
UA SLAB	= SLAB PERIM.	119	X SLF	0.670	=	80
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	206	X A. T. F.	1.035	=	213
			TOTAL UA (BTU/HR°F)			873

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	01-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z4R5

BUILDING HEATING LOAD CALCULATION SHEET

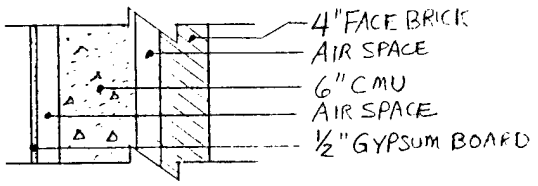
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB - ZONE 4 (RM 5)
BLDG FUNCTION: BALL ROOM
FLOOR AREA: (SQ. FT) 7,015 # FLOORS 1
SLAB PERIMETER: (FT) 0

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	0	0	0	0
GLASS	(SQ. FT)	0	0	0	0	0
PERSONNEL DOOR	(SQ. FT)	0	0	0	0	0
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	0	0	0	0
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	7,015
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	0
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

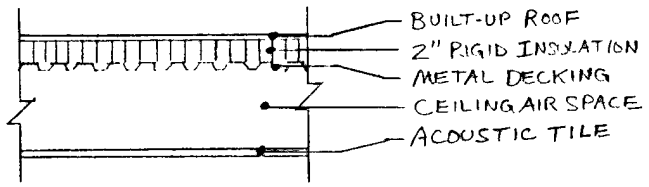
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.		
2.		
3.		
4.		
5.		
6.		
7.		

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT-UP ROOF	0.34
3.	2" RIGID INSULATON	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)	X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.)	X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR	X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	X CFM /OPENING /HR	1.385	=	0
	TOTAL INFILTRATION (CFM)		=	0

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	= 0
UA PDOOR	= PDOOR AREA	0	X DOOR "U"	0.391	= 0
UA WALL	= WALL AREA	0	X WALL "U"	0.000	= 0
UA ROOF	= ROOF AREA	7,015	X ROOF "U"	0.094	= 658
UA GLASS	= GLASS AREA	0	X GLASS "U"	0.621	= 0
UA SLAB	= SLAB PERIM.	0	X SLF	0.670	= 0
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	= 0
INFILTRATION	= CFM	0	X A. T. F.	1.035	= 0
			TOTAL UA (BTU/HR°F)		658

E M C ENGINEERS, INC.

DATE:	03-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z4R6

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

BUILDING HEATING LOAD CALCULATION SHEET

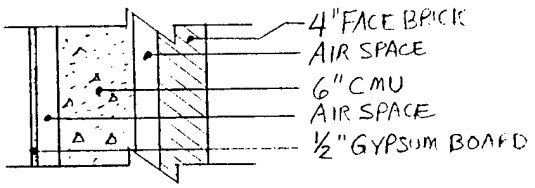
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB - ZONE 4 (RM 6)
BLDG FUNCTION: DINING ROOM
FLOOR AREA: (SQ. FT) 1,840 # FLOORS 1
SLAB PERIMETER: (FT) 40

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	0	540	0	540
GLASS	(SQ. FT)	0	0	192	0	192
PERSONNEL DOOR	(SQ. FT)	0	0	42	0	42
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	0	306	0	306
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	1,840
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	42
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

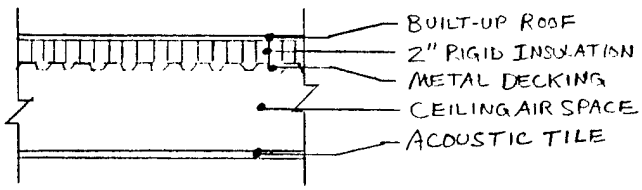
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.67
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	540	X CFM / SQ.FT.	0.115	=	62
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS		35	X CFM /OPENING /HR	1.385	=	48
			TOTAL INFILTRATION (CFM)		=	111

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	42	X DOOR "U"	0.391	=	16
UA WALL	= WALL AREA	306	X WALL "U"	0.184	=	56
UA ROOF	= ROOF AREA	1,840	X ROOF "U"	0.094	=	173
UA GLASS	= GLASS AREA	192	X GLASS "U"	0.621	=	119
UA SLAB	= SLAB PERIM.	40	X SLF	0.670	=	27
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	111	X A. T. F.	1.035	=	114
			TOTAL UA (BTU/HR°F)			506

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	01-Mar-93
BY:	BHS
JOB:	3204.000
CHK:	AJN
FILE:	4109Z4R7

BUILDING HEATING LOAD CALCULATION SHEET

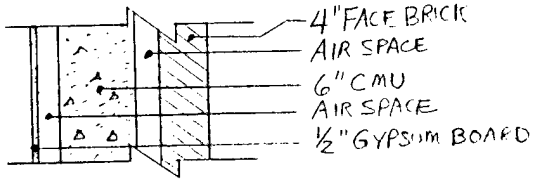
BLDG NO: 4109 BLDG NAME: OFFICERS CLUB – ZONE 4 (RM 7)
BLDG FUNCTION: KITCHEN
FLOOR AREA: (SQ. FT) 3,147 # FLOORS 1
SLAB PERIMETER: (FT) 135

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	1,202	608	0	1,809
GLASS	(SQ. FT)	0	0	0	0	0
PERSONNEL DOOR	(SQ. FT)	0	42	42	0	84
OVERHEAD DOOR	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	1,160	566	0	1,725
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	3,147
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	84
BASEMENT WALLS	(SQ. FT)	0	0	0	0	0

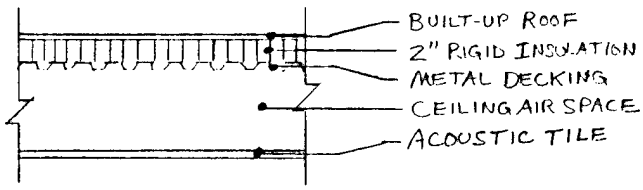
II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	6" CMU	1.89
5.	AIR SPACE	0.91
6.	1/2" GYPSUM BOARD	0.45
7.	INSIDE AIR FILM	0.68
	TOTAL R-WALL =	5.44
	U=1/R	0.184

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	BUILT UP ROOF	0.34
3.	2" RIGID INSULATION	6.68
4.	METAL DECKING	0.00
5.	CEILING AIR SPACE	1.00
6.	ACOUSTIC TILE	1.79
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	10.65
	U=1/R	0.094

GLASS TYPE:	DOUBLE PANE	R-GLASS	1.61
SLAB TYPE FLOOR:	CONCRETE	SLF	0.83
BASEMENT TYPE:	NONE	R-BASEM.	0.00
OVERHEAD DOOR TYPE:	NONE	R-ODOOR	0.00
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	1809	X CFM / SQ.FT.	0.115	=	208
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR – SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR – DOUBLE DOORS		30	X CFM /OPENING /HR	1.385	=	42
			TOTAL INFILTRATION (CFM)		=	250

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.000	=	0
UA PDOOR	= PDOOR AREA	84	X DOOR "U"	0.391	=	33
UA WALL	= WALL AREA	1,725	X WALL "U"	0.184	=	317
UA ROOF	= ROOF AREA	3,147	X ROOF "U"	0.094	=	295
UA GLASS	= GLASS AREA	0	X GLASS "U"	0.621	=	0
UA SLAB	= SLAB PERIM.	135	X SLF	0.830	=	112
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	250	X A. T. F.	1.035	=	258
			TOTAL UA (BTU/HR°F)			1,016

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R1
BLDG: 4109 ZONE: 1/RM1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1/RM1	4	1	Seated at rest	Theater, Movie	225	105	900	420
	6	5	Standing, light work, or walking slowly	Retail store, bank	270	220	1,620	1,320
TOTAL	10					TOTAL	2,520	1,740

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1/RM1	35	18	Incandescent - 60w	60	2,100
	4	20	Incandescent - 100w	100	400
	4	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	336
TOTAL	43			TOTAL	2,836

Peak Value for Internal Gains

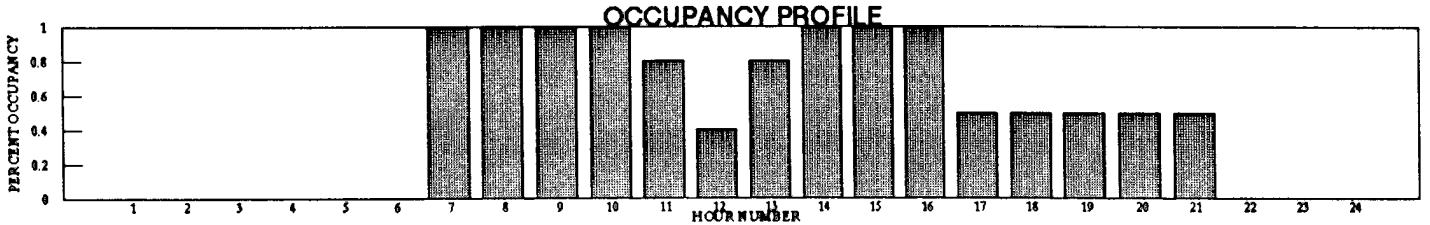
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1/RM1							
				TOTAL			

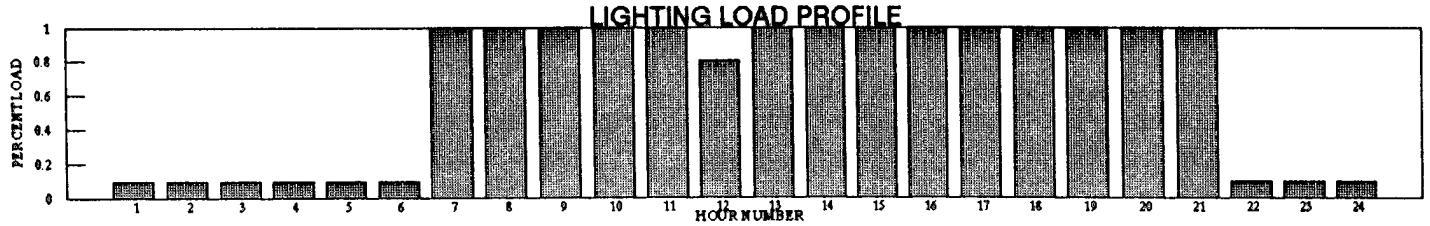
E M C Engineers, Inc.

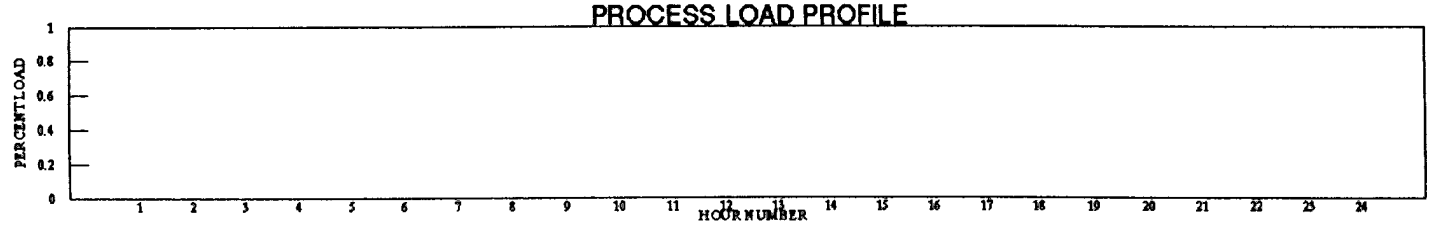
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R1
BLDG: 4109
ZONE: 1/RM1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	1	0.5	0.5	0.5	0.5	0.5			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.8	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1
		PROCESS																								







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R2
BLDG: 4109 ZONE: 2/RM2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2/RM2	8	4	Seated, light work, typing	Offices, hotels, apts	250	200	2,000	1,600
TOTAL	8					TOTAL	2,000	1,600

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2/RM2	32	18	Incandescent – 60w	60	1,920
	3	21	Incandescent – 150w	150	450
	17	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,428
TOTAL	52			TOTAL	3,798

Peak Value for Internal Gains

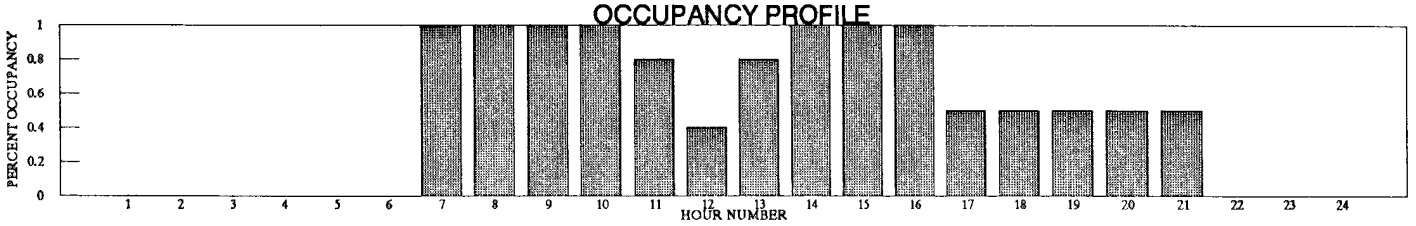
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space (%)	Total Wattage	Total (BTU)
2/RM2	3	3	Microcomputer	350	91%	1,050	3,584
	3	5	Printer (laser)	870	34%	2,610	8,908
	1	10	Copy Machine	1,570	20%	1,570	5,358
	1	12	Typewriter	100	10%	100	341
			TOTAL		41%	5,330	18,191

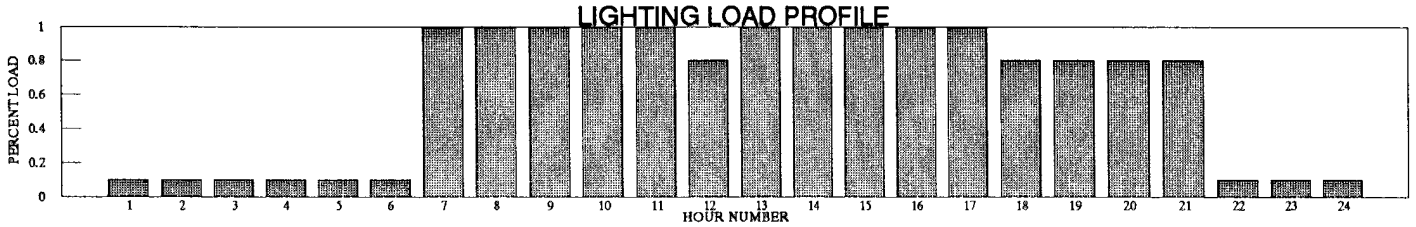
E M C Engineers, Inc.

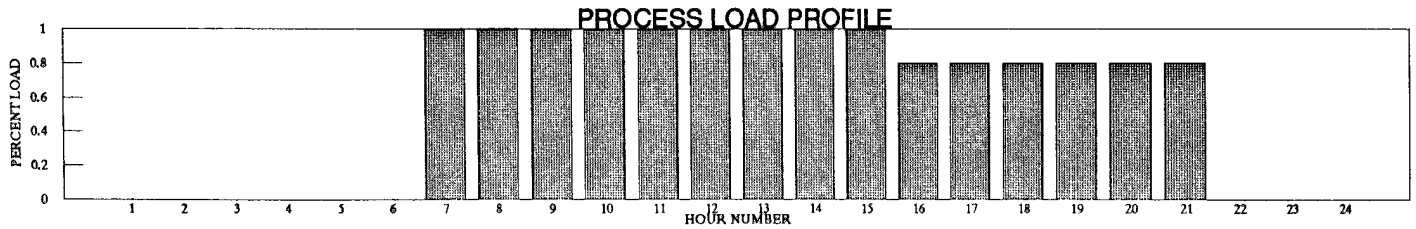
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R2
BLDG: 4109
ZONE: 2/RM2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	1	0.5	0.5	0.5	0.5	0.5			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.8	1	1	1	1	1	0.8	0.8	0.8	0.8	0.1	0.1	0.1
		PROCESS							1	1	1	1	1	1	1	1	1	0.8	0.8	0.8	0.8	0.8	0.8			







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R3
BLDG: 4109 ZONE: 3/RM3

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
3/RM3	2	5	Standing, light work, or walking slowly	Retail store, bank	270	220	540	440
	10	1	Seated at rest	Theater, Movie	225	105	2,250	1,050
TOTAL	12					TOTAL	2,790	1,490

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
3/RM3	26	18	Incandescent - 60w	60	1,560
	1	22	Incandescent - 300w	300	300
TOTAL	27			TOTAL	1,860

Peak Value for Internal Gains

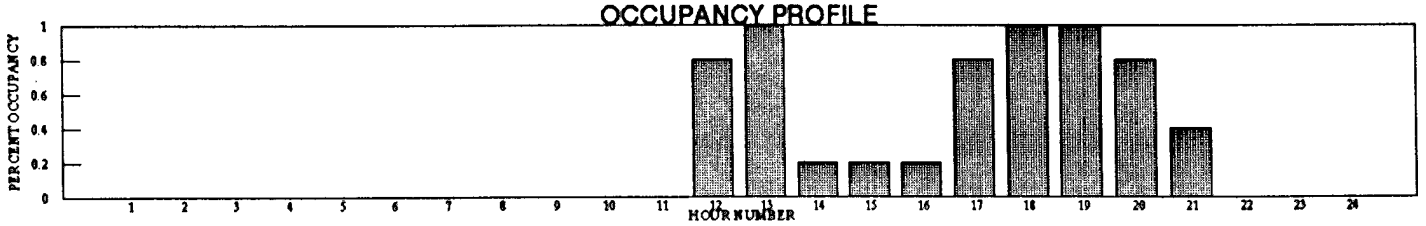
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
3/RM3	1	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	321	1,096
				TOTAL	35%	321	1,096

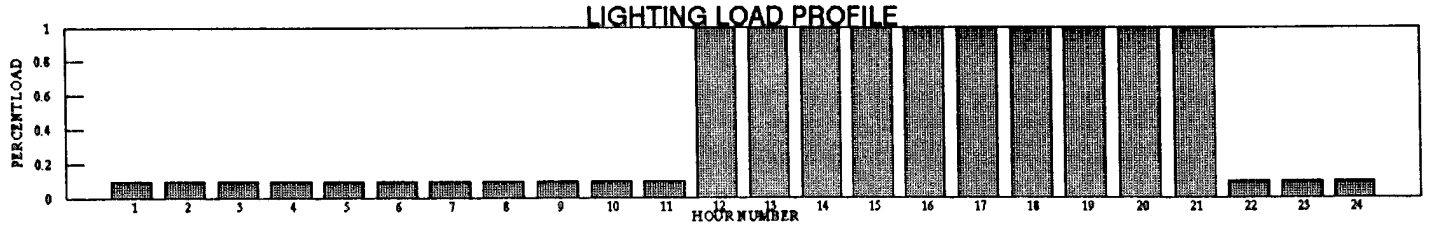
E M C Engineers, Inc.

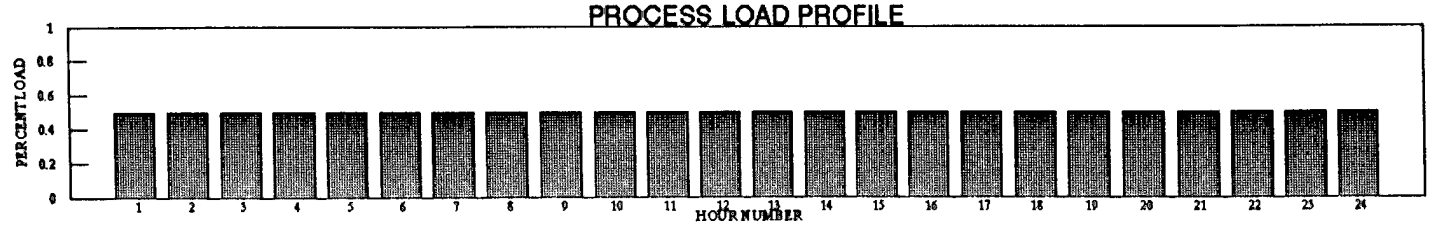
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R3
BLDG: 4109
ZONE: 3/RM3

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Cocktail Lnge	OCCUPANCY												0.8	1	0.2	0.2	0.2	0.8	1	1	0.8	0.4			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1
		PROCESS	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R4
BLDG: 4109 ZONE: 4/RM4

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4/RM4	7	5	Standing, light work, or walking slowly	Retail store, bank	270	220	1,890	1,540
	15	1	Seated at rest	Theater, Movie	225	105	3,375	1,575
TOTAL	22					TOTAL	5,265	3,115

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4/RM4	33	18	Incandescent - 60w	60	1,980
	1	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	84
TOTAL	34			TOTAL	2,064

Peak Value for Internal Gains

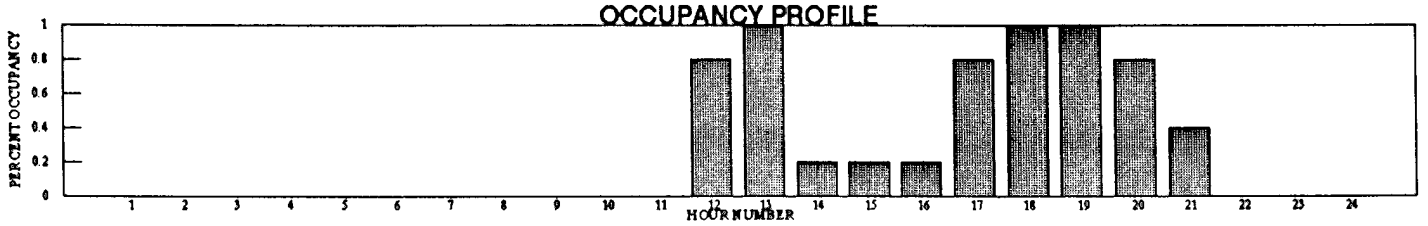
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4/RM4	1	62	Large Screen Television	300	15%	300	1,024
	1	50	Juke Box	109	15%	109	372
	1	46	Popcorn Machine	600	65%	600	2,048
	1	54	Refrigerator (Frostless 12 cu. ft.)	321	35%	321	1,096
				TOTAL	42%	1,330	4,539

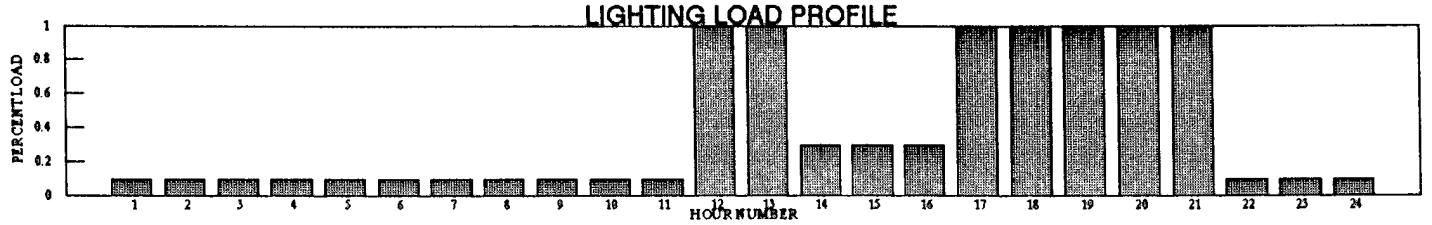
E M C Engineers, Inc.

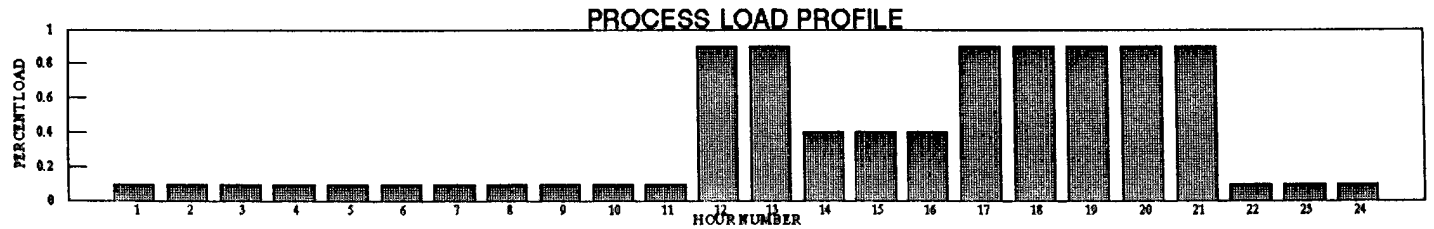
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R4
BLDG: 4109
ZONE: 4/RM4

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Bar/Game Rm	OCCUPANCY												0.8	1	0.2	0.2	0.2	0.8	1	1	0.8	0.4			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	0.3	0.3	0.3	1	1	1	1	1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.9	0.9	0.4	0.4	0.4	0.9	0.9	0.9	0.9	0.9	0.1	0.1	0.1







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R5
BLDG: 4109 ZONE: 4/RM5

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4/RM5	25	9	Moderate dancing	Dance hall	305	545	7,625	13,625
	25	1	Seated at rest	Theater, Movie	225	105	5,625	2,625
TOTAL	50					TOTAL	13,250	16,250

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4/RM5	75	18	Incandescent - 60w	60	4,500
	13	22	Incandescent - 300w	300	3,900
	9	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	756
TOTAL	97			TOTAL	9,156

Peak Value for Internal Gains

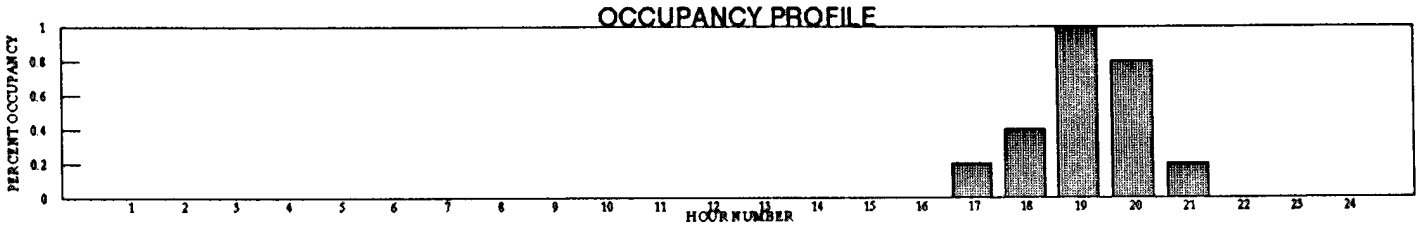
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4/RM5							
				TOTAL			

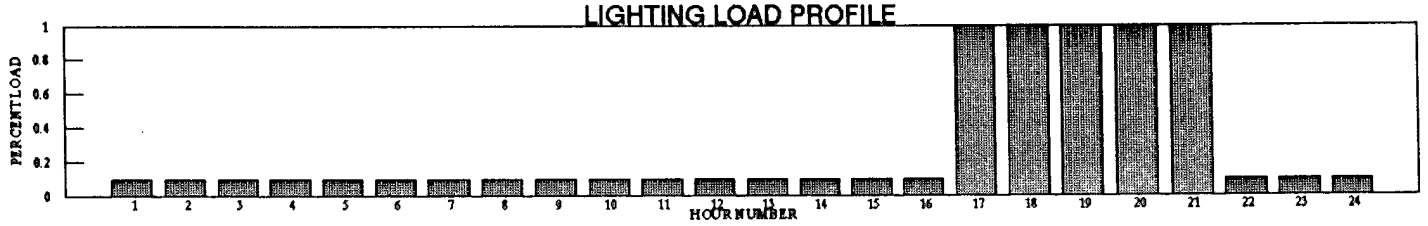
E M C Engineers, Inc.

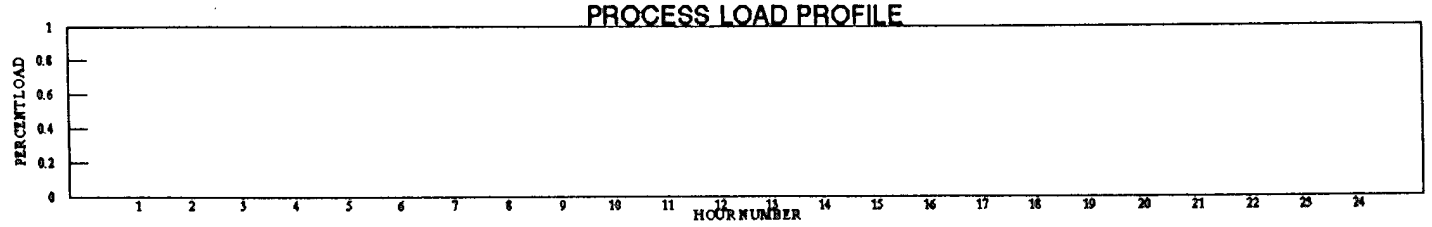
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R5
BLDG: 4109
ZONE: 4/RM5

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
8	Ball Room	OCCUPANCY																	0.2	0.4	1	0.8	0.2			
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.1	0.1	0.1
		PROCESS																								







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R6
BLDG: 4109 ZONE: 4/RM6

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4/RM6	40	3	Seated Eating	Restaurant	225	325	9,000	13,000
TOTAL	40					TOTAL	9,000	13,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4/RM6	19	18	Incandescent - 60w	60	1,140
	5	21	Incandescent - 150w	150	750
TOTAL	24			TOTAL	1,890

Peak Value for Internal Gains

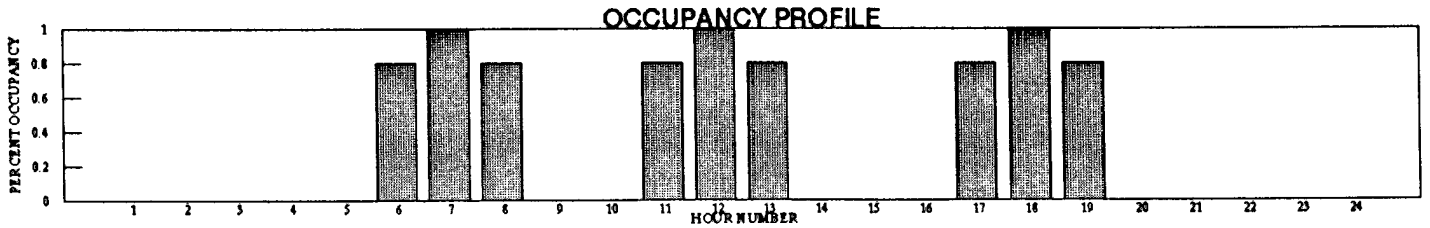
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4/RM6							
				TOTAL			

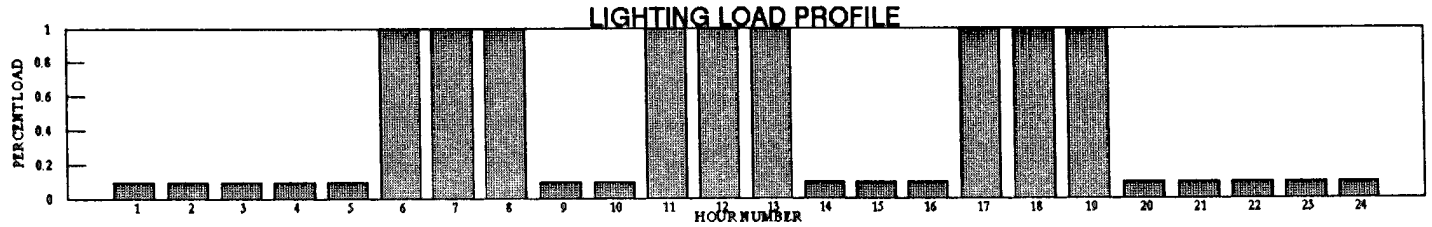
E M C Engineers, Inc.

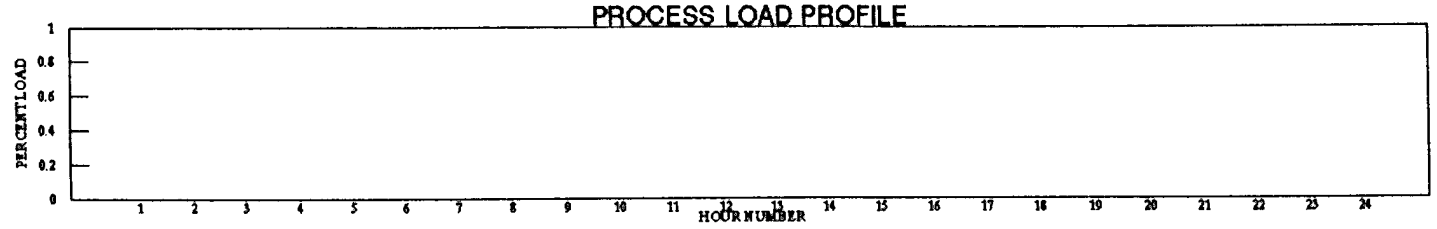
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 01-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R6
BLDG: 4109
ZONE: 4/RM6

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Dining Room	OCCUPANCY						0.8	1	0.8			0.8	1	0.8				0.8	1	0.8					
		LIGHTING	0.1	0.1	0.1	0.1	0.1	1	1	1	0.1	0.1	1	1	1	0.1	0.1	0.1	1	1	1	0.1	0.1	0.1	0.1	0.1
		PROCESS																								







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R7
BLDG: 4109 ZONE: 4/RM7

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4/RM7	10	6	Light bench work	Factory	275	475	2,750	4,750
TOTAL	10					TOTAL	2,750	4,750

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4/RM7	10	18	Incandescent – 60w	60	600
	58	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	4,872
TOTAL	68			TOTAL	5,472

Peak Value for Internal Gains

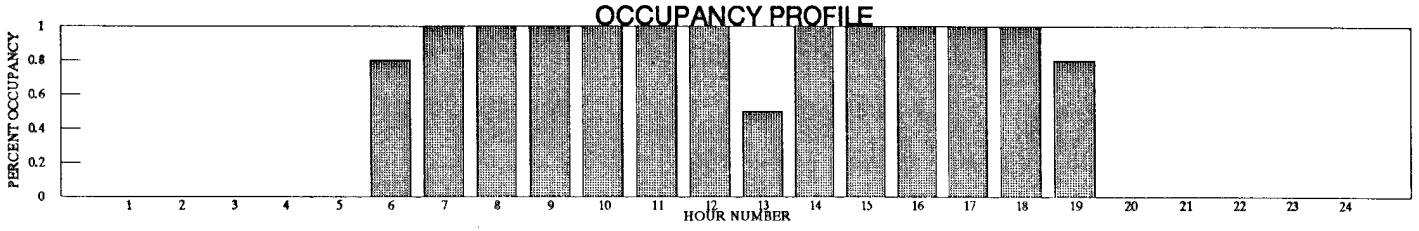
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4/RM7	4	24	Coffee Maker	1,500	30%	6,000	20,478
	1	86	Ice maker	1,089	251%	1,089	3,717
	1	25	Cold Food/Beverage	1,535	50%	1,535	5,239
	7	55	Refrigerator/Freezer	326	20%	2,282	7,788
	2	92	Steam Kettle (large), per quart of capacity	88	14%	176	601
	3	103	Griddle/grill (large), per sq.ft. of cooking surface	4,981	10%	14,943	51,000
	3	95	Fryer (deep fat), per lb. of fat capacity	372		1,116	3,809
	3	111	Range (hot top/fry top), per sq.ft. of cooking surface	3,457		10,371	35,396
	1	108	Oven (convection), per cu.ft. of oven space	2,540		2,540	8,669
	3	81	Food Warmer (infrared buld), per lamp	249	100%	747	2,550
	1	97	Oven (large convection), per cu.ft. of oven space	1,304		1,304	4,451
	1	98	Oven (small convection), per cu.ft. of oven space	3,030		3,030	10,341
	2	88	Mixer (large), per quart of capacity	28	100%	56	191
	1	83	Freezer (large)	1,340	40%	1,340	4,573
	1	79	Dishwasher (conveyor type water sanitizing), per 100dish/hr	339	45%	339	1,157
				TOTAL	19%	46,868	159,960

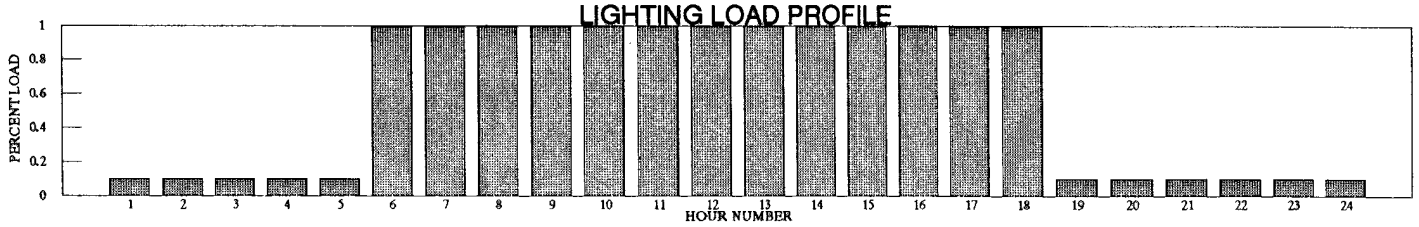
E M C Engineers, Inc.

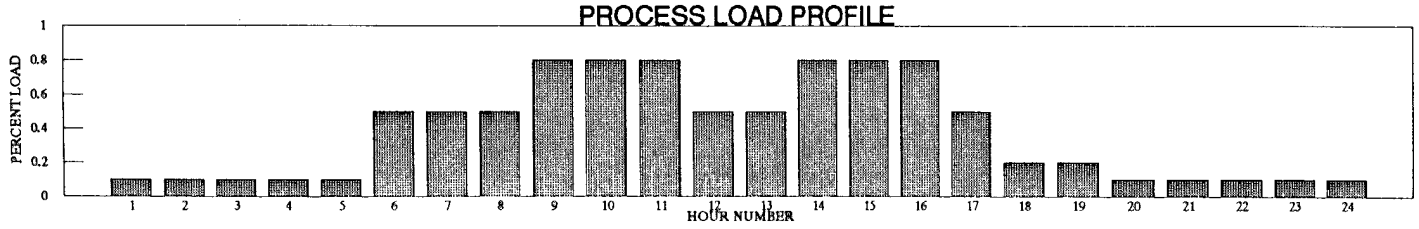
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 03-Mar-93
PREPARED BY: BHS
CHECKED BY: CEL
FILE: 4109R7
BLDG: 4109
ZONE: 4/RM7

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	Kitchen	OCCUPANCY						0.8	1	1	1	1	1	1	0.5	1	1	1	1	1	0.8					
		LIGHTING	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.5	0.8	0.8	0.8	0.5	0.5	0.8	0.8	0.8	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1







01 Card - Job Information

Project: EEAP STUDY, EXPANSION OF EMCS
Location: FT. LEONARD WOOD, MO
Client: US ARMY
Program User: E M C ENGINEERS, INC.

-----CARD 08-- Climatic Information ----------

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
SPRINGFM	.97	.97	94	78	3	50		

-----CARD 09-- Load Simulation Periods----------

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
MAY	SEP		JUN	SEP	APR	OCT

-----CARD 10 -- Load Simulation Parameters----------

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
TETD-TA1	TETD-TA1	OADB	ACTUAL	ACTUAL	MED-RCR	NO

-----CARD 11-- Energy Simulation Parameters----------

1st Month Energy Simulation	Last Month Energy Simulation	Level Of Calculation	Holiday Code	Calendar Code	Building Floor Area
JAN	DEC	ROOM	1978	1978	21253

-----CARD 13-- Daylighting Parameters ----------

----------Atmospheric----------

---Moisture---		---Turbidity---		----Inside Visible Reflectivity----				Daylighting
Summer	Winter	Summer	Winter	Floor	Ceiling	Wall	Partition	Geometry
		.07	.07					

---------- Load Section Alternative #1 ----------

---- Load Alternative ----

Number	Description
1	BLDG 4109 BASERUN FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	STORE-BARBER	100	21.87	2	0		9			
2	2	ADMIN. OFFICES	100	34.2	2	0		9			
3	3	COCKTAIL LOUNGE	100	12	2	0		9			
4	4	BAR - GAME ROOM	100	24.44	2	0		9			
5	4	BALL ROOM	100	70.15	2	0		9			
6	4	DINING ROOM	100	18.4	2	0		9			
7	4	KITCHEN	100	31.47	2	0		9			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	75			CLG75SUM	70		HTG70WNT	ROOM	MED70	NO
1										
2										YES
3										YES
4										YES
5										
6										
7										

-----CARD 22-- Roof Parameters ----------

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
M	1				.094	47			
1	1	YES							
2	1	YES							
3	1	YES							
4	1	YES							
5	1	YES							
6	1	YES							
7	1	YES							

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
M	1			.184	74				
1	1	55	13.5			0			
1	2	47	13.5			270			
2	1	100	13.5			0			
3	1	34	13.5			0			
3	2	34	13.5			90			
4	1	47	13.5			180			
4	2	72	13.5			270			
6	1	40	13.5			90			
7	1	89	13.5			180			
7	2	45	13.5			90			

-----CARD 25-- Wall/Glass Parameters ----------

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
M	1			1	.621	.58		3		.8	
1	2	10	2.9					1			
2	1	10	9.4								
3	1	9	6								
3	2	18	8								
4	1	6	6								
4	2	12	6								
6	1	21.333	9				4				

-----CARD 26-- Schedules ----------

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
1	P4109	L4109RM1	AVAIL	AVAIL		AVAIL				
2	P4109	L4109RM2	AVAIL	AVAIL		AVAIL				
3	P41093&4	L4109RM3	AVAIL	AVAIL		AVAIL				
4	P41093&4	L4109RM4	AVAIL	AVAIL		AVAIL				
5	P4109RM5	L4109RM5	AVAIL	AVAIL		AVAIL				
6	P4109RM6	L4109RM6	AVAIL	AVAIL		AVAIL				
7	P4109RM7	L4109RM7	AVAIL	AVAIL		AVAIL				

-----CARD 27-- People and Lights ----------

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting ---- Reference Point 1	Reference Point 2
M		PEOPLE				WATTS	RECFL-NV				
1	10		252	174	2836		INCAND				
2	8		250	200	3798		INCAND				
3	12		232	124	1860		INCAND				

-----CARD 27-- People and Lights ----------

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting ---- Reference Point 1	Reference Point 2
4	22		239	141	2064		INCAND				
5	50		265	325	9156		INCAND				
6	40		225	325	1890		INCAND				
7	10		275	475	5472						

-----CARD 28--- Miscellaneous Equipment ----------

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
2	1	OFFICE EQUIPMENT	5330	WATTS	E4109RM2	ELEC		41			
3	1	APPLIANCES	321	WATTS	E4109RM3	ELEC		35			
4	1	ENTERTAIN. EQUIP	1330	WATTS	E4109RM4	ELEC		42			
7	1	KITCHEN EQUIP.	46868	WATTS	E4109RM7	ELEC		19			

-----CARD 29--- Room Airflows ----------

Room	Ventilation Cooling		Ventilation Heating		Infiltration Cooling		Infiltration Heating		Reheat Minimum	
Number	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	15	PCT-MCLG	15	PCT-MHTG	186	CFM	186	CFM		
2	15	PCT-MCLG	15	PCT-MHTG	197	CFM	197	CFM		
3	15	PCT-MCLG	15	PCT-MHTG	140	CFM	140	CFM		
4	15	PCT-MCLG	15	PCT-MHTG	206	CFM	206	CFM		
5	15	PCT-MCLG	15	PCT-MHTG						
6	15	PCT-MCLG	15	PCT-MHTG	111	CFM	111	CFM		
7	15	PCT-MCLG	15	PCT-MHTG	250	CFM	250	CFM		

-----CARD 30- Fan Airflows ----------

Room	Main Cooling		Main Heating		Auxiliary Cooling		Auxiliary Heating		Room Exhaust	
Number	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	1785	CFM								
2	3495	CFM								
3	2760	CFM								
4	4540	CFM								
5	10860	CFM								
6	3810	CFM								
7	1570	CFM								

-----CARD 31-- Partition Parameters ----------

Room Number	Partition Number	Partition Length	Partition Height	Partition U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	168	9		101	CONSTANT			
2	1	458	9		101	CONSTANT			
3	1	182	9		101	CONSTANT			
4	1	357	9		101	CONSTANT			
5	1	500	9		101	CONSTANT			
6	1	261	9		101	CONSTANT			
7	1	405	9		101	CONSTANT			

-----CARD 32-- Exposed Floor Parameters----------

	Exposed	-----Slab------		----------Exposed Floor----------						
Room Number	Floor Number	Perimeter Length	Loss Coefficient	Floor Area	Floor U-Value	Const Type	Temp Flag	Cooling Temp	Heating Temp	Adjacent Room No
1	1	102	.67							
2	1	100	.67							
3	1	68	.67							
4	1	119	.67							
6	1	40	.67							
7	1	135	.67							

-----CARD 33-- External Shading ----------

	---------OVERHANG---------			----------VERTICAL FINS----------					
Shading Type	Glass Height	Height Above Glass	Projection Out	Glass Width	Projection Left	Left Projection Out	Right Projection	Right Projection Out	Adjacent Building Flag
4	9	0	4						

-----CARD 34-- Internal Shading ----------

		Overall				---------- Lockouts ----------				
Shading Type	Overall U-Value	Shading Coefficent	Schedule Code	Shade Location	Visible Transmittance	Min OADB	Max Solar	Solar Ctrl Prob	Max Glare	Glare Ctrl Prob
3	.452	.585	FL-INSHD	INSIDE						

---------- System Section Alternative #1 ----------

-----CARD 39-- System Alternative -----

Number	Description
1	BLDG 4109 BASERUN FT LEONARD WOOD

-----CARD 40--- System Type ----------

	------------OPTIONAL VENTILATION SYSTEM------------	
System	Ventil	Fan

Set Number	System Type	Deck Location	Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Static Pressure
1	SZ						

-----CARD 40--- System Type ----------

System Set Number	System Type	Ventil Deck Location	Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Fan Static Pressure
			OPTIONAL VENTILATION SYSTEM				
2	SZ						
3	SZ						
4	MZ						

-----CARD 41-- Zone Assignment ----------

System Set Number	Ref #1 Begin	Ref #1 End	Ref #2 Begin	Ref #2 End	Ref #3 Begin	Ref #3 End	Ref #4 Begin	Ref #4 End	Ref #5 Begin	Ref #5 End	Ref #6 Begin	Ref #6 End
1	1	1										
2	2	2										
3	3	3										
4	4	4										

-----CARD 42--- Fan SP and Duct Parameters----------

System Set Number	Cool Fan SP	Heat Fan SP	Return Fan SP	Mn Exh Fan SP	Aux Fan SP	Rm Exh Fan SP	Cool Fan Mtr Loc	Return Fan Mtr Loc	Supply Duct Ht Gn	Supply Duct Loc	Return Air Path
1	.2						OMIT			OTHER	DUCTED
2	.2						OMIT			OTHER	DUCTED
3	.3						OMIT			OTHER	DUCTED
4	.5						OMIT			OTHER	DUCTED

-----CARD 43-- Airflow Design Temperatures ----------

System Set Number	Minimum Cooling SADB	Maximum Cooling SADB	Minimum Heating SADB	Maximum Heating SADB	Minimum Cooling Lv DB	Maximum Cooling Lv DB	Minimum Preheat Lv DB	Maximum Preheat Lv DB	Minimum Room RH	Design Ht Rec Diff
1	52.1	52.1								
2										
3	62.4	62.4								
4	62.8	62.8								

-----CARD 45--- Equipment Schedules ----------

System Set Number	Main Cooling Coil	Economizer	Direct Evap Coil	Indirect Evap Coil	Auxiliary Cooling Coil	Main Heating Coil	Main Preheat Coil	Reheat Coil	Mech. Humidity	Auxiliary Heating Coil
1	FLCCOIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF

-----CARD 45--- Equipment Schedules ----------

System Set Number	Main Cooling Coil	Economizer	Direct Evap Coil	Indirect Evap Coil	Auxiliary Cooling Coil	Main Heating Coil	Main Preheat Coil	Reheat Coil	Mech. Humidity	Auxiliary Heating Coil
2	FLCCOIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF
3	FLCCOIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF
4	FLCCOIL	OFF	OFF	OFF	OFF	FLHCOIL	OFF	OFF	OFF	OFF

-----CARD 48-- Cooling Capacity Overrides ----------

System			Misc	----------MAIN COOLING----------				---AUX COOLING----	
Set Number	People Variance	Lights Variance	Loads Variance	Capacity Value	Capacity Units	Capacity Sizing	Capacity Location	Capacity Value	Capacity Units
1				55.5	MBH				
2				108.75	MBH				
3				113.1	MBH				
4				960	MBH				

-----CARD 49-- Heating Capacity Overrides ----------

System	---MAIN HEATING---		-----PREHEAT------		------REHEAT------		--HUMIDIFICATION--		---AUX HEATING----	
Set Number	Capacity Value	Capacity Units	Capacity Value	Capacity Units	Capacity Value	Capacity Units	Capacity Value	Capacity Units	Capacity Value	Capacity Units
1										
2	405.8	MBH								
3	107	MBH								
4	547.5	MBH								

---------- Equipment Section Alternative #1 ----------

-----CARD 59-- Equipment Description / TOD Schedules ----------

Alternative Number	Elec Consump Time of Day Schedule	Elec Demand Time of Day Schedule	Demand Limit Max KW	Alternative Description		
1				BLDG 4109	BASERUN	FT LEONARD WOOD

-----CARD 60--- Cooling Load Assignment----------

Load Asgn Ref	All Coil Loads To Cool Ref	Cooling Equipment Sizing	-Group 1- Begin	End	-Group 2- Begin	End	-Group 3- Begin	End	-Group 4- Begin	End	-Group 5- Begin	End	-Group 6- Begin	End	-Group 7- Begin	End	-Group 8- Begin	End	-Group 9- Begin	End
1	1		1	4																
2	2		1	4																

-----CARD 62-- Cooling Equipment Parameters ----------

Cool Ref Num	Equip Code Name	Num Of Units	COOLING --Capacity-- Value	COOLING --Capacity-- Units	COOLING ----Energy---- Value	COOLING ----Energy---- Units	HEAT RECOVERY --Capacity-- Value	HEAT RECOVERY --Capacity-- Units	HEAT RECOVERY ----Energy---- Value	HEAT RECOVERY ----Energy---- Units	Seq Order Num	Seq Type	Demand Limit Number
1	EQ1121L	1	52	TONS							1	PAR	
2	EQ1121L	1	52	TONS							2	PAR	

-----CARD 63-- Cooling Pumps and References ----------

Cool Ref Num	CHILLED WATER Full Load Value	CHILLED WATER Full Load Units	CONDENSER Full Load Value	CONDENSER Full Load Units	HT REC or AUX Full Load Value	HT REC or AUX Full Load Units	Switch-over Control	Cold Storage	Cooling Tower	Misc. Access.
1	3.357	KW							1	
2									2	

-----CARD 65-- Heating Load Assignment ----------

Load Assignment Reference	All Coil Loads To Heating Ref	Group 1- Begin	Group 1- End	Group 2- Begin	Group 2- End	Group 3- Begin	Group 3- End	Group 4- Begin	Group 4- End	Group 5- Begin	Group 5- End	Group 6- Begin	Group 6- End	Group 7- Begin	Group 7- End	Group 8- Begin	Group 8- End	Group 9- Begin	Group 9- End
1	1	1	4																

-----CARD 67-- Heating Equipment Parameters ----------

Heat Ref Number	Equip Code Name	Number Of Units	HW Pmp Full Ld Value	HW Pmp Full Ld Units	Cap'y Value	Cap'y Units	Energy Rate Value	Energy Rate Units	Seq Order Number	Switch over Control	Hot Strg	Misc. Acc.	Cogen	Demand Limit Number
1	EQ2001	1	.56	KW	1228.8	MBH	80	PCTEFF				1		

-----CARD 69-- Fan Equipment Parameters ----------

System Set Number	Cooling Fan	Heating Fan	Return Fan	Exhaust Fan	Auxiliary Supply	Room Exhaust	Optional Ventilation
1	EQ4003						
2	EQ4003						
3	EQ4003						
4	EQ4002						

-----CARD 70-- Fan Equipment KW Overrides ----------

System Set Number	MAIN SYSTEM Cool Fan KW	MAIN SYSTEM Heat Fan KW	MAIN SYSTEM Ret Fan KW	MAIN SYSTEM Exh Fan KW	MAIN SYSTEM Aux Sup KW	MAIN SYSTEM Room Exh KW	MAIN SYSTEM Opt Vent KW	OTHER SYSTEM Cool Fan	DEMAND LIMIT PRIORITY Heat Fan	DEMAND LIMIT PRIORITY Aux Fan	DEMAND LIMIT PRIORITY Room Exh Fan	DEMAND LIMIT PRIORITY Opt Vent Fan
1	.56											
2	1.119											

-----CARD 70-- Fan Equipment KW Overrides ----------

	-----MAIN SYSTEM-----					--OTHER SYSTEM--		----DEMAND LIMIT PRIORITY---				
System Set Number	Cool Fan KW	Heat Fan KW	Ret Fan KW	Exh Fan KW	Aux Sup KW	Room Exh KW	Opt Vent KW	Cool Fan	Heat Fan	Aux Fan	Room Exh Fan	Opt Vent Fan
3	.746											
4	7.46											

-----CARD 74--- Condenser / Cooling Tower Parameters ----------

Tower Ref	Cooling Tower Code	Capacity Value	Capacity Units	Energy Consump Value	Energy Consump Units	Fluid Type	Tower Type	Number Of Cells	Percent Airflow Low Spd	Low Spd Energy Value	Low Spd Energy Units
1	EQ5200	52	TONS	3.357	KW	REFRIG	CNDFAN	3			
2	EQ5200	52	TONS	3.357	KW	REFRIG	CNDFAN	3			

-----CARD 75--- Miscellaneous Accessory ----------

Misc Ref	#1 Equip Code	Energy Value	Energy Units	Sched Code	#2 Equip Code	Energy Value	Energy Units	Sched Code	#3 Equip Code	Energy Value	Energy Units	Sched Code
1	EQ5013	.373	KW	AVAIL	EQ5013	.373	KW	AVAIL				

Utility Description Reference Table

Schedules:

AVAIL AVAILABLE (100%)
CLG75SUM COOLING TSTAT AT 75 (MAY THRU SEPT)
E4109RM2 EQUIP SCHEDULE - BLDG 4109 ROOM 2
E4109RM3 EQUIP SCHEDULE - BLDG 4109 ROOM 3
E4109RM4 EQUIP SCHEDULE - BLDG 4109 ROOM 4
E4109RM7 EQUIP SCHEDULE - BLDG 4109 ROOM 7
FL-INSHD INTERNAL SHADING: VENITIAN BLINDS
FLCCOIL COOLING COIL SCHEDULE - MAY THRU SEPT
FLHCOIL HEATING COIL SCHEDULE - OCT THRU APR
HTG70WNT HEATING T-STAT AT 70 (OCT TO APR)
L4109RM1 LIGHT SCHEDULE - BLDG 4109 ROOM 1
L4109RM2 LIGHT SCHEDULE - BLDG 4109 ROOM 2
L4109RM3 LIGHT SCHEDULE - BLDG 4109 ROOM 3
L4109RM4 LIGHT SCHEDULE - BLDG 4109 ROOM 4
L4109RM5 LIGHT SCHEDULE - BLDG 4109 ROOM 5
L4109RM6 LIGHT SCHEDULE - BLDG 4109 ROOM 6
L4109RM7 LIGHT SCHEDULE - BLDG 4109 ROOM 7
OFF ALWAYS OFF
P4109 PEOPLE SCHEDULE - BLDG 4109
P41093&4 PEOPLE SCHEDULE - BLDG 4109 RMS 3 & 4
P4109RM5 PEOPLE SCHEDULE - BLDG 4109
P4109RM6 PEOPLE SCHEDULE - BLDG 4109 ROOM 6
P4109RM7 PEOPLE SCHEDULE - BLDG 4109 ROOM 7

System:

MZ MULTIZONE
SZ SINGLE ZONE

Equipment:

Cooling:

EQ1121L AIR-CLD RECIP 35-60 TONS

Heating:

EQ2001 GAS FIRE TUBE HOT WATER

Fan:

EQ4002 BI CENTRIF. FAN C.V.
EQ4003 FC CENTRIF. FAN C.V.

Tower:

EQ5200 CONDENSER FANS

Misc:

EQ5013 WATER CIRC. PUMP C.V.

Schedule Name: AVAIL
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: CLG75SUM
Project: COOLING TSTAT AT 75 (MAY THRU S
Location:
Client:
Program User:
Comments: COOLING TSTAT AT 75 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	75
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: E4109RM2
Project: EQUIP SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIP SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
15	80
22	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: E4109RM3
Project: EQUIP SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIP SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	50
24	

Schedule Name: E4109RM4
Project: EQUIP SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIP SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
12	90
14	40
17	90
22	10
24	

Schedule Name: E4109RM7
Project: EQUIP SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIP SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
6	50
9	80
12	50
14	80
17	50
18	20
20	10
24	

Schedule Name: FL-INSHD
Project: INTERNAL SHADING: VENITIAN BLIN
Location: FT LEONARD WOOD
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: INTERNAL SHADING SCHEDULE

Starting Month: JAN Ending Month: APR
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: WKDY Ending Day Type: WKDY

Hour	Util Percent
0	75
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	25
24	

Schedule Name: FLCCOIL
Project: COOLING COIL SCHEDULE - MAY THR
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: COOLING COIL SCHEDULE - MAY TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: FLECOIL
Project: HEATING COIL SCHEDULE - OCT THR
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: HEATING COIL SCHEDULE - OCT TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: HTG70WNT
Project: HEATING T-STAT AT 70 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 70 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Schedule Name: L4109RM1
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
12	80
13	100
22	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: L4109RM2
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
12	80
13	100
18	80
22	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: L4109RM3
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE - ROOM 3

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
12	100
22	10
24	

Schedule Name: L4109RM4
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE - ROOM 4

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
12	100
14	30
17	100
22	10
24	

Schedule Name: L4109RM5
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE - ROOM 5

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
17	100
22	10
24	

Schedule Name: L4109RM6
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE - ROOM 6

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
6	100
9	10
11	100
14	10
17	100
20	10
24	

Schedule Name: L4109RM7
Project: LIGHT SCHEDULE - BLDG 4109 ROOM
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHT SCHEDULE - ROOM 7

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	10
6	100
19	10
24	

Schedule Name: OFF
Project: ALWAYS OFF
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P4109
Project: PEOPLE SCHEDULE - BLDG 4109
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
11	80
12	40
13	80
14	100
17	50
22	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Schedule Name: P4109384
Project: PEOPLE SCHEDULE - BLDG 2100
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - RMS 3 AND 4

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
12	80
13	100
14	20
17	80
18	100
20	80
21	40
22	0
24	

Schedule Name: P4109RM5
Project: PEOPLE SCHEDULE - BLDG 4109
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - ROOM 5

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
17	20
18	40
19	100
20	80
21	20
22	0
24	

Schedule Name: P4109RM6
Project: PEOPLE SCHEDULE - BLDG 4109 ROO
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - ROOM 6

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
6	80
7	100
9	0
11	80
12	100
13	80
14	0
17	80
18	100
19	80
20	0
24	

Schedule Name: P4109RM7
Project: PEOPLE SCHEDULE - BLDG 4109 ROO
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - ROOM 7

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
6	80
7	100
13	50
14	100
19	80
20	0
24	

****
****
**
** TRACE 600 ANALYSIS **
**
** by **
**
****
****

EEAP STUDY, EXPANSION OF EMCS
FT. LEONARD WOOD, MO
US ARMY
E M C ENGINEERS, INC.

Weather File Code:	SPRINGFM
Location:	SPRINGFIELD, MISSOURI
Latitude:	37.0 (deg)
Longitude:	93.0 (deg)
Time Zone:	6
Elevation:	1,265 (ft)
Barometric Pressure:	28.5 (in. Hg)
Summer Clearness Number:	0.97
Winter Clearness Number:	0.97
Summer Design Dry Bulb:	94 (F)
Summer Design Wet Bulb:	78 (F)
Winter Design Dry Bulb:	3 (F)
Summer Ground Relectance:	0.20
Winter Ground Relectance:	0.20
Air Density:	0.0724 (Lbm/cuft)
Air Specific Heat:	0.2444 (Btu/lbm/F)
Density-Specific Heat Prod:	1.0621 (Btu-min./hr/cuft/F)
Latent Heat Factor:	4,675.1 (Btu-min./hr/cuft)
Enthalpy Factor:	4.3449 (Lb-min./hr/cuft)

Design Simulation Period: May To September
System Simulation Period: January To December
Cooling Load Methodology: TETD/Time Averaging

Time/Date Program was Run: 9: 9:59 3/26/93
Dataset Name: 4109 .TM

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

AIRFLOW - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y

(Design Airflow Quantities)

System Number	System Type	Main: Outside Airflow (Cfm)	Main: Cooling Airflow (Cfm)	Main: Heating Airflow (Cfm)	Main: Return Airflow (Cfm)	Main: Exhaust Airflow (Cfm)	Auxil. Supply Airflow (Cfm)	Room Exhaust Airflow (Cfm)
1	SZ	268	1,785	1,785	1,971	454	0	0
2	SZ	524	3,495	3,495	3,692	721	0	0
3	SZ	414	2,760	2,760	2,900	554	0	0
4	MZ	3,117	20,780	20,780	21,347	3,684	0	0
Totals		4,323	28,820	28,820	29,910	5,413	0	0

CAPACITY - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y

(Design Capacity Quantities)

System Number	System Type	Cooling: Main Sys. Capacity (Tons)	Cooling: Aux. Sys. Capacity (Tons)	Cooling: Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Heating: Main Sys. Capacity (Btuh)	Heating: Aux. Sys. Capacity (Btuh)	Heating: Preheat Capacity (Btuh)	Heating: Reheat Capacity (Btuh)	Heating: Humidif. Capacity (Btuh)	Heating: Opt. Vent Capacity (Btuh)	Heating Totals (Btuh)
1	SZ	4.6	0.0	0.0	4.6	-68,574	0	0	0	0	0	-68,574
2	SZ	9.1	0.0	0.0	9.1	-405,800	0	0	0	0	0	-405,800
3	SZ	9.4	0.0	0.0	9.4	-107,000	0	-6,740	0	0	0	-107,000
4	MZ	80.0	0.0	0.0	80.0	-547,500	0	-57,358	0	0	0	-604,858
Totals		103.1	0.0	0.0	103.1	-1,128,874	0	-64,098	0	0	0	-1,186,232

The building peaked at hour 17 month 7 with a capacity of 53.5 tons

ENGINEERING CHECKS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

E N G I N E E R I N G C H E C K S

System Number	Main/ Auxiliary	System Type	Percent Outside Air	Cooling: Cfm/ Sq Ft	Cooling: Cfm/ Ton	Cooling: Sq Ft /Ton	Cooling: Btuh/ Sq Ft	Heating: Cfm/ Sq Ft	Heating: Btuh/ Sq Ft	Floor Area Sq Ft
1	Main	SZ	15.00	0.82	385.9	472.9	25.38	0.82	-31.36	2,187
2	Main	SZ	15.00	1.02	385.7	377.4	31.80	1.02	-118.65	3,420
3	Main	SZ	15.00	2.30	292.8	127.3	94.25	2.30	-89.17	1,200
4	Main	MZ	15.00	1.44	259.7	180.6	66.45	1.44	-41.87	14,446

System 1 Peak SZ - SINGLE ZONE

	********** COOLING COIL PEAK **********						********** CLG SPACE PEAK **********			********** HEATING COIL PEAK **********		
Peaked at Time ==>	Mo/Hr: 7/16						Mo/Hr: 7/16			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 93/ 77/124.1						OADB: 93			OADB: 3		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)		Space Sensible (Btuh)	Percnt Of Tot (%)		Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads												
Skylite Solr	0	0		0	0.00		0	0.00		0	0	0.00
Skylite Cond	0	0		0	0.00		0	0.00		0	0	0.00
Roof Cond	18,461	0		18,461	26.69		18,461	42.52		-13,774	-13,774	20.09
Glass Solar	1,166	0		1,166	1.69		1,166	2.68		0	0	0.00
Glass Cond	412	0		412	0.60		412	0.95		-1,597	-1,597	2.33
Wall Cond	7,474	0		7,474	10.81		7,474	17.22		-16,527	-16,527	24.10
Partition	0			0	0.00		0	0.00		0	0	0.00
Exposed Floor	0			0	0.00		0	0.00		-4,579	-4,579	6.68
Infiltration	11,247			11,247	16.26		3,620	8.34		-13,236	-13,236	19.30
Sub Total==>	38,759	0		38,759	56.04		31,132	71.71		-49,712	-49,712	72.49
Internal Loads												
Lights	9,679	0		9,679	14.00		9,679	22.30		0	0	0.00
People	4,159			4,159	6.01		2,419	5.57		0	0	0.00
Misc	0	0	0	0	0.00		0	0.00		0	0	0.00
Sub Total==>	13,838	0	0	13,838	20.01		12,098	27.87		0	0	0.00
Ceiling Load	0	0		0	0.00		0	0.00		0	0	0.00
Outside Air	0	0	0	16,190	23.41		0	0.00		0	-19,053	27.78
Sup. Fan Heat				190	0.28			0.00			190	-0.28
Ret. Fan Heat		0		0	0.00			0.00			0	0.00
Duct Heat Pkup		0		0	0.00			0.00			0	0.00
OV/UNDR Sizing	183			183	0.26		183	0.42		0	0	0.00
Exhaust Heat		0	0	0	0.00			0.00			0	0.00
Terminal Bypass		0	0	0	0.00			0.00			0	0.00
Grand Total==>	52,780	0	0	69,161	100.00		43,414	100.00		-49,712	-68,574	100.00

----------COOLING COIL SELECTION----------

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	4.6	55.5	39.2	1,785	77.7	64.0	71.9	52.0	51.0	56.9
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	4.6	55.5								

----------AREAS----------

Gross Total		Glass (sf)	(%)
Floor	2,187		
Part	1,512		
ExFlr	102		
Roof	2,187	0	0
Wall	1,377	36	3

----------HEATING COIL SELECTION----------

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-68.6	1,785	60.0	96.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	1,785	60.0	52.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-68.6			

--------AIRFLOWS (cfm)--------

Type	Cooling	Heating
Vent	268	268
Infil	186	186
Supply	1,785	1,785
Mincfm	0	0
Return	1,785	1,785
Exhaust	268	268
Rm Exh	0	0
Auxil	0	0

--ENGINEERING CHECKS--

Clg % OA	15.0
Clg Cfm/Sqft	0.82
Clg Cfm/Ton	385.95
Clg Sqft/Ton	472.86
Clg Btuh/Sqft	25.38
No. People	10
Htg % OA	15.0
Htg Cfm/SqFt	0.82
Htg Btuh/SqFt	-31.36

--TEMPERATURES (F)---

Type	Clg	Htg
SADB	52.1	96.2
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	77.7	60.0
Runarnd	75.0	70.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

System 2 Peak SZ - SINGLE ZONE

********** COOLING COIL PEAK **********						*	CLG SPACE PEAK **********		*	HEATING COIL PEAK ********		
Peaked at Time ==>	Mo/Hr: 7/15					*	Mo/Hr: 7/15		*	Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					*	OADB: 94		*	OADB: 3		
						*			*			
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	*	Space Sensible (Btuh)	Percnt Of Tot (%)	*	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads						*			*			
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	29,673	0		29,673	27.93	*	29,673	44.14	*	-21,539	-21,539	22.30
Glass Solar	1,974	0		1,974	1.86	*	1,974	2.94	*	0	0	0.00
Glass Cond	1,039	0		1,039	0.98	*	1,039	1.55	*	-4,121	-4,121	4.27
Wall Cond	8,805	0		8,805	8.29	*	8,805	13.10	*	-15,484	-15,484	16.03
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	-4,489	-4,489	4.65
Infiltration	11,209			11,209	10.55	*	3,975	5.91	*	-14,018	-14,018	14.51
Sub Total==>	52,700	0		52,700	49.60	*	45,466	67.64	*	-59,652	-59,652	61.76
Internal Loads						*			*			
Lights	12,574	0		12,574	11.83	*	12,574	18.71	*	0	0	0.00
People	3,320			3,320	3.12	*	1,720	2.56	*	0	0	0.00
Misc	7,458	0	0	7,458	7.02	*	7,458	11.10	*	0	0	0.00
Sub Total==>	23,352	0	0	23,352	21.98	*	21,752	32.36	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	29,830	28.07	*	0	0.00	*	0	-37,305	38.62
Sup. Fan Heat				373	0.35	*		0.00	*		373	-0.39
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	0			0	-0.00	*	0	-0.00	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	76,052	0	0	106,255	100.00	*	67,218	100.00	*	-59,652	-96,584	100.00

----------COOLING COIL SELECTION----------

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	9.1	108.7	80.0	3,495	77.8	65.1	77.3	56.8	54.9	64.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	9.1	108.7								

----------AREAS----------

	Gross Total	Glass (sf)	(%)
Floor	3,420		
Part	4,122		
ExFlr	100		
Roof	3,420	0	0
Wall	1,350	94	7

----------HEATING COIL SELECTION----------

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-405.8	3,495	-23.4	86.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	3,495	60.0	56.8
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-405.8			

--------AIRFLOWS (cfm)--------

Type	Cooling	Heating
Vent	524	524
Infil	197	197
Supply	3,495	3,495
Mincfm	0	0
Return	3,495	3,495
Exhaust	524	524
Rm Exh	0	0
Auxil	0	0

--ENGINEERING CHECKS--

Clg % OA	15.0
Clg Cfm/Sqft	1.02
Clg Cfm/Ton	385.66
Clg Sqft/Ton	377.38
Clg Btuh/Sqft	31.80
No. People	8
Htg % OA	15.0
Htg Cfm/SqFt	1.02
Htg Btuh/SqFt	-118.65

--TEMPERATURES (F)---

Type	Clg	Htg
SADB	56.9	86.1
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	77.8	60.0
Runarnd	75.0	70.0
Fn MtrTD	0.0	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

System 3 Peak SZ - SINGLE ZONE

	********** COOLING COIL PEAK **********					*	CLG SPACE PEAK **********		*	HEATING COIL PEAK ********		
Peaked at Time ==>	Mo/Hr: 7/13					*	Mo/Hr: 7/13		*	Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 92/ 77/124.0					*	OADB: 92		*	OADB: 3		
						*			*			
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	*	Space Sensible	Percnt Of Tot	*	Space Peak Space Sens	Coil Peak Tot Sens	Percnt Of Tot
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	*	(Btuh)	(%)	*	(Btuh)	(Btuh)	(%)
Skylite Solr	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Skylite Cond	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Roof Cond	9,092	0		9,092	14.73	*	9,092	24.62	*	-7,558	-7,558	11.26
Glass Solar	11,484	0		11,484	18.60	*	11,484	31.09	*	0	0	0.00
Glass Cond	1,685	0		1,685	2.73	*	1,685	4.56	*	-8,681	-8,681	12.93
Wall Cond	4,968	0		4,968	8.05	*	4,968	13.45	*	-8,876	-8,876	13.22
Partition	0			0	0.00	*	0	0.00	*	0	0	0.00
Exposed Floor	0			0	0.00	*	0	0.00	*	-3,053	-3,053	4.55
Infiltration	6,399			6,399	10.37	*	2,457	6.65	*	-9,962	-9,962	14.84
Sub Total==>	33,627	0		33,627	54.48	*	29,685	80.37	*	-38,129	-38,129	56.78
Internal Loads						*			*			
Lights	4,888	0		4,888	7.92	*	4,888	13.23	*	0	0	0.00
People	3,186			3,186	5.16	*	1,698	4.60	*	0	0	0.00
Misc	192	0	0	192	0.31	*	192	0.52	*	0	0	0.00
Sub Total==>	8,266	0	0	8,266	13.39	*	6,778	18.35	*	0	0	0.00
Ceiling Load	0	0		0	0.00	*	0	0.00	*	0	0	0.00
Outside Air	0	0	0	18,922	30.65	*	0	0.00	*	0	-29,460	43.87
Sup. Fan Heat				442	0.72	*		0.00	*		442	-0.66
Ret. Fan Heat		0		0	0.00	*		0.00	*		0	0.00
Duct Heat Pkup		0		0	0.00	*		0.00	*		0	0.00
OV/UNDR Sizing	471			471	0.76	*	471	1.28	*	0	0	0.00
Exhaust Heat		0	0	0	0.00	*		0.00	*		0	0.00
Terminal Bypass		0	0	0	0.00	*		0.00	*		0	0.00
						*			*			
Grand Total==>	42,364	0	0	61,728	100.00	*	36,935	100.00	*	-38,129	-67,147	100.00

----------COOLING COIL SELECTION----------

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	9.4	113.1	81.8	2,760	77.5	67.1	88.2	62.2	53.9	51.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	9.4	113.1								

----------AREAS----------

	Gross Total	Glass (sf)	(%)
Floor	1,200		
Part	1,638		
ExFlr	68		
Roof	1,200	0	0
Wall	918	198	22

----------HEATING COIL SELECTION----------

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-107.0	2,760	46.4	82.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-6.7	2,760	60.0	62.2
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-107.0			

--------AIRFLOWS (cfm)--------

Type	Cooling	Heating
Vent	414	414
Infil	140	140
Supply	2,760	2,760
Mincfm	0	0
Return	2,760	2,760
Exhaust	414	414
Rm Exh	0	0
Auxil	0	0

--ENGINEERING CHECKS--

Clg % OA	15.0
Clg Cfm/Sqft	2.30
Clg Cfm/Ton	292.84
Clg Sqft/Ton	127.32
Clg Btuh/Sqft	94.25
No. People	12
Htg % OA	15.0
Htg Cfm/SqFt	2.30
Htg Btuh/SqFt	-89.17

--TEMPERATURES (F)---

Type	Clg	Htg
SADB	62.4	83.0
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	77.5	60.0
Runarnd	75.0	70.0
Fn MtrTD	0.1	0.0
Fn BldTD	0.0	0.0
Fn Frict	0.1	0.0

System 4 Block MZ - MULTIZONE

********** COOLING COIL PEAK **********						CLG SPACE PEAK **********			HEATING COIL PEAK ********		
Peaked at Time ==>	Mo/Hr: 7/17					Mo/Hr: 7/17			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 92/ 76/116.6					OADB: 92			OADB: 3		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)	
Envelope Loads											
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00	
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00	
Roof Cond	110,942	0		110,942	25.86	103,972	38.62	-90,981	-90,981	8.29	
Glass Solar	11,610	0		11,610	2.71	15,936	5.92	0	0	0.00	
Glass Cond	3,477	0		3,477	0.81	2,886	1.07	-13,946	-13,946	1.27	
Wall Cond	26,006	0		26,006	6.06	29,262	10.87	-44,842	-44,842	4.09	
Partition	0			0	0.00	0	0.00	0	0	0.00	
Exposed Floor	0			0	0.00	0	0.00	-13,198	-13,198	1.20	
Infiltration	23,648			23,648	5.51	8,862	3.29	-40,347	-40,347	3.68	
Sub Total==>	175,682	0		175,682	40.95	160,917	59.76	-203,313	-203,313	18.53	
Internal Loads											
Lights	48,700	0		48,700	11.35	50,753	18.85	0	0	0.00	
People	30,768			30,768	7.17	13,728	5.10	0	0	0.00	
Misc	37,461	0	0	37,461	8.73	42,971	15.96	0	0	0.00	
Sub Total==>	116,930	0	0	116,930	27.25	107,453	39.91	0	0	0.00	
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00	
Outside Air	0	0	0	130,000	30.30	0	0.00	0	-221,802	20.22	
Sup. Fan Heat				5,541	1.29		0.00		5,541	-0.51	
Ret. Fan Heat		0		0	0.00		0.00		0	0.00	
Duct Heat Pkup		0		0	0.00		0.00		0	0.00	
OV/UNDR Sizing	882			882	0.21	882	0.33	-677,403	-677,403	61.75	
Exhaust Heat		0	0	0	0.00		0.00		0	0.00	
Terminal Bypass		0	0	0	-0.00		0.00		0	0.00	
Grand Total==>	293,494	0	0	429,035	100.00	269,252	100.00	-880,716	-1,096,977	100.00	

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	80.0	960.0	716.1	20,780	77.5	66.7	86.1	62.5	51.4	41.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	80.0	960.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	14,446		
Part	13,707		
ExFlr	294		
Roof	14,446	0	0
Wall	3,955	318	8

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-547.5	20,780	85.1	109.9
Aux Htg	0.0	0	0.0	0.0
Preheat	-57.4	20,780	60.0	62.5
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-604.9			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	3,117	3,117
Infil	567	567
Supply	20,780	20,780
Mincfm	0	0
Return	20,780	20,780
Exhaust	3,117	3,117
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	15.0
Clg Cfm/Sqft	1.44
Clg Cfm/Ton	259.75
Clg Sqft/Ton	180.57
Clg Btuh/Sqft	66.45
No. People	122
Htg % OA	15.0
Htg Cfm/SqFt	1.44
Htg Btuh/SqFt	-41.87

TEMPERATURES (F)

Type	Clg	Htg
SADB	62.8	109.9
Plenum	75.0	70.0
Return	75.0	70.0
Ret/OA	77.5	60.0
Runarnd	75.0	70.0
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

MAIN SYSTEM COOLING - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

P E A K C O O L I N G L O A D S
(Main System)

Room Number	Description	Peak Time Mo/Hr	Space: OA Cond. DB/WB (F)	Space: Rm Dry Blb (F)	Space: Supp. Dry Bulb (F)	Space: Air Flow (Cfm)	Space: Sens. Load (Btuh)	Space: Lat. Load (Btuh)	Coil: Peak Time Mo/Hr	Coil: OA Cond. DB/WB (F)	Coil: Rm Dry Blb (F)	Coil: Supp. Dry Bulb (F)	Coil: Air Flow (Cfm)	Coil: Sens. Load (Btuh)	Coil: Lat. Load (Btuh)
1	STORE-BARBER	7/16	93	77	75	52.1	1,785	43,414	9,367	7/16	93	77	75	52.1	1,785	48,815	20,346
Zone 1	Total/Ave.		93	77	75	52.1	1,785	43,414	9,367		93	77	75	52.1	1,785	48,815	20,346
Zone 1	Block	7/16	93	77	75	52.1	1,785	43,414	9,367	7/16	93	77	75	52.1	1,785	48,815	20,346
System 1	Total/Ave.		93	77	75	52.1	1,785	43,414	9,367		93	77	75	52.1	1,785	48,815	20,346
System 1	Block	7/16	93	77	75	52.1	1,785	43,414	9,367	7/16	93	77	75	52.1	1,785	48,815	20,346
2	ADMIN. OFFICES	7/15	94	78	75	56.9	3,495	67,218	8,834	7/15	94	78	75	56.9	3,495	78,170	28,085
Zone 2	Total/Ave.		94	78	75	56.9	3,495	67,218	8,834		94	78	75	56.9	3,495	78,170	28,085
Zone 2	Block	7/15	94	78	75	56.9	3,495	67,218	8,834	7/15	94	78	75	56.9	3,495	78,170	28,085
System 2	Total/Ave.		94	78	75	56.9	3,495	67,218	8,834		94	78	75	56.9	3,495	78,170	28,085
System 2	Block	7/15	94	78	75	56.9	3,495	67,218	8,834	7/15	94	78	75	56.9	3,495	78,170	28,085
3	COCKTAIL LOUNGE	7/13	92	77	75	62.4	2,760	36,935	5,430	7/13	92	77	75	62.4	2,760	44,642	17,086
Zone 3	Total/Ave.		92	77	75	62.4	2,760	36,935	5,430		92	77	75	62.4	2,760	44,642	17,086
Zone 3	Block	7/13	92	77	75	62.4	2,760	36,935	5,430	7/13	92	77	75	62.4	2,760	44,642	17,086
System 3	Total/Ave.		92	77	75	62.4	2,760	36,935	5,430		92	77	75	62.4	2,760	44,642	17,086
System 3	Block	7/13	92	77	75	62.4	2,760	36,935	5,430	7/13	92	77	75	62.4	2,760	44,642	17,086
4	BAR - GAME ROOM	7/18	89	75	75	62.8	4,540	58,826	8,024	7/15	94	78	75	64.2	4,540	67,219	26,264
5	BALL ROOM	7/17	92	76	75	62.8	10,860	140,716	3,250	7/15	94	78	75	63.8	10,860	164,782	47,096
6	DINING ROOM	7/13	92	77	75	62.8	3,810	49,367	13,607	7/13	92	77	75	62.8	3,810	60,413	30,116
7	KITCHEN	7/18	89	75	75	62.8	1,570	20,343	10,724	7/18	89	75	75	62.8	1,570	24,332	16,351
Zone 4	Total/Ave.		92	76	75	62.8	20,780	269,252	35,605		92	76	75	63.6	20,780	316,746	119,828
Zone 4	Block	7/17	92	76	75	63.3	20,780	259,051	34,443	7/17	92	76	75	63.3	20,780	320,043	108,992
System 4	Total/Ave.		92	76	75	62.8	20,780	269,252	35,605		92	76	75	63.6	20,780	316,746	119,828
System 4	Block	7/17	92	76	75	63.3	20,780	259,051	34,443	7/17	92	76	75	63.3	20,780	320,043	108,992

MAIN SYSTEM HEATING - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

PEAK HEATING LOADS
(Main System)

Room Number	Description	Floor Area (Sq Ft)	Space Peak Time Mo/Hr	Space OA Cond. DB/WB (F)	Space Rm Dry Blb (F)	Space Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Coil Peak Time Mo/Hr	Coil OA Cond. DB/WB (F)	Coil Rm Dry Blb (F)	Coil Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)
1	STORE-BARBER	2,187	13/ 1	3	1 70	96.2	1,785	-49,712	13/ 1	3	1 70	96.2	1,785	-68,574
Zone 1	Total/Ave.	2,187		3	1 70	96.2	1,785	-49,712		3	1 70	96.2	1,785	-68,574
Zone 1	Block	2,187	13/ 1	3	1 70	96.2	1,785	-49,712	13/ 1	3	1 70	96.2	1,785	-68,574
System 1	Total/Ave.	2,187		3	1 70	96.2	1,785	-49,712		3	1 70	96.2	1,785	-68,574
System 1	Block	2,187	13/ 1	3	1 70	96.2	1,785	-49,712	13/ 1	3	1 70	96.2	1,785	-68,574
2	ADMIN. OFFICES	3,420	13/ 1	3	1 70	86.1	3,495	-59,652	13/ 1	3	1 70	86.1	3,495	-96,584
Zone 2	Total/Ave.	3,420		3	1 70	86.1	3,495	-59,652		3	1 70	86.1	3,495	-96,584
Zone 2	Block	3,420	13/ 1	3	1 70	86.1	3,495	-59,652	13/ 1	3	1 70	86.1	3,495	-96,584
System 2	Total/Ave.	3,420		3	1 70	86.1	3,495	-59,652		3	1 70	86.1	3,495	-96,584
System 2	Block	3,420	13/ 1	3	1 70	86.1	3,495	-59,652	13/ 1	3	1 70	86.1	3,495	-96,584
3	COCKTAIL LOUNGE	1,200	13/ 1	3	1 70	83.0	2,760	-38,129	13/ 1	3	1 70	83.0	2,760	-67,147
Zone 3	Total/Ave.	1,200		3	1 70	83.0	2,760	-38,129		3	1 70	83.0	2,760	-67,147
Zone 3	Block	1,200	13/ 1	3	1 70	83.0	2,760	-38,129	13/ 1	3	1 70	83.0	2,760	-67,147
System 3	Total/Ave.	1,200		3	1 70	83.0	2,760	-38,129		3	1 70	83.0	2,760	-67,147
System 3	Block	1,200	13/ 1	3	1 70	83.0	2,760	-38,129	13/ 1	3	1 70	83.0	2,760	-67,147
4	BAR - GAME ROOM	2,444	13/ 1	3	1 70	109.9	4,540	-192,418	13/ 1	3	1 70	109.9	4,540	-227,135
5	BALL ROOM	7,015	13/ 1	3	1 70	109.9	10,860	-460,278	13/ 1	3	1 70	109.9	10,860	-543,323
6	DINING ROOM	1,840	13/ 1	3	1 70	109.9	3,810	-161,479	13/ 1	3	1 70	109.9	3,810	-190,613
7	KITCHEN	3,147	13/ 1	3	1 70	109.9	1,570	-66,541	13/ 1	3	1 70	109.9	1,570	-78,547
Zone 4	Total/Ave.	14,446		3	1 70	109.9	20,780	-880,716		3	1 70	109.9	20,780	-1,039,619
Zone 4	Block	14,446	13/ 1	3	1 70	109.9	20,780	-880,716	13/ 1	3	1 70	109.9	20,780	-1,039,619
System 4	Total/Ave.	14,446		3	1 70	109.9	20,780	-880,716		3	1 70	109.9	20,780	-1,039,619
System 4	Block	14,446	13/ 1	3	1 70	109.9	20,780	-880,716	13/ 1	3	1 70	109.9	20,780	-1,039,619

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS

(At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	STORE-BARBER	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
Zone 1	Total/Ave.	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
Zone 1	Block	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
System 1	Total/Ave.	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
System 1	Block	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
2	ADMIN. OFFICES	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
Zone 2	Total/Ave.	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
Zone 2	Block	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
System 2	Total/Ave.	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
System 2	Block	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
3	COCKTAIL LOUNGE	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
Zone 3	Total/Ave.	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
Zone 3	Block	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
System 3	Total/Ave.	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
System 3	Block	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
4	BAR - GAME ROOM	3,311	0	0.470	2,314	620	0.351	1,430	0	0	0.750	7,675
5	BALL ROOM	3,125	0	0.100	0	0	0.000	0	0	0	0.000	3,125
6	DINING ROOM	5,677	0	0.880	6,210	10,400	0.755	0	0	0	0.000	22,287
7	KITCHEN	18,676	0	1.000	2,750	4,750	1.000	41,942	0	0	1.380	68,118
Zone 4	Total/Ave.	30,788	0	0.485	11,274	15,770	0.642	43,372	0	0	1.343	101,204
Zone 4	Block	48,700	0	0.768	9,886	20,882	0.486	37,461	0	0	1.160	116,930
System 4	Total/Ave.	30,788	0	0.485	11,274	15,770	0.642	43,372	0	0	1.343	101,204
System 4	Block	48,700	0	0.768	9,886	20,882	0.486	37,461	0	0	1.160	116,930

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Sensible (Btuh)	Lites CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Sensible (Btuh)	Misc. CLF	Total (Btuh)
1	STORE-BARBER	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
Zone 1	Total/Ave.	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
Zone 1	Block	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
System 1	Total/Ave.	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
System 1	Block	9,679	0	1.000	2,419	1,740	0.976	0	0	0	0.000	13,838
2	ADMIN. OFFICES	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
Zone 2	Total/Ave.	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
Zone 2	Block	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
System 2	Total/Ave.	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
System 2	Block	12,574	0	0.970	1,720	1,600	0.922	7,458	0	0	1.000	23,352
3	COCKTAIL LOUNGE	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
Zone 3	Total/Ave.	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
Zone 3	Block	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
System 3	Total/Ave.	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
System 3	Block	4,888	0	0.770	1,698	1,488	0.746	192	0	0	0.500	8,266
4	BAR - GAME ROOM	5,776	0	0.820	3,575	3,102	0.799	1,030	0	0	0.540	13,483
5	BALL ROOM	20,625	0	0.660	1,192	3,250	0.151	0	0	0	0.000	25,067
6	DINING ROOM	5,677	0	0.880	6,210	10,400	0.755	0	0	0	0.000	22,287
7	KITCHEN	18,676	0	1.000	2,750	4,750	1.000	41,942	0	0	1.380	68,118
Zone 4	Total/Ave.	50,753	0	0.800	13,728	21,502	0.587	42,971	0	0	1.330	128,955
Zone 4	Block	48,700	0	0.768	9,886	20,882	0.486	37,461	0	0	1.160	116,930
System 4	Total/Ave.	50,753	0	0.800	13,728	21,502	0.587	42,971	0	0	1.330	128,955
System 4	Block	48,700	0	0.768	9,886	20,882	0.486	37,461	0	0	1.160	116,930

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	STORE-BARBER	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
2	ADMIN. OFFICES	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
4	BAR - GAME ROOM	0	0.0	21,205	92.3	0	0	0.000	0	0.0	0	0.0
5	BALL ROOM	0	0.0	60,864	92.3	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	13,941	80.6	0	0	0.000	0	0.0	0	0.0
7	KITCHEN	0	0.0	20,352	68.8	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	116,361	85.7	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	110,942	81.7	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	116,361	85.7	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	110,942	81.7	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	STORE-BARBER	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
Zone 1	Total/Ave.	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
Zone 1	Block	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
System 1	Total/Ave.	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
System 1	Block	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
2	ADMIN. OFFICES	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
Zone 2	Total/Ave.	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
Zone 2	Block	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
System 2	Total/Ave.	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
System 2	Block	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
3	COCKTAIL LOUNGE	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone 3	Total/Ave.	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
Zone 3	Block	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
System 3	Total/Ave.	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
System 3	Block	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
4	BAR - GAME ROOM	0	0.0	5,542	20.1	3,888	0	0.400	1,194	17.8	0	0.0
5	BALL ROOM	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	2,376	37.1	6,912	0	0.580	1,633	13.7	0	0.0
7	KITCHEN	0	0.0	15,554	47.2	1,140	0	0.670	180	16.0	0	0.0
Zone 4	Total/Ave.	0	0.0	23,471	35.1	11,940	0	0.512	3,007	15.2	0	0.0
Zone 4	Block	0	0.0	26,006	38.9	11,610	0	0.501	3,477	17.6	0	0.0
System 4	Total/Ave.	0	0.0	23,471	35.1	11,940	0	0.512	3,007	15.2	0	0.0
System 4	Block	0	0.0	26,006	38.9	11,610	0	0.501	3,477	17.6	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	STORE-BARBER	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
Zone 1	Total/Ave.	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
Zone 1	Block	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
System 1	Total/Ave.	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
System 1	Block	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
2	ADMIN. OFFICES	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
Zone 2	Total/Ave.	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
Zone 2	Block	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
System 2	Total/Ave.	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
System 2	Block	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
3	COCKTAIL LOUNGE	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
Zone 3	Total/Ave.	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
Zone 3	Block	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
System 3	Total/Ave.	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
System 3	Block	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
4	BAR - GAME ROOM	0	0.0	0	0.0	206	4,157	5,956	75.0	0	41,941
5	BALL ROOM	0	0.0	0	0.0	0	0	0	75.0	0	60,864
6	DINING ROOM	0	0.0	0	0.0	111	1,948	3,207	75.0	0	30,016
7	KITCHEN	0	0.0	0	0.0	250	3,790	5,974	75.0	0	46,989
Zone 4	Total/Ave.	0	0.0	0	0.0	567	9,895	15,136	75.0	0	179,810
Zone 4	Block	0	0.0	0	0.0	567	10,087	13,561	75.0	0	175,682
System 4	Total/Ave.	0	0.0	0	0.0	567	9,895	15,136	75.0	0	179,810
System 4	Block	0	0.0	0	0.0	567	10,087	13,561	75.0	0	175,682

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	STORE-BARBER	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	18,461	89.8	0	0	0.000	0	0.0	0	0.0
2	ADMIN. OFFICES	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	29,673	92.3	0	0	0.000	0	0.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	9,092	80.6	0	0	0.000	0	0.0	0	0.0
4	BAR - GAME ROOM	0	0.0	15,806	68.8	0	0	0.000	0	0.0	0	0.0
5	BALL ROOM	0	0.0	53,874	81.7	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	13,941	80.6	0	0	0.000	0	0.0	0	0.0
7	KITCHEN	0	0.0	20,352	68.8	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	103,972	76.6	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	110,942	81.7	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	103,972	76.6	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	110,942	81.7	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	STORE-BARBER	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
Zone 1	Total/Ave.	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
Zone 1	Block	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
System 1	Total/Ave.	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
System 1	Block	0	0.0	7,474	30.3	1,166	0	0.370	412	18.2	0	0.0
2	ADMIN. OFFICES	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
Zone 2	Total/Ave.	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
Zone 2	Block	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
System 2	Total/Ave.	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
System 2	Block	0	0.0	8,805	38.1	1,974	0	0.210	1,039	17.8	0	0.0
3	COCKTAIL LOUNGE	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone 3	Total/Ave.	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
Zone 3	Block	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
System 3	Total/Ave.	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
System 3	Block	0	0.0	4,968	37.5	11,484	0	0.650	1,685	13.7	0	0.0
4	BAR - GAME ROOM	0	0.0	11,332	41.1	7,884	0	0.820	1,073	16.0	0	0.0
5	BALL ROOM	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	2,376	37.1	6,912	0	0.580	1,633	13.7	0	0.0
7	KITCHEN	0	0.0	15,554	47.2	1,140	0	0.670	180	16.0	0	0.0
Zone 4	Total/Ave.	0	0.0	29,262	43.7	15,936	0	0.686	2,886	14.6	0	0.0
Zone 4	Block	0	0.0	26,006	38.9	11,610	0	0.501	3,477	17.6	0	0.0
System 4	Total/Ave.	0	0.0	29,262	43.7	15,936	0	0.686	2,886	14.6	0	0.0
System 4	Block	0	0.0	26,006	38.9	11,610	0	0.501	3,477	17.6	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	STORE-BARBER	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
Zone 1	Total/Ave.	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
Zone 1	Block	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
System 1	Total/Ave.	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
System 1	Block	0	0.0	0	0.0	186	3,620	7,627	75.0	0	38,759
2	ADMIN. OFFICES	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
Zone 2	Total/Ave.	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
Zone 2	Block	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
System 2	Total/Ave.	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
System 2	Block	0	0.0	0	0.0	197	3,975	7,234	75.0	0	52,700
3	COCKTAIL LOUNGE	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
Zone 3	Total/Ave.	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
Zone 3	Block	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
System 3	Total/Ave.	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
System 3	Block	0	0.0	0	0.0	140	2,457	3,942	75.0	0	33,627
4	BAR - GAME ROOM	0	0.0	0	0.0	206	3,123	4,922	75.0	0	44,141
5	BALL ROOM	0	0.0	0	0.0	0	0	0	75.0	0	53,874
6	DINING ROOM	0	0.0	0	0.0	111	1,948	3,207	75.0	0	30,016
7	KITCHEN	0	0.0	0	0.0	250	3,790	5,974	75.0	0	46,989
Zone 4	Total/Ave.	0	0.0	0	0.0	567	8,862	14,103	75.0	0	175,020
Zone 4	Block	0	0.0	0	0.0	567	10,087	13,561	75.0	0	175,682
System 4	Total/Ave.	0	0.0	0	0.0	567	8,862	14,103	75.0	0	175,020
System 4	Block	0	0.0	0	0.0	567	10,087	13,561	75.0	0	175,682

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	STORE-BARBER	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
2	ADMIN. OFFICES	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
4	BAR - GAME ROOM	0	0.0	-15,392	-67.0	0	0	0.000	0	0.0	0	0.0
5	BALL ROOM	0	0.0	-44,180	-67.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	-11,588	-67.0	0	0	0.000	0	0.0	0	0.0
7	KITCHEN	0	0.0	-19,820	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	STORE-BARBER	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
Zone 1	Block	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
System 1	Block	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
2	ADMIN. OFFICES	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
Zone 2	Block	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
System 2	Total/Ave.	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
System 2	Block	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone 3	Total/Ave.	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
Zone 3	Block	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
System 3	Total/Ave.	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
System 3	Block	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
4	BAR - GAME ROOM	0	0.0	-18,474	-67.0	0	0	0.000	-4,735	-67.0	0	0.0
5	BALL ROOM	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	-4,290	-67.0	0	0	0.000	-8,418	-67.0	0	0.0
7	KITCHEN	0	0.0	-22,078	-67.0	0	0	0.000	-793	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
Zone 4	Block	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
System 4	Total/Ave.	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
System 4	Block	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	STORE-BARBER	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
Zone 1	Total/Ave.	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
Zone 1	Block	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
System 1	Total/Ave.	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
System 1	Block	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
2	ADMIN. OFFICES	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
Zone 2	Total/Ave.	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
Zone 2	Block	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
System 2	Total/Ave.	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
System 2	Block	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
3	COCKTAIL LOUNGE	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
Zone 3	Total/Ave.	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
Zone 3	Block	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
System 3	Total/Ave.	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
System 3	Block	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
4	BAR - GAME ROOM	-5,342	-67.0	0	0.0	206	-14,659	0	70.0	0	-58,601
5	BALL ROOM	0	0.0	0	0.0	0	0	0	70.0	0	-44,181
6	DINING ROOM	-1,796	-67.0	0	0.0	111	-7,899	0	70.0	0	-33,990
7	KITCHEN	-6,060	-67.0	0	0.0	250	-17,790	0	70.0	0	-66,541
Zone 4	Total/Ave.	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
Zone 4	Block	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
System 4	Total/Ave.	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
System 4	Block	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	STORE-BARBER	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-13,774	-67.0	0	0	0.000	0	0.0	0	0.0
2	ADMIN. OFFICES	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-21,539	-67.0	0	0	0.000	0	0.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	-7,558	-67.0	0	0	0.000	0	0.0	0	0.0
4	BAR - GAME ROOM	0	0.0	-15,392	-67.0	0	0	0.000	0	0.0	0	0.0
5	BALL ROOM	0	0.0	-44,180	-67.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	-11,588	-67.0	0	0	0.000	0	0.0	0	0.0
7	KITCHEN	0	0.0	-19,820	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-90,981	-67.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	STORE-BARBER	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
Zone 1	Block	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
System 1	Block	0	0.0	-16,527	-67.0	0	0	0.000	-1,597	-67.0	0	0.0
2	ADMIN. OFFICES	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
Zone 2	Block	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
System 2	Total/Ave.	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
System 2	Block	0	0.0	-15,484	-67.0	0	0	0.000	-4,121	-67.0	0	0.0
3	COCKTAIL LOUNGE	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone 3	Total/Ave.	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
Zone 3	Block	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
System 3	Total/Ave.	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
System 3	Block	0	0.0	-8,876	-67.0	0	0	0.000	-8,681	-67.0	0	0.0
4	BAR - GAME ROOM	0	0.0	-18,474	-67.0	0	0	0.000	-4,735	-67.0	0	0.0
5	BALL ROOM	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	DINING ROOM	0	0.0	-4,290	-67.0	0	0	0.000	-8,418	-67.0	0	0.0
7	KITCHEN	0	0.0	-22,078	-67.0	0	0	0.000	-793	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
Zone 4	Block	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
System 4	Total/Ave.	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0
System 4	Block	0	0.0	-44,842	-67.0	0	0	0.000	-13,946	-67.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	STORE-BARBER	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
Zone 1	Total/Ave.	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
Zone 1	Block	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
System 1	Total/Ave.	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
System 1	Block	-4,579	-67.0	0	0.0	186	-13,236	0	70.0	0	-49,712
2	ADMIN. OFFICES	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
Zone 2	Total/Ave.	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
Zone 2	Block	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
System 2	Total/Ave.	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
System 2	Block	-4,489	-67.0	0	0.0	197	-14,018	0	70.0	0	-59,652
3	COCKTAIL LOUNGE	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
Zone 3	Total/Ave.	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
Zone 3	Block	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
System 3	Total/Ave.	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
System 3	Block	-3,053	-67.0	0	0.0	140	-9,962	0	70.0	0	-38,129
4	BAR - GAME ROOM	-5,342	-67.0	0	0.0	206	-14,659	0	70.0	0	-58,601
5	BALL ROOM	0	0.0	0	0.0	0	0	0	70.0	0	-44,181
6	DINING ROOM	-1,796	-67.0	0	0.0	111	-7,899	0	70.0	0	-33,990
7	KITCHEN	-6,060	-67.0	0	0.0	250	-17,790	0	70.0	0	-66,541
Zone 4	Total/Ave.	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
Zone 4	Block	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
System 4	Total/Ave.	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313
System 4	Block	-13,198	-67.0	0	0.0	567	-40,347	0	70.0	0	-203,313

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

AIRFLOW COOLING LOADS
(At time of Coil Peak)

Room Number	Description	Ventilation Airflow (Cfm)	Ventilation Sensible (Btuh)	Ventilation Latent (Btuh)	Optional Ventilation Airflow (Cfm)	Optional Ventilation Sensible (Btuh)	Optional Ventilation Latent (Btuh)	Bypass Airflow (Cfm)	Bypass Sensible (Btuh)	Bypass Latent (Btuh)	Ov/Undr Sizing (Btuh)
1	STORE-BARBER	268	5,211	10,979	0	0	0	0	0	0	183
Zone 1	Total/Ave.	268	5,211	10,979	0	0	0	0	0	0	183
Zone 1	Block	268	5,211	10,979	0	0	0	0	0	0	183
System 1	Total/Ave.	268	5,211	10,979	0	0	0	0	0	0	183
System 1	Block	268	5,211	10,979	0	0	0	0	0	0	183
2	ADMIN. OFFICES	524	10,579	19,251	0	0	0	0	0	0	0
Zone 2	Total/Ave.	524	10,579	19,251	0	0	0	0	0	0	0
Zone 2	Block	524	10,579	19,251	0	0	0	0	0	0	0
System 2	Total/Ave.	524	10,579	19,251	0	0	0	0	0	0	0
System 2	Block	524	10,579	19,251	0	0	0	0	0	0	0
3	COCKTAIL LOUNGE	414	7,266	11,656	0	0	0	0	0	0	471
Zone 3	Total/Ave.	414	7,266	11,656	0	0	0	0	0	0	471
Zone 3	Block	414	7,266	11,656	0	0	0	0	0	0	471
System 3	Total/Ave.	414	7,266	11,656	0	0	0	0	0	0	471
System 3	Block	414	7,266	11,656	0	0	0	0	0	0	471
4	BAR - GAME ROOM	681	13,742	19,688	0	0	0	0	0	0	9,226
5	BALL ROOM	1,629	32,872	47,096	0	0	0	0	0	0	65,025
6	DINING ROOM	572	10,030	16,510	0	0	0	0	0	0	10,671
7	KITCHEN	235	3,570	5,627	0	0	0	0	0	0	-84,040
Zone 4	Total/Ave.	3,117	60,215	88,921	0	0	0	0	0	0	882
Zone 4	Block	3,117	55,450	74,549	0	0	0	0	0	0	882
System 4	Total/Ave.	3,117	60,215	88,921	0	0	0	0	0	0	882
System 4	Block	3,117	55,450	74,549	0	0	0	0	0	0	882

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

AIRFLOW HEATING LOADS
(At time of Coil Peak)

Room Number	Description	--- Ventilation -- Airflow (Cfm)	Sensible (Btuh)	---- Op. Vent.---- Airflow (Cfm)	Sensible (Btuh)	----- Reheat ----- Airflow (Cfm)	Sensible (Btuh)	---- Humidif. ---- Airflow (Cfm)	Latent (Btuh)	Total (Btuh)
1	STORE-BARBER	268	-19,053	0	0	0	0	0	0	-19,053
Zone 1	Total/Ave.	268	-19,053	0	0	0	0	0	0	-19,053
Zone 1	Block	268	-19,053	0	0	0	0	0	0	-19,053
System 1	Total/Ave.	268	-19,053	0	0	0	0	0	0	-19,053
System 1	Block	268	-19,053	0	0	0	0	0	0	-19,053
2	ADMIN. OFFICES	524	-37,305	0	0	0	0	0	0	-37,305
Zone 2	Total/Ave.	524	-37,305	0	0	0	0	0	0	-37,305
Zone 2	Block	524	-37,305	0	0	0	0	0	0	-37,305
System 2	Total/Ave.	524	-37,305	0	0	0	0	0	0	-37,305
System 2	Block	524	-37,305	0	0	0	0	0	0	-37,305
3	COCKTAIL LOUNGE	414	-29,460	0	0	0	0	0	0	-29,460
Zone 3	Total/Ave.	414	-29,460	0	0	0	0	0	0	-29,460
Zone 3	Block	414	-29,460	0	0	0	0	0	0	-29,460
System 3	Total/Ave.	414	-29,460	0	0	0	0	0	0	-29,460
System 3	Block	414	-29,460	0	0	0	0	0	0	-29,460
4	BAR - GAME ROOM	681	-48,459	0	0	0	0	0	0	-48,459
5	BALL ROOM	1,629	-115,918	0	0	0	0	0	0	-115,918
6	DINING ROOM	572	-40,667	0	0	0	0	0	0	-40,667
7	KITCHEN	235	-16,758	0	0	0	0	0	0	-16,758
Zone 4	Total/Ave.	3,117	-221,802	0	0	0	0	0	0	-221,802
Zone 4	Block	3,117	-221,802	0	0	0	0	0	0	-221,802
System 4	Total/Ave.	3,117	-221,802	0	0	0	0	0	0	-221,802
System 4	Block	3,117	-221,802	0	0	0	0	0	0	-221,802

COOLING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS
(At time of Coil Peak)

Room Number	Description	Cooling: Duct Heat Pickup (Btuh)	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	STORE-BARBER	0	190	0	0	190	268	0	1,785	0	0	0	1,785
Zone 1	Total/Ave.	0	190	0	0	190	268	0	1,785	0	0	0	1,785
Zone 1	Block	0	190	0	0	190	268	0	1,785	0	0	0	1,785
System 1	Total/Ave.	0	190	0	0	190	268	0	1,785	0	0	0	1,785
System 1	Block	0	190	0	0	190	268	0	1,785	0	0	0	1,785
2	ADMIN. OFFICES	0	373	0	0	373	524	0	3,495	0	0	0	3,495
Zone 2	Total/Ave.	0	373	0	0	373	524	0	3,495	0	0	0	3,495
Zone 2	Block	0	373	0	0	373	524	0	3,495	0	0	0	3,495
System 2	Total/Ave.	0	373	0	0	373	524	0	3,495	0	0	0	3,495
System 2	Block	0	373	0	0	373	524	0	3,495	0	0	0	3,495
3	COCKTAIL LOUNGE	0	442	0	0	442	414	0	2,760	0	0	0	2,760
Zone 3	Total/Ave.	0	442	0	0	442	414	0	2,760	0	0	0	2,760
Zone 3	Block	0	442	0	0	442	414	0	2,760	0	0	0	2,760
System 3	Total/Ave.	0	442	0	0	442	414	0	2,760	0	0	0	2,760
System 3	Block	0	442	0	0	442	414	0	2,760	0	0	0	2,760
4	BAR - GAME ROOM	0	1,211	0	0	1,211	681	0	4,540	0	0	0	4,540
5	BALL ROOM	0	2,896	0	0	2,896	1,629	0	10,860	0	0	0	10,860
6	DINING ROOM	0	1,016	0	0	1,016	572	0	3,810	0	0	0	3,810
7	KITCHEN	0	419	0	0	419	235	0	1,570	0	0	0	1,570
Zone 4	Total/Ave.	0	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
Zone 4	Block	0	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
System 4	Total/Ave.	0	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
System 4	Block	0	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780

HEATING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Coil Peak)

Room Number	Description	Heating: Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	STORE-BARBER	190	0	0	190	268	0	1,785	0	0	0	1,785
Zone 1	Total/Ave.	190	0	0	190	268	0	1,785	0	0	0	1,785
Zone 1	Block	190	0	0	190	268	0	1,785	0	0	0	1,785
System 1	Total/Ave.	190	0	0	190	268	0	1,785	0	0	0	1,785
System 1	Block	190	0	0	190	268	0	1,785	0	0	0	1,785
2	ADMIN. OFFICES	373	0	0	373	524	0	3,495	0	0	0	3,495
Zone 2	Total/Ave.	373	0	0	373	524	0	3,495	0	0	0	3,495
Zone 2	Block	373	0	0	373	524	0	3,495	0	0	0	3,495
System 2	Total/Ave.	373	0	0	373	524	0	3,495	0	0	0	3,495
System 2	Block	373	0	0	373	524	0	3,495	0	0	0	3,495
3	COCKTAIL LOUNGE	442	0	0	442	414	0	2,760	0	0	0	2,760
Zone 3	Total/Ave.	442	0	0	442	414	0	2,760	0	0	0	2,760
Zone 3	Block	442	0	0	442	414	0	2,760	0	0	0	2,760
System 3	Total/Ave.	442	0	0	442	414	0	2,760	0	0	0	2,760
System 3	Block	442	0	0	442	414	0	2,760	0	0	0	2,760
4	BAR - GAME ROOM	1,211	0	0	1,211	681	0	4,540	0	0	0	4,540
5	BALL ROOM	2,896	0	0	2,896	1,629	0	10,860	0	0	0	10,860
6	DINING ROOM	1,016	0	0	1,016	572	0	3,810	0	0	0	3,810
7	KITCHEN	419	0	0	419	235	0	1,570	0	0	0	1,570
Zone 4	Total/Ave.	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
Zone 4	Block	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
System 4	Total/Ave.	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780
System 4	Block	5,541	0	0	5,541	3,117	0	20,780	0	0	0	20,780

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 1

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	61.2	46.1	62.7	27.8	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	61.2	46.1	62.7	27.8	
Outdoor Air	93.3	77.4	49.9	124.1	41.9	
Return/Outdoor Air Mix	77.7	64.0	48.1	71.9	29.9	
Blow through Fan						0.0
Entering Coil	77.7	64.0	48.1	71.9	29.9	
Leaving Coil	52.0	50.8	92.5	56.1	21.2	
Draw Through Fan						0.0
Duct Frictional Heat						0.1
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	52.1	50.8	92.1	56.1	21.2	
Supply Air	52.1	50.8	92.1	56.1	21.2	

Percent Outside Air	15.00	(%)
Sensible Heat Ratio (SHR)	0.833	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	1,785	(Cfm)

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 2

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	62.5	50.7	69.1	28.8	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	62.5	50.7	69.1	28.8	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	77.8	65.1	51.5	77.3	30.8	
Blow through Fan						0.0
Entering Coil	77.8	65.1	51.5	77.3	30.8	
Leaving Coil	56.8	55.2	90.8	65.7	23.8	
Draw Through Fan						0.0
Duct Frictional Heat						0.1
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	56.9	55.2	90.5	65.7	23.9	
Supply Air	56.9	55.2	90.5	65.7	23.9	

Percent Outside Air	15.00	(%)
Sensible Heat Ratio (SHR)	0.882	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	3,495	(Cfm)

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 3

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	65.1	59.9	81.9	30.8	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	65.1	59.9	81.9	30.8	
Outdoor Air	91.5	77.0	52.7	124.0	41.5	
Return/Outdoor Air Mix	77.5	67.1	59.3	88.2	32.4	
Blow through Fan						0.0
Entering Coil	77.5	67.1	59.3	88.2	32.4	
Leaving Coil	62.2	60.1	89.0	78.5	27.1	
Draw Through Fan						0.0
Duct Frictional Heat						0.1
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	62.4	60.2	88.5	78.5	27.2	
Supply Air	62.4	60.2	88.5	78.5	27.2	

Percent Outside Air	15.00	(%)
Sensible Heat Ratio (SHR)	0.846	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	2,760	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

SYSTEM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

System 4

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	75.0	64.9	59.1	80.8	30.6	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	75.0	64.9	59.1	80.8	30.6	
Outdoor Air	91.7	75.9	49.3	116.6	40.4	
Return/Outdoor Air Mix	77.5	66.7	57.9	86.1	32.1	
Blow through Fan						0.1
Entering Coil	77.6	66.8	57.8	86.1	32.1	
Leaving Coil	62.6	60.3	87.8	78.4	27.2	
Draw Through Fan						0.0
Duct Frictional Heat						0.2
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	62.8	60.3	87.2	78.4	27.3	
Supply Air	62.8	60.3	87.2	78.4	27.3	

Percent Outside Air	15.00	(%)
Sensible Heat Ratio (SHR)	0.885	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	20,780	(Cfm)

BUILDING U-VALUES - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING U-VALUES

Room Number	Description	Room U-Values (Btu/hr/sqft/F) Part.	ExFlr	Summr Skylt	Wintr Skylt	Roof	Summr Windo	Wintr Windo	Wall	Ceil.	Room Mass (lb/ sqft)	Room Capac. (Btu/ sqft/F)
1	STORE-BARBER	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.8	10.02
Zone 1	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.8	10.02
System 1	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.8	10.02
2	ADMIN. OFFICES	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.2	9.89
Zone 2	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.2	9.89
System 2	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	46.2	9.89
3	COCKTAIL LOUNGE	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	54.9	11.63
Zone 3	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	54.9	11.63
System 3	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	54.9	11.63
4	BAR - GAME ROOM	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	54.6	11.58
5	BALL ROOM	0.388	0.000	0.000	0.000	0.094	0.000	0.000	0.000	0.000	28.6	6.37
6	DINING ROOM	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	41.9	9.04
7	KITCHEN	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	51.4	10.93
Zone 4	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	39.6	8.58
System 4	Total/Ave.	0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	39.6	8.58
Building		0.388	0.670	0.000	0.000	0.094	0.621	0.655	0.184	0.000	42.3	9.11

BUILDING AREAS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- B U I L D I N G A R E A S ----------

Room Number	Description	Number of Duplicate Flr	Number of Duplicate Rm	Floor Area/Dupl Room (sqft)	Total Floor Area (sqft)	Partition Area (sqft)	Exposed Floor Area (sqft)	Skylight Area (sqft)	Skl /Rf (%)	Net Roof Area (sqft)	Window Area (sqft)	Win /Wl (%)	Net Wall Area (sqft)
1	STORE-BARBER	1	1	2,187	2,187	1,512	102	0	0	2,187	36	3	1,341
Zone 1	Total/Ave.				2,187	1,512	102	0	0	2,187	36	3	1,341
System 1	Total/Ave.				2,187	1,512	102	0	0	2,187	36	3	1,341
2	ADMIN. OFFICES	1	1	3,420	3,420	4,122	100	0	0	3,420	94	7	1,256
Zone 2	Total/Ave.				3,420	4,122	100	0	0	3,420	94	7	1,256
System 2	Total/Ave.				3,420	4,122	100	0	0	3,420	94	7	1,256
3	COCKTAIL LOUNGE	1	1	1,200	1,200	1,638	68	0	0	1,200	198	22	720
Zone 3	Total/Ave.				1,200	1,638	68	0	0	1,200	198	22	720
System 3	Total/Ave.				1,200	1,638	68	0	0	1,200	198	22	720
4	BAR - GAME ROOM	1	1	2,444	2,444	3,213	119	0	0	2,444	108	7	1,498
5	BALL ROOM	1	1	7,015	7,015	4,500	0	0	0	7,015	0	0	0
6	DINING ROOM	1	1	1,840	1,840	2,349	40	0	0	1,840	192	36	348
7	KITCHEN	1	1	3,147	3,147	3,645	135	0	0	3,147	18	1	1,791
Zone 4	Total/Ave.				14,446	13,707	294	0	0	14,446	318	8	3,637
System 4	Total/Ave.				14,446	13,707	294	0	0	14,446	318	8	3,637
Building					21,253	20,979	564	0	0	21,253	647	9	6,954

ASHRAE 90 ANALYSIS - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- A S H R A E 9 0 A N A L Y S I S ----------

Overall Roof U-Value = 0.094 (Btu/Hr/Sq Ft/F)
Overall Wall U-Value = 0.221 (Btu/Hr/Sq Ft/F)
Overall Building U-Value = 0.127 (Btu/Hr/Sq Ft/F)

Roof Overall Thermal Transfer Value (OTTVr) = 7.09 (Btu/Hr/Sq Ft)
Wall Overall Thermal Transfer Value (OTTVw) = 13.72 (Btu/Hr/Sq Ft)

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

Main System 1 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.2	5	79	-3,429	4	138	89.3	0	0	0.0	0	0
5 - 10	0.5	5	88	-6,857	10	334	178.5	0	0	0.0	0	0
10 - 15	0.7	4	73	-10,286	11	358	267.8	0	0	0.0	0	0
15 - 20	0.9	4	70	-13,715	10	341	357.0	0	0	0.0	0	0
20 - 25	1.2	4	63	-17,143	10	327	446.3	0	0	0.0	0	0
25 - 30	1.4	1	21	-20,572	8	274	535.5	0	0	0.0	0	0
30 - 35	1.6	4	61	-24,001	14	479	624.8	0	0	0.0	0	0
35 - 40	1.9	4	74	-27,430	7	248	714.0	0	0	0.0	0	0
40 - 45	2.1	5	87	-30,858	9	321	803.3	0	0	0.0	0	0
45 - 50	2.3	7	115	-34,287	8	284	892.5	0	0	0.0	0	0
50 - 55	2.5	7	118	-37,716	8	275	981.8	0	0	0.0	0	0
55 - 60	2.8	9	143	-41,144	0	0	1,071.0	0	0	0.0	0	0
60 - 65	3.0	5	88	-44,573	0	0	1,160.3	0	0	0.0	0	0
65 - 70	3.2	7	124	-48,002	0	0	1,249.5	0	0	0.0	0	0
70 - 75	3.5	3	49	-51,430	0	0	1,338.8	0	0	0.0	0	0
75 - 80	3.7	9	152	-54,859	0	0	1,428.0	0	0	0.0	0	0
80 - 85	3.9	4	68	-58,288	0	0	1,517.3	0	0	0.0	0	0
85 - 90	4.2	4	66	-61,717	0	0	1,606.5	0	0	0.0	0	0
90 - 95	4.4	2	40	-65,145	0	0	1,695.8	0	0	0.0	0	0
95 - 100	4.6	5	80	-68,574	0	0	1,785.0	100	8,760	0.0	0	0
Hours Off	0.0	0	7,101	0	0	5,381	0.0	0	0	0.0	0	8,760

Main System 2 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.5	7	114	-20,290	31	826	174.8	0	0	0.0	0	0
5 - 10												
10 - 15												
15 - 20												
20 - 25												
25 - 30												
30 - 35												
35 - 40												
40 - 45												
45 - 50												
50 - 55												
55 - 60												
60 - 65												
65 - 70												
70 - 75												
75 - 80												
80 - 85												
85 - 90												
90 - 95												
95 - 100												
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.9	5	80	-40,580	42	1,119	349.5	0	0	0.0	0	0
5 - 10	1.4	8	143	-60,870	27	710	524.3	0	0	0.0	0	0
10 - 15	1.8	4	73	-81,160	0	0	699.0	0	0	0.0	0	0
15 - 20	2.3	4	77	-101,450	0	0	873.8	0	0	0.0	0	0
20 - 25	2.7	7	115	-121,740	0	0	1,048.5	0	0	0.0	0	0
25 - 30	3.2	6	106	-142,030	0	0	1,223.3	0	0	0.0	0	0
30 - 35	3.6	4	74	-162,320	0	0	1,398.0	0	0	0.0	0	0
35 - 40	4.1	10	166	-182,610	0	0	1,572.8	0	0	0.0	0	0
40 - 45	4.5	8	143	-202,900	0	0	1,747.5	0	0	0.0	0	0
45 - 50	5.0	8	133	-223,190	0	0	1,922.3	0	0	0.0	0	0
50 - 55	5.4	9	156	-243,480	0	0	2,097.0	0	0	0.0	0	0
55 - 60	5.9	5	88	-263,770	0	0	2,271.8	0	0	0.0	0	0
60 - 65	6.3	8	132	-284,060	0	0	2,446.5	0	0	0.0	0	0
65 - 70	6.8	2	42	-304,350	0	0	2,621.3	0	0	0.0	0	0
70 - 75	7.3	1	20	-324,640	0	0	2,796.0	0	0	0.0	0	0
75 - 80	7.7	3	60	-344,930	0	0	2,970.8	0	0	0.0	0	0
80 - 85	8.2	0	0	-365,220	0	0	3,145.5	0	0	0.0	0	0
85 - 90	8.6	0	0	-385,510	0	0	3,320.3	0	0	0.0	0	0
90 - 95	9.1	0	0	-405,800	0	0	3,495.0	100	8,760	0.0	0	0
95 - 100	0.0	0	7,038	0	0	6,105	0.0	0	0	0.0	0	8,760
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

Main System 3 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.5	8	141	-5,687	14	446	138.0	0	0	0.0	0	0
5 - 10	0.9	5	92	-11,374	18	547	276.0	0	0	0.0	0	0
10 - 15	1.4	15	259	-17,061	13	415	414.0	0	0	0.0	0	0
15 - 20	1.9	17	292	-22,748	18	553	552.0	0	0	0.0	0	0
20 - 25	2.4	9	153	-28,435	12	363	690.0	0	0	0.0	0	0
25 - 30	2.8	14	245	-34,122	17	540	828.0	0	0	0.0	0	0
30 - 35	3.3	12	206	-39,809	8	245	966.0	0	0	0.0	0	0
35 - 40	3.8	13	222	-45,496	0	0	1,104.0	0	0	0.0	0	0
40 - 45	4.2	5	82	-51,183	0	0	1,242.0	0	0	0.0	0	0
45 - 50	4.7	2	42	-56,870	0	0	1,380.0	0	0	0.0	0	0
50 - 55	5.2	0	0	-62,557	0	0	1,518.0	0	0	0.0	0	0
55 - 60	5.7	0	0	-68,244	0	0	1,656.0	0	0	0.0	0	0
60 - 65	6.1	0	0	-73,931	0	0	1,794.0	0	0	0.0	0	0
65 - 70	6.6	0	0	-79,618	0	0	1,932.0	0	0	0.0	0	0
70 - 75	7.1	0	0	-85,305	0	0	2,070.0	0	0	0.0	0	0
75 - 80	7.5	0	0	-90,992	0	0	2,208.0	0	0	0.0	0	0
80 - 85	8.0	0	0	-96,679	0	0	2,346.0	0	0	0.0	0	0
85 - 90	8.5	0	0	-102,366	0	0	2,484.0	0	0	0.0	0	0
90 - 95	9.0	0	0	-108,053	0	0	2,622.0	0	0	0.0	0	0
95 - 100	9.4	0	0	-113,740	0	0	2,760.0	100	8,760	0.0	0	0
Hours Off	0.0	0	7,026	0	0	5,651	0.0	0	0	0.0	0	8,760

Main System 4 MZ MULTIZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	4.0	41	1,314	-30,243	1	60	1,039.0	0	0	0.0	0	0
5 - 10												
10 - 15												
15 - 20												
20 - 25												
25 - 30												
30 - 35												
35 - 40												
40 - 45												
45 - 50												
50 - 55												
55 - 60												
60 - 65												
65 - 70												
70 - 75												
75 - 80												
80 - 85												
85 - 90												
90 - 95												
95 - 100												
Hours Off												

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	8.0	15	492	-60,486	17	745	2,078.0	0	0	0.0	0	0
5 - 10	12.0	9	288	-90,729	34	1,523	3,117.0	0	0	0.0	0	0
10 - 15	16.0	12	385	-120,972	20	916	4,156.0	0	0	0.0	0	0
15 - 20	20.0	11	338	-151,214	14	624	5,195.0	0	0	0.0	0	0
20 - 25	24.0	7	213	-181,457	13	597	6,234.0	0	0	0.0	0	0
25 - 30	28.0	6	186	-211,700	0	14	7,273.0	0	0	0.0	0	0
30 - 35	32.0	0	0	-241,943	0	0	8,312.0	0	0	0.0	0	0
35 - 40	36.0	0	0	-272,186	0	0	9,351.0	0	0	0.0	0	0
40 - 45	40.0	0	0	-302,429	0	0	10,390.0	0	0	0.0	0	0
45 - 50	44.0	0	0	-332,672	0	0	11,429.0	0	0	0.0	0	0
50 - 55	48.0	0	0	-362,915	0	0	12,468.0	0	0	0.0	0	0
55 - 60	52.0	0	0	-393,157	0	0	13,507.0	0	0	0.0	0	0
60 - 65	56.0	0	0	-423,400	0	0	14,546.0	0	0	0.0	0	0
65 - 70	60.0	0	0	-453,643	0	0	15,585.0	0	0	0.0	0	0
70 - 75	64.0	0	0	-483,886	0	0	16,624.0	0	0	0.0	0	0
75 - 80	68.0	0	0	-514,129	0	0	17,663.0	0	0	0.0	0	0
80 - 85	72.0	0	0	-544,372	0	0	18,702.0	0	0	0.0	0	0
85 - 90	76.0	0	0	-574,615	0	0	19,741.0	0	0	0.0	0	0
90 - 95	80.0	0	0	-604,858	0	0	20,780.0	100	8,760	0.0	0	0
95 - 100	0.0	0	5,544	0	0	4,281	0.0	0	0	0.0	0	8,760
Hours Off												

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

SYSTEM LOAD PROFILE

System Totals

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	5.2	44	1,405	-59,649	16	695	1,441.0	0	0	0.0	0	0
5 - 10	10.3	8	273	-119,297	33	1,490	2,882.0	0	0	0.0	0	0
10 - 15	15.5	9	281	-178,946	22	986	4,323.0	0	0	0.0	0	0
15 - 20	20.6	10	326	-238,594	12	537	5,764.0	0	0	0.0	0	0
20 - 25	25.8	8	260	-298,243	17	755	7,205.0	0	0	0.0	0	0
25 - 30	30.9	6	191	-357,892	0	16	8,646.0	0	0	0.0	0	0
30 - 35	36.1	9	305	-417,540	0	0	10,087.0	0	0	0.0	0	0
35 - 40	41.2	4	115	-477,189	0	0	11,528.0	0	0	0.0	0	0
40 - 45	46.4	2	60	-536,837	0	0	12,969.0	0	0	0.0	0	0
45 - 50	51.6	0	0	-596,486	0	0	14,410.0	0	0	0.0	0	0
50 - 55	56.7	0	0	-656,135	0	0	15,851.0	0	0	0.0	0	0
55 - 60	61.9	0	0	-715,783	0	0	17,292.0	0	0	0.0	0	0
60 - 65	67.0	0	0	-775,432	0	0	18,733.0	0	0	0.0	0	0
65 - 70	72.2	0	0	-835,080	0	0	20,174.0	0	0	0.0	0	0
70 - 75	77.3	0	0	-894,729	0	0	21,615.0	0	0	0.0	0	0
75 - 80	82.5	0	0	-954,378	0	0	23,056.0	0	0	0.0	0	0
80 - 85	87.6	0	0	-1,014,026	0	0	24,497.0	0	0	0.0	0	0
85 - 90	92.8	0	0	-1,073,675	0	0	25,938.0	0	0	0.0	0	0
90 - 95	98.0	0	0	-1,133,323	0	0	27,379.0	0	0	0.0	0	0
95 - 100	103.1	0	0	-1,192,972	0	0	28,820.0	100	8,760	0.0	0	0
Hours Off	0.0	0	5,544	0	0	4,281	0.0	0	0	0.0	0	8,760

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

January			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	24.1	19.9	-299,610	0.0	-259,849	0.0	-273,158	0.0	-272,818	0.0	-265,552	0.0
2	23.4	19.5	-325,976	0.0	-284,890	0.0	-286,894	0.0	-286,562	0.0	-284,102	0.0
3	23.7	20.0	-340,042	0.0	-286,568	0.0	-288,573	0.0	-288,248	0.0	-285,794	0.0
4	24.7	21.1	-350,392	0.0	-285,044	0.0	-295,789	0.0	-295,136	0.0	-292,686	0.0
5	26.3	22.8	-358,314	0.0	-278,127	0.0	-295,471	0.0	-295,141	0.0	-292,695	0.0
6	28.3	25.0	-355,756	0.0	-279,957	0.0	-284,570	0.0	-284,248	0.0	-281,807	0.0
7	30.8	27.9	-347,175	0.0	-261,075	0.0	-264,461	0.0	-264,147	0.0	-261,710	0.0
8	33.5	30.8	-304,503	0.0	-229,143	0.0	-260,718	0.0	-260,350	0.0	-243,762	0.0
9	36.4	33.5	-246,902	0.0	-196,592	0.0	-231,204	0.0	-230,908	0.0	-206,935	0.0
10	39.3	35.6	-196,712	0.0	-176,692	0.0	-208,853	0.0	-208,564	0.0	-178,691	0.0
11	42.1	36.8	-131,815	0.0	-136,264	0.0	-171,371	0.0	-171,089	0.0	-135,319	0.0
12	44.6	37.5	-89,070	0.0	-110,201	0.0	-144,168	0.0	-143,893	0.0	-109,279	0.0
13	46.6	38.2	-66,961	0.0	-85,456	0.0	-116,224	0.0	-115,956	0.0	-84,559	0.0
14	48.2	38.3	-56,154	0.0	-72,022	0.0	-99,040	0.0	-98,778	0.0	-71,144	0.0
15	49.2	39.0	-54,586	0.0	-67,699	0.0	-93,758	0.0	-93,502	0.0	-66,840	0.0
16	49.5	39.1	-57,824	0.0	-66,035	0.0	-92,122	0.0	-91,873	0.0	-65,198	0.0
17	48.8	38.9	-64,296	0.0	-71,398	0.0	-97,495	0.0	-97,252	0.0	-70,582	0.0
18	47.0	38.5	-72,714	0.0	-80,293	0.0	-108,949	0.0	-108,712	0.0	-79,499	0.0
19	44.1	37.3	-82,254	0.0	-92,371	0.0	-124,610	0.0	-124,378	0.0	-91,595	0.0
20	40.5	34.8	-101,512	0.0	-108,446	0.0	-144,521	0.0	-144,295	0.0	-107,688	0.0
21	36.4	31.2	-124,134	0.0	-128,253	0.0	-170,659	0.0	-170,438	0.0	-127,512	0.0
22	32.4	27.7	-144,779	0.0	-166,935	0.0	-194,870	0.0	-194,655	0.0	-166,213	0.0
23	28.8	24.3	-195,064	0.0	-204,414	0.0	-220,749	0.0	-220,539	0.0	-203,710	0.0
24	25.9	21.7	-214,539	0.0	-237,557	0.0	-248,657	0.0	-248,452	0.0	-236,870	0.0

February			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	31.5	28.3	-239,617	0.0	-208,479	0.0	-229,345	0.0	-229,357	0.0	-222,088	0.0
2	29.8	26.8	-256,475	0.0	-239,303	0.0	-242,616	0.0	-242,618	0.0	-240,156	0.0
3	28.3	25.5	-266,128	0.0	-252,315	0.0	-254,394	0.0	-254,387	0.0	-251,930	0.0
4	27.1	24.4	-285,809	0.0	-263,031	0.0	-265,107	0.0	-265,092	0.0	-262,639	0.0
5	26.2	23.6	-291,358	0.0	-270,261	0.0	-282,318	0.0	-281,693	0.0	-279,244	0.0
6	25.6	23.5	-291,851	0.0	-275,786	0.0	-291,255	0.0	-291,190	0.0	-288,746	0.0
7	25.5	23.4	-287,004	0.0	-286,326	0.0	-289,949	0.0	-289,878	0.0	-287,439	0.0
8	26.2	24.4	-276,275	0.0	-261,758	0.0	-280,977	0.0	-280,903	0.0	-262,586	0.0
9	28.3	26.1	-225,010	0.0	-236,253	0.0	-263,020	0.0	-266,875	0.0	-242,315	0.0
10	31.5	28.7	-184,319	0.0	-207,773	0.0	-249,625	0.0	-249,332	0.0	-219,494	0.0
11	35.2	31.3	-125,320	0.0	-171,398	0.0	-207,242	0.0	-206,956	0.0	-171,902	0.0
12	39.0	33.9	-97,214	0.0	-138,176	0.0	-172,314	0.0	-172,035	0.0	-137,888	0.0
13	42.2	35.9	-79,405	0.0	-109,562	0.0	-139,707	0.0	-139,435	0.0	-109,268	0.0
14	44.3	36.9	-71,881	0.0	-88,147	0.0	-117,828	0.0	-117,562	0.0	-87,841	0.0
15	45.0	36.8	-70,728	0.0	-85,707	0.0	-112,437	0.0	-112,177	0.0	-85,390	0.0
16	44.8	36.3	-73,754	0.0	-87,778	0.0	-115,344	0.0	-115,091	0.0	-87,458	0.0
17	44.3	35.8	-78,322	0.0	-91,350	0.0	-121,379	0.0	-121,133	0.0	-91,024	0.0
18	43.4	35.6	-84,776	0.0	-97,416	0.0	-130,062	0.0	-129,822	0.0	-97,088	0.0
19	42.2	36.1	-91,354	0.0	-102,149	0.0	-137,315	0.0	-137,081	0.0	-101,815	0.0
20	40.7	35.9	-109,671	0.0	-109,129	0.0	-147,234	0.0	-147,005	0.0	-108,792	0.0
21	39.0	34.5	-134,824	0.0	-130,463	0.0	-159,622	0.0	-159,398	0.0	-130,121	0.0
22	37.1	33.2	-146,579	0.0	-143,731	0.0	-172,076	0.0	-171,858	0.0	-143,390	0.0
23	35.2	31.5	-193,160	0.0	-171,309	0.0	-188,034	0.0	-187,822	0.0	-170,967	0.0
24	33.3	29.9	-211,378	0.0	-197,091	0.0	-208,520	0.0	-208,312	0.0	-196,748	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

March			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	40.0	36.8	-198,213	0.0	-121,895	0.0	-136,216	0.0	-163,938	0.0	-156,975	0.0
2	37.3	34.5	-216,561	0.0	-151,064	0.0	-173,957	0.0	-183,034	0.0	-180,870	0.0
3	34.9	32.2	-228,124	0.0	-178,717	0.0	-195,840	0.0	-196,004	0.0	-193,837	0.0
4	32.9	30.3	-238,167	0.0	-206,883	0.0	-207,653	0.0	-207,813	0.0	-205,643	0.0
5	31.4	28.8	-252,625	0.0	-219,697	0.0	-237,286	0.0	-237,474	0.0	-235,333	0.0
6	30.4	28.0	-253,328	0.0	-230,611	0.0	-247,724	0.0	-247,881	0.0	-245,710	0.0
7	30.1	27.6	-241,697	0.0	-247,053	0.0	-249,539	0.0	-249,692	0.0	-247,460	0.0
8	30.7	28.0	-201,033	0.0	-224,970	0.0	-243,589	0.0	-243,739	0.0	-225,373	0.0
9	32.5	28.9	-160,443	0.0	-205,051	0.0	-229,428	0.0	-229,575	0.0	-205,450	0.0
10	35.4	30.6	-108,573	0.0	-176,979	0.0	-206,335	0.0	-206,479	0.0	-177,374	0.0
11	38.9	32.6	-73,617	0.0	-140,834	0.0	-175,546	0.0	-175,688	0.0	-141,224	0.0
12	42.9	35.4	-56,011	0.0	-110,481	0.0	-142,873	0.0	-143,011	0.0	-110,866	0.0
13	46.8	38.5	-46,283	0.0	-82,097	0.0	-107,738	0.0	-107,874	0.0	-82,479	0.0
14	50.4	41.3	-40,110	0.0	-63,627	0.0	-85,747	0.0	-85,880	0.0	-64,002	0.0
15	53.2	43.6	-38,584	0.0	-55,649	0.0	-70,217	0.0	-70,323	0.0	-55,747	0.0
16	55.0	45.1	-42,598	0.0	-51,504	0.0	-63,014	0.0	-63,123	0.0	-51,637	0.0
17	55.6	45.4	-49,275	0.0	-49,833	0.0	-61,064	0.0	-61,175	0.0	-49,996	0.0
18	55.3	45.9	-58,252	0.0	-49,963	0.0	-63,727	0.0	-63,839	0.0	-50,150	0.0
19	54.4	46.1	-68,062	0.0	-51,375	0.0	-69,782	0.0	-69,895	0.0	-51,581	0.0
20	52.8	46.3	-77,944	0.0	-54,891	0.0	-75,574	0.0	-75,688	0.0	-55,110	0.0
21	50.8	45.5	-86,596	0.0	-60,759	0.0	-86,397	0.0	-86,508	0.0	-61,056	0.0
22	48.4	43.7	-94,959	0.0	-68,908	0.0	-101,646	0.0	-101,755	0.0	-69,202	0.0
23	45.7	41.6	-101,153	0.0	-89,498	0.0	-125,935	0.0	-126,042	0.0	-89,788	0.0
24	42.9	39.2	-123,275	0.0	-114,310	0.0	-144,742	0.0	-144,847	0.0	-114,597	0.0

April			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	56.3	50.9	-67,105	0.0	-49,338	0.0	-49,851	0.0	-49,869	0.0	-49,833	0.0
2	54.2	48.9	-72,801	0.0	-59,032	0.0	-59,393	0.0	-59,379	0.0	-59,336	0.0
3	52.3	47.7	-82,330	0.0	-67,617	0.0	-66,846	0.0	-66,589	0.0	-66,490	0.0
4	50.7	46.4	-97,358	0.0	-72,288	0.0	-71,529	0.0	-71,277	0.0	-71,181	0.0
5	49.5	45.4	-99,564	0.0	-75,576	0.0	-74,840	0.0	-86,485	0.0	-85,078	0.0
6	48.8	44.7	-99,902	0.0	-77,790	0.0	-80,885	0.0	-93,941	0.0	-102,027	0.0
7	48.5	44.7	-77,780	0.0	-79,069	0.0	-90,190	0.0	-120,809	0.0	-105,927	0.0
8	49.2	44.5	-54,526	0.0	-83,467	0.0	-85,561	0.0	-115,695	0.0	-91,321	0.0
9	51.2	44.6	-42,660	0.0	-73,570	0.0	-73,749	0.0	-95,431	0.0	-73,825	0.0
10	54.2	46.1	-34,903	0.0	-60,553	0.0	-59,764	0.0	-71,863	0.0	-59,626	0.0
11	57.8	48.8	0	0.0	-49,041	0.0	-49,345	0.0	-53,182	0.0	-49,121	0.0
12	61.8	51.6	0	0.0	-5,862	0.0	-10,239	0.0	-11,422	0.0	-11,585	0.0
13	65.4	54.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	68.4	56.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	70.4	58.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	71.0	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	70.8	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	70.1	58.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	68.9	58.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	67.3	58.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	65.4	57.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	63.3	56.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
23	61.0	54.8	-28,521	0.0	0	0.0	0	0.0	0	0.0	0	0.0
24	58.6	53.0	-50,233	0.0	-23,322	0.0	-25,962	0.0	-26,715	0.0	-26,998	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

May			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	63.3	59.6	0	21.7	0	1.7	0	1.8	0	1.8	0	1.8
2	61.3	57.9	0	6.6	0	1.6	0	1.6	0	1.6	0	1.6
3	59.7	56.5	0	1.5	0	1.4	0	1.4	0	1.4	0	1.4
4	58.4	55.5	0	1.5	0	1.3	0	1.3	0	1.3	0	1.3
5	57.6	54.8	0	1.4	0	1.3	0	0.0	0	0.0	0	0.0
6	57.4	54.7	0	1.4	0	0.0	0	0.0	0	0.0	0	0.0
7	57.9	55.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	59.4	55.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	61.7	56.5	0	0.7	0	0.0	0	0.0	0	0.0	0	0.0
10	64.6	57.7	0	1.9	0	0.0	0	0.0	0	0.0	0	0.0
11	67.8	59.7	0	7.3	0	1.6	0	0.0	0	0.0	0	0.0
12	71.0	62.0	0	17.9	0	2.7	0	2.2	0	2.2	0	2.2
13	73.9	63.9	0	27.1	0	8.3	0	3.9	0	3.9	0	7.9
14	76.3	65.3	0	30.7	0	13.6	0	7.4	0	7.4	0	13.8
15	77.7	66.4	0	32.1	0	16.2	0	8.5	0	8.5	0	15.2
16	78.2	66.4	0	30.1	0	20.2	0	13.0	0	13.0	0	20.0
17	78.0	66.3	0	29.9	0	22.5	0	17.9	0	17.3	0	22.5
18	77.2	66.2	0	27.3	0	22.1	0	18.3	0	18.1	0	22.2
19	76.0	66.5	0	23.4	0	20.5	0	17.7	0	17.8	0	20.5
20	74.3	66.4	0	18.6	0	18.2	0	15.2	0	15.2	0	18.2
21	72.3	66.5	0	13.1	0	14.2	0	11.0	0	11.0	0	14.2
22	70.1	64.9	0	5.9	0	7.3	0	5.8	0	5.8	0	7.3
23	67.8	63.2	0	2.3	0	3.1	0	2.7	0	2.7	0	3.1
24	65.5	61.4	0	1.7	0	1.9	0	1.9	0	1.9	0	1.9

June			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	66.2	65.3	0	2.2	0	2.2	0	2.1	0	2.1	0	2.1
2	65.3	63.9	0	2.3	0	2.1	0	2.1	0	2.1	0	2.1
3	64.5	62.4	0	2.2	0	2.0	0	1.9	0	1.9	0	1.9
4	64.0	61.3	0	2.0	0	1.9	0	1.8	0	1.8	0	1.8
5	63.8	60.8	0	1.0	0	1.8	0	1.7	0	1.7	0	1.7
6	64.2	61.2	0	0.0	0	1.9	0	0.0	0	0.0	0	0.0
7	65.1	61.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	66.8	62.3	0	0.0	0	0.5	0	0.0	0	0.0	0	0.0
9	69.3	63.3	0	2.9	0	1.0	0	0.0	0	0.0	0	0.0
10	72.1	65.2	0	17.3	0	3.1	0	1.6	0	1.6	0	1.6
11	75.4	67.5	0	27.5	0	13.6	0	6.8	0	6.8	0	12.0
12	78.4	69.8	0	36.2	0	24.1	0	13.8	0	13.8	0	22.5
13	80.7	71.6	0	40.6	0	31.3	0	22.9	0	21.8	0	30.9
14	82.2	72.7	0	42.7	0	33.6	0	29.5	0	29.4	0	33.6
15	82.8	72.8	0	43.7	0	34.3	0	30.9	0	31.0	0	34.3
16	82.2	73.1	0	42.9	0	33.6	0	29.9	0	29.8	0	33.6
17	80.9	72.7	0	42.8	0	34.1	0	30.6	0	30.6	0	34.0
18	78.8	71.6	0	39.5	0	31.7	0	28.5	0	28.5	0	31.7
19	76.3	71.3	0	35.9	0	27.6	0	24.4	0	24.4	0	27.6
20	73.8	72.0	0	29.9	0	23.1	0	19.7	0	19.7	0	23.1
21	71.8	71.8	0	23.9	0	17.8	0	14.2	0	14.2	0	17.8
22	69.9	71.0	0	14.9	0	9.7	0	7.7	0	7.7	0	9.7
23	68.3	68.9	0	9.5	0	4.5	0	4.0	0	4.0	0	4.5
24	67.2	66.8	0	5.0	0	2.3	0	2.3	0	2.3	0	2.3

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

July			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	70.9	71.0	0	5.4	0	4.8	0	4.0	0	3.9	0	4.0
2	69.8	68.8	0	4.6	0	3.5	0	2.9	0	2.9	0	2.9
3	68.9	67.0	0	3.3	0	2.7	0	2.4	0	2.4	0	2.4
4	68.2	65.9	0	2.8	0	2.4	0	2.4	0	2.4	0	2.4
5	68.0	65.2	0	2.7	0	2.4	0	2.4	0	2.4	0	2.4
6	68.4	64.9	0	2.1	0	2.4	0	2.4	0	2.4	0	2.4
7	69.6	65.3	0	0.0	0	2.6	0	2.1	0	1.9	0	1.9
8	71.6	65.6	0	10.8	0	3.6	0	2.1	0	2.1	0	2.1
9	74.5	65.7	0	21.1	0	7.7	0	4.6	0	4.6	0	6.0
10	77.9	66.5	0	26.8	0	20.0	0	11.6	0	11.6	0	20.1
11	81.7	67.9	0	34.8	0	26.5	0	18.8	0	18.7	0	26.2
12	85.3	69.9	0	42.7	0	33.9	0	31.0	0	31.0	0	33.9
13	88.0	71.3	0	47.2	0	40.4	0	37.0	0	37.0	0	40.3
14	89.8	72.5	0	48.1	0	41.0	0	37.6	0	37.6	0	40.9
15	90.5	73.9	0	49.0	0	42.1	0	38.8	0	38.8	0	42.0
16	89.8	75.3	0	48.3	0	41.8	0	38.5	0	38.5	0	41.8
17	88.2	75.5	0	47.7	0	41.4	0	38.0	0	38.0	0	41.4
18	85.8	76.2	0	45.9	0	37.9	0	34.7	0	34.7	0	37.9
19	82.8	76.7	0	41.3	0	34.3	0	31.3	0	31.3	0	34.2
20	79.9	78.6	0	38.3	0	30.0	0	26.9	0	26.9	0	30.0
21	77.4	78.8	0	33.3	0	24.9	0	21.6	0	21.6	0	24.8
22	75.2	78.0	0	23.9	0	17.0	0	14.9	0	14.9	0	16.9
23	73.4	75.4	0	16.8	0	11.1	0	9.4	0	9.4	0	11.1
24	72.0	73.0	0	11.7	0	6.8	0	5.9	0	5.9	0	6.7

August			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	68.0	65.3	0	3.7	0	2.5	0	2.1	0	2.1	0	2.1
2	67.0	63.5	0	2.7	0	2.0	0	2.0	0	2.0	0	2.0
3	66.2	62.2	0	2.2	0	1.9	0	1.8	0	1.8	0	1.8
4	65.6	61.1	0	2.0	0	1.8	0	1.7	0	1.7	0	1.7
5	65.4	60.7	0	2.0	0	1.7	0	1.7	0	1.7	0	1.7
6	65.8	60.7	0	2.1	0	1.8	0	0.0	0	0.0	0	0.0
7	66.8	61.2	0	1.6	0	1.3	0	0.0	0	0.0	0	0.0
8	68.6	61.6	0	2.1	0	0.7	0	0.0	0	0.0	0	0.0
9	71.2	62.5	0	6.3	0	1.1	0	0.6	0	0.6	0	0.6
10	74.3	63.6	0	20.6	0	5.0	0	4.1	0	4.1	0	4.1
11	77.7	65.1	0	25.9	0	14.5	0	7.8	0	7.8	0	14.2
12	80.9	66.8	0	33.4	0	23.8	0	15.5	0	15.5	0	22.9
13	83.4	68.2	0	38.1	0	29.7	0	22.5	0	21.8	0	29.4
14	85.0	69.7	0	40.4	0	31.2	0	27.8	0	27.7	0	31.2
15	85.6	70.7	0	41.6	0	32.2	0	28.7	0	28.7	0	32.2
16	85.0	70.5	0	39.4	0	31.4	0	28.0	0	27.9	0	31.5
17	83.6	70.4	0	38.3	0	31.4	0	28.2	0	28.2	0	31.4
18	81.3	70.7	0	35.9	0	29.0	0	26.0	0	26.0	0	29.0
19	78.7	70.7	0	32.2	0	24.8	0	21.9	0	21.9	0	24.8
20	76.1	71.9	0	28.3	0	21.5	0	18.4	0	18.4	0	21.5
21	73.9	72.4	0	22.9	0	17.2	0	13.9	0	13.9	0	17.2
22	71.8	71.1	0	15.2	0	9.8	0	7.8	0	7.8	0	9.8
23	70.2	69.3	0	10.0	0	5.4	0	4.6	0	4.6	0	5.4
24	69.0	67.2	0	6.2	0	2.7	0	2.7	0	2.7	0	2.7

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

September			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	61.8	61.5	0	2.0	0	1.8	0	1.7	0	1.7	0	1.7
2	60.8	59.7	0	1.9	0	1.7	0	1.6	0	1.6	0	1.6
3	60.0	58.4	0	1.7	0	1.5	0	1.4	0	1.4	0	1.4
4	59.4	57.1	0	1.6	0	1.4	0	0.5	0	0.0	0	0.0
5	59.2	56.3	0	1.5	0	1.4	0	0.0	0	0.0	0	0.0
6	59.6	56.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
7	60.6	56.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
8	62.4	57.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
9	65.1	58.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
10	68.1	59.6	0	0.5	0	0.0	0	0.0	0	0.0	0	0.0
11	71.6	61.1	0	6.8	0	1.3	0	0.8	0	0.8	0	0.8
12	74.8	62.7	0	18.1	0	4.9	0	4.4	0	4.4	0	4.5
13	77.2	64.6	0	25.8	0	12.6	0	9.2	0	9.2	0	10.6
14	78.9	66.0	0	30.5	0	17.2	0	10.6	0	10.6	0	15.7
15	79.5	67.1	0	31.6	0	20.0	0	10.9	0	10.9	0	18.4
16	78.9	67.5	0	30.5	0	22.7	0	15.0	0	15.0	0	22.3
17	77.4	67.9	0	30.5	0	23.2	0	16.5	0	16.5	0	23.2
18	75.2	68.0	0	26.9	0	20.4	0	16.2	0	15.1	0	20.4
19	72.6	69.3	0	23.6	0	18.3	0	14.5	0	14.4	0	18.2
20	69.9	70.0	0	19.6	0	14.4	0	11.1	0	11.1	0	14.4
21	67.7	69.0	0	14.5	0	9.9	0	7.4	0	7.4	0	9.9
22	65.7	67.3	0	6.6	0	3.1	0	2.7	0	2.7	0	3.0
23	64.0	65.4	0	2.9	0	1.9	0	1.9	0	1.9	0	1.9
24	62.8	63.6	0	2.0	0	1.8	0	1.8	0	1.8	0	1.8

October			------ Design -----		----- Weekday -----		----- Saturday----		------ Sunday -----		------ Monday -----	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	50.7	45.9	-71,455	0.0	-68,606	0.0	-67,865	0.0	-77,591	0.0	-76,600	0.0
2	48.4	44.0	-75,012	0.0	-75,689	0.0	-74,981	0.0	-92,291	0.0	-88,783	0.0
3	46.3	42.0	-77,888	0.0	-82,048	0.0	-81,372	0.0	-114,691	0.0	-112,406	0.0
4	44.6	40.8	-88,968	0.0	-86,985	0.0	-89,163	0.0	-126,553	0.0	-124,269	0.0
5	43.4	39.7	-99,152	0.0	-101,318	0.0	-106,562	0.0	-147,432	0.0	-145,149	0.0
6	42.6	39.1	-97,029	0.0	-110,011	0.0	-120,407	0.0	-151,871	0.0	-149,588	0.0
7	42.3	38.9	-91,774	0.0	-116,813	0.0	-131,616	0.0	-157,111	0.0	-140,674	0.0
8	43.4	39.8	-86,500	0.0	-113,714	0.0	-146,757	0.0	-148,982	0.0	-124,848	0.0
9	46.3	41.5	-62,894	0.0	-96,130	0.0	-129,493	0.0	-129,423	0.0	-99,415	0.0
10	50.7	43.0	-42,155	0.0	-70,834	0.0	-97,781	0.0	-97,714	0.0	-70,259	0.0
11	56.0	45.7	-31,809	0.0	-50,487	0.0	-66,532	0.0	-66,465	0.0	-50,176	0.0
12	61.2	49.1	0	0.0	-34,316	0.0	-38,482	0.0	-38,583	0.0	-34,733	0.0
13	65.6	52.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
14	68.5	54.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
15	69.6	54.8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
16	69.3	54.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
17	68.5	54.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
18	67.3	54.6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
19	65.6	55.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
20	63.5	55.7	-6,499	0.0	0	0.0	0	0.0	0	0.0	0	0.0
21	61.2	54.5	-41,345	0.0	0	0.0	0	0.0	0	0.0	0	0.0
22	58.6	52.4	-53,535	0.0	-32,840	0.0	-33,003	0.0	-33,054	0.0	-33,089	0.0
23	56.0	50.0	-63,462	0.0	-45,997	0.0	-45,881	0.0	-45,855	0.0	-45,820	0.0
24	53.3	48.0	-69,523	0.0	-58,185	0.0	-58,075	0.0	-58,050	0.0	-58,017	0.0

BUILDING COOL-HEAT DEMAND - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

November			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	43.8	40.3	-88,153	0.0	-91,814	0.0	-109,619	0.0	-142,273	0.0	-134,873	0.0
2	42.0	38.9	-90,978	0.0	-126,268	0.0	-128,310	0.0	-153,502	0.0	-150,912	0.0
3	40.5	37.5	-102,953	0.0	-136,631	0.0	-144,359	0.0	-163,141	0.0	-160,560	0.0
4	39.4	36.3	-121,332	0.0	-158,964	0.0	-171,293	0.0	-170,821	0.0	-168,249	0.0
5	38.7	35.8	-140,850	0.0	-176,045	0.0	-177,155	0.0	-176,694	0.0	-174,130	0.0
6	38.4	35.6	-156,468	0.0	-177,870	0.0	-179,020	0.0	-178,570	0.0	-176,015	0.0
7	39.1	36.3	-164,201	0.0	-174,888	0.0	-179,089	0.0	-180,536	0.0	-178,928	0.0
8	41.0	38.2	-136,633	0.0	-150,012	0.0	-178,208	0.0	-177,864	0.0	-160,543	0.0
9	43.8	40.6	-108,807	0.0	-136,270	0.0	-160,108	0.0	-159,769	0.0	-135,561	0.0
10	47.3	42.8	-72,837	0.0	-104,854	0.0	-134,140	0.0	-133,806	0.0	-103,962	0.0
11	51.1	45.4	-55,542	0.0	-73,703	0.0	-102,766	0.0	-102,438	0.0	-72,817	0.0
12	54.6	47.5	-48,003	0.0	-55,652	0.0	-77,007	0.0	-76,266	0.0	-53,203	0.0
13	57.4	49.2	-42,426	0.0	-48,797	0.0	-59,813	0.0	-59,118	0.0	-46,512	0.0
14	59.3	50.0	-18,194	0.0	-43,612	0.0	-47,342	0.0	-46,684	0.0	-41,455	0.0
15	59.9	50.3	-4,457	0.0	-41,034	0.0	-43,692	0.0	-43,165	0.0	-39,524	0.0
16	59.7	50.1	-7,809	0.0	-40,928	0.0	-44,163	0.0	-43,654	0.0	-39,460	0.0
17	59.0	50.0	-23,189	0.0	-42,058	0.0	-48,141	0.0	-47,648	0.0	-40,632	0.0
18	57.9	50.8	-39,198	0.0	-43,726	0.0	-54,511	0.0	-54,034	0.0	-42,333	0.0
19	56.4	51.0	-47,185	0.0	-46,221	0.0	-60,772	0.0	-60,307	0.0	-44,848	0.0
20	54.6	49.7	-56,677	0.0	-50,591	0.0	-69,054	0.0	-68,598	0.0	-49,237	0.0
21	52.5	48.2	-65,226	0.0	-57,041	0.0	-80,923	0.0	-80,547	0.0	-55,837	0.0
22	50.3	46.2	-71,987	0.0	-64,447	0.0	-91,709	0.0	-91,345	0.0	-63,280	0.0
23	48.1	44.0	-77,452	0.0	-71,839	0.0	-102,364	0.0	-102,010	0.0	-70,705	0.0
24	45.9	42.4	-81,395	0.0	-81,154	0.0	-116,902	0.0	-116,558	0.0	-80,050	0.0

December			Design		Weekday		Saturday		Sunday		Monday	
Hour	OADB	OAWB	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton	Htg Btuh	Clg Ton
1	32.1	29.4	-180,714	0.0	-221,635	0.0	-227,380	0.0	-225,710	0.0	-217,682	0.0
2	30.2	27.8	-211,014	0.0	-243,010	0.0	-243,944	0.0	-242,312	0.0	-239,109	0.0
3	28.5	25.9	-248,230	0.0	-253,400	0.0	-254,327	0.0	-252,733	0.0	-249,553	0.0
4	27.1	24.9	-268,396	0.0	-265,594	0.0	-276,288	0.0	-273,792	0.0	-270,633	0.0
5	26.1	24.0	-281,209	0.0	-278,549	0.0	-289,901	0.0	-288,326	0.0	-285,189	0.0
6	25.4	23.6	-280,119	0.0	-297,337	0.0	-299,388	0.0	-297,851	0.0	-294,736	0.0
7	25.2	23.3	-273,921	0.0	-295,098	0.0	-297,091	0.0	-295,591	0.0	-292,497	0.0
8	25.8	24.0	-253,572	0.0	-277,854	0.0	-313,033	0.0	-311,480	0.0	-294,250	0.0
9	27.5	25.7	-226,029	0.0	-252,382	0.0	-290,702	0.0	-289,279	0.0	-262,967	0.0
10	30.2	27.9	-188,518	0.0	-234,092	0.0	-268,050	0.0	-266,661	0.0	-243,024	0.0
11	33.4	30.3	-148,829	0.0	-199,196	0.0	-232,334	0.0	-230,978	0.0	-197,740	0.0
12	36.9	32.7	-110,243	0.0	-167,684	0.0	-199,667	0.0	-198,344	0.0	-163,481	0.0
13	40.2	35.1	-88,097	0.0	-139,086	0.0	-166,909	0.0	-165,621	0.0	-134,995	0.0
14	42.8	36.9	-76,176	0.0	-111,366	0.0	-141,569	0.0	-140,310	0.0	-107,367	0.0
15	44.6	38.1	-72,990	0.0	-96,849	0.0	-127,966	0.0	-126,733	0.0	-92,935	0.0
16	45.2	38.5	-76,624	0.0	-92,418	0.0	-123,103	0.0	-121,904	0.0	-88,607	0.0
17	44.9	38.7	-82,196	0.0	-94,299	0.0	-126,939	0.0	-125,769	0.0	-90,580	0.0
18	44.3	39.6	-92,275	0.0	-97,417	0.0	-130,090	0.0	-128,951	0.0	-93,798	0.0
19	43.3	39.6	-105,355	0.0	-106,925	0.0	-135,541	0.0	-134,427	0.0	-103,386	0.0
20	41.9	38.6	-131,345	0.0	-116,751	0.0	-144,295	0.0	-143,208	0.0	-113,386	0.0
21	40.2	37.1	-156,931	0.0	-126,665	0.0	-153,453	0.0	-152,392	0.0	-123,292	0.0
22	38.3	35.3	-170,343	0.0	-140,262	0.0	-166,768	0.0	-165,732	0.0	-136,971	0.0
23	36.2	33.4	-202,782	0.0	-176,449	0.0	-190,959	0.0	-189,949	0.0	-173,249	0.0
24	34.1	31.4	-231,198	0.0	-199,807	0.0	-209,965	0.0	-208,979	0.0	-196,674	0.0

BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

BUILDING TEMPERATURE PROFILES

Temperature Range (F)	Room Number 1	2	3	4	5	6	7
Max. Temp.	77.6	78.2	80.3	78.7	78.7	79.2	83.8
Mo./Hr.	4 21	4 20	4 19	4 20	4 20	4 19	4 20
Day Type	1	1	1	1	1	1	1
	Number of Hours						
Above 100	0	0	0	0	0	0	0
95 - 100	0	0	0	0	0	0	0
90 - 95	0	0	0	0	0	0	0
85 - 90	0	0	0	0	0	0	0
80 - 85	0	0	0	0	0	0	1,012
75 - 80	144	246	350	670	1,827	1,428	4,690
70 - 75	5,078	5,623	5,116	6,028	6,917	6,848	2,825
65 - 70	3,538	2,891	3,294	2,062	16	484	233
60 - 65	0	0	0	0	0	0	0
55 - 60	0	0	0	0	0	0	0
50 - 55	0	0	0	0	0	0	0
Below 50	0	0	0	0	0	0	0
Min. Temp.	69.9	69.9	69.9	69.9	70.0	70.0	70.0
Mo./Hr.	1 1	2 10	2 4	1 13	1 1	1 1	1 1
Day Type	3	3	2	1	1	1	1

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	32,796	71	1,685	4
Feb	29,628	71	1,543	4
March	33,146	71	1,222	3
April	30,858	71	305	2
May	37,507	106	0	0
June	41,763	121	0	0
July	48,196	131	0	0
Aug	43,030	120	0	0
Sept	35,935	106	0	0
Oct	32,332	71	485	2
Nov	31,682	71	879	2
Dec	32,622	71	1,807	4
Total	429,495	131	7,926	4

Building Energy Consumption = 106,266 (Btu/Sq Ft/Year)
Source Energy Consumption = 246,194 (Btu/Sq Ft/Year)

Floor Area = 21,253 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	8341	7537	8544	8040	8442	8242	8240	8544	8040	8442	8040	8240	98,691
	PK	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
1	MISC LD													
	ELEC	15398	13910	15545	14877	15471	15024	15324	15545	14877	15471	14877	15324	181,645
	PK	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1121L	AIR-CLD RECIP 35-60 TONS												
	ELEC	0	0	0	0	4356	8866	14047	8962	4111	0	0	0	40,341
	PK	0.0	0.0	0.0	0.0	31.4	45.4	55.0	44.2	31.1	0.0	0.0	0.0	55.0
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	453	894	1342	898	433	0	0	0	4,021
	PK	0.0	0.0	0.0	0.0	3.1	3.9	3.9	3.9	3.0	0.0	0.0	0.0	3.9
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1260	1423	1665	1515	1193	0	0	0	7,056
	PK	0.0	0.0	0.0	0.0	2.2	2.2	2.2	2.2	2.2	0.0	0.0	0.0	2.2
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	169	191	223	203	160	0	0	0	946
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1121L	AIR-CLD RECIP 35-60 TONS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 BASERUN FT LEONARD WOOD

	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200			CONDENSER FANS										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001			CHILLED WATER PUMP C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	5	0	9	4	0	0	0	19	
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	417	376	417	403	417	403	417	417	403	417	403	417	4,906
	PK	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	833	752	833	806	833	806	833	833	806	833	806	833	9,802
	PK	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	555	501	555	537	555	537	555	555	537	555	537	555	6,535
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
4	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1685	1543	1222	305	0	0	0	0	0	485	879	1807	7,926
	PK	4.5	3.6	3.2	1.5	0.0	0.0	0.0	0.0	0.0	2.0	2.3	3.9	4.5
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	417	376	417	202	0	0	0	0	0	260	403	417	2,491
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5240			BOILER FORCED DRAFT FAN										
	ELEC	914	826	914	442	0	0	0	0	0	571	885	914	5,467
	PK	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2
1	EQ5307			BOILER CONTROLS										
	ELEC	372	336	372	180	0	0	0	0	0	233	360	372	2,225
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 NIGHT SETBACK FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	33,351	72	1,528	9
Feb	30,129	72	1,423	7
March	33,701	72	1,165	6
April	31,395	71	305	3
May	36,807	107	0	0
June	40,855	122	0	0
July	47,151	132	0	0
Aug	42,276	121	0	0
Sept	35,323	107	0	0
Oct	32,679	71	483	3
Nov	32,219	72	846	4
Dec	33,177	72	1,667	7
Total	429,063	132	7,417	9

Building Energy Consumption = 103,799 (Btu/Sq Ft/Year)
Source Energy Consumption = 243,462 (Btu/Sq Ft/Year)

Floor Area = 21,253 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 NIGHT SETBACK FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	8341	7537	8544	8040	8442	8242	8240	8544	8040	8442	8040	8240	98,691
	PK	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
1	MISC LD													
	ELEC	15398	13910	15545	14877	15471	15024	15324	15545	14877	15471	14877	15324	181,645
	PK	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1121L	AIR-CLD RECIP 35-60 TONS												
	ELEC	0	0	0	0	3419	7935	12761	8106	3493	0	0	0	35,714
	PK	0.0	0.0	0.0	0.0	31.6	45.6	55.6	44.9	31.3	0.0	0.0	0.0	55.6
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	306	671	1026	678	311	0	0	0	2,992
	PK	0.0	0.0	0.0	0.0	2.7	3.4	3.4	3.4	2.6	0.0	0.0	0.0	3.4
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1665	1712	2236	1873	1363	0	0	0	8,849
	PK	0.0	0.0	0.0	0.0	3.4	3.4	3.4	3.4	3.4	0.0	0.0	0.0	3.4
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	149	153	200	167	122	0	0	0	791
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1121L	AIR-CLD RECIP 35-60 TONS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 4109 NIGHT SETBACK FT LEONARD WOOD

	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200			CONDENSER FANS										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001			CHILLED WATER PUMP C.V.										
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5313			CONTROLS										
	ELEC	0	0	0	0	0	0	9	8	0	0	0	0	17
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	417	376	417	403	417	403	417	417	403	417	403	417	4,906
	PK	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	833	752	833	806	833	806	833	833	806	833	806	833	9,802
	PK	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3	EQ4003			FC CENTRIF. FAN C.V.										
	ELEC	555	501	555	537	555	537	555	555	537	555	537	555	6,535
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
4	EQ4002			BI CENTRIF. FAN C.V.										
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001			GAS FIRE TUBE HOT WATER										
	GAS	1528	1423	1165	305	0	0	0	0	0	483	846	1667	7,417
	PK	9.5	6.9	6.1	2.7	0.0	0.0	0.0	0.0	0.0	3.3	4.0	7.1	9.5
1	EQ5020			HEAT WATER CIRC. PUMP C.V.										
	ELEC	417	376	417	202	0	0	0	0	0	260	403	417	2,491
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5240			BOILER FORCED DRAFT FAN										
	ELEC	914	826	914	442	0	0	0	0	0	571	885	914	5,467
	PK	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2
1	EQ5307			BOILER CONTROLS										
	ELEC	372	336	372	180	0	0	0	0	0	233	360	372	2,225
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5013			WATER CIRC. PUMP C.V.										
	ELEC	278	251	278	269	0	0	0	0	0	173	269	278	1,794
	PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4
1	EQ5013			WATER CIRC. PUMP C.V.										

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1

BLDG 4109 NIGHT SETBACK FT LEONARD WOOD

ELEC	278	251	278	269	0	0	0	0	0	173	269	278	1,794
PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 4109 DDC CONTROL FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	33,351	72	1,313	8
Feb	30,129	72	1,254	5
March	33,701	72	1,037	4
April	30,817	70	217	1
May	34,957	104	0	0
June	38,391	118	0	0
July	44,221	128	0	0
Aug	39,849	117	0	0
Sept	33,563	103	0	0
Oct	32,397	71	372	1
Nov	31,860	71	644	4
Dec	33,177	72	1,448	5
Total	416,413	128	6,284	8

Building Energy Consumption = 96,441 (Btu/Sq Ft/Year)
Source Energy Consumption = 231,760 (Btu/Sq Ft/Year)

Floor Area = 21,253 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 4109 DDC CONTROL FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	8341	7537	8544	8040	8442	8242	8240	8544	8040	8442	8040	8240	98,691
	PK	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
1	MISC LD													
	ELEC	15398	13910	15545	14877	15471	15024	15324	15545	14877	15471	14877	15324	181,645
	PK	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1121L	AIR-CLD RECIP 35-60 TONS												
	ELEC	0	0	0	0	2217	5999	10408	6179	2274	0	0	0	27,078
	PK	0.0	0.0	0.0	0.0	29.1	42.0	51.7	41.2	28.1	0.0	0.0	0.0	51.7
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	203	516	849	527	209	0	0	0	2,303
	PK	0.0	0.0	0.0	0.0	2.5	3.4	3.4	3.3	2.4	0.0	0.0	0.0	3.4
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1162	1370	1873	1561	960	0	0	0	6,925
	PK	0.0	0.0	0.0	0.0	3.4	3.4	3.4	3.4	3.4	0.0	0.0	0.0	3.4
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	104	122	167	139	86	0	0	0	619
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1121L	AIR-CLD RECIP 35-60 TONS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 4109 DDC CONTROL FT LEONARD WOOD

	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200		CONDENSER FANS											
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001		CHILLED WATER PUMP C.V.											
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5313		CONTROLS											
	ELEC	0	0	0	0	4	0	5	0	0	0	0	0	8
	PK	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.3
1	EQ4003		FC CENTRIF. FAN C.V.											
	ELEC	417	376	417	403	417	403	417	417	403	417	403	417	4,906
	PK	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	EQ4003		FC CENTRIF. FAN C.V.											
	ELEC	833	752	833	806	833	806	833	833	806	833	806	833	9,802
	PK	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3	EQ4003		FC CENTRIF. FAN C.V.											
	ELEC	555	501	555	537	555	537	555	555	537	555	537	555	6,535
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
4	EQ4002		BI CENTRIF. FAN C.V.											
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001		GAS FIRE TUBE HOT WATER											
	GAS	1313	1254	1037	217	0	0	0	0	0	372	644	1448	6,284
	PK	7.7	5.1	4.4	1.3	0.0	0.0	0.0	0.0	0.0	1.5	3.7	5.3	7.7
1	EQ5020		HEAT WATER CIRC. PUMP C.V.											
	ELEC	417	376	417	142	0	0	0	0	0	208	327	417	2,304
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5240		BOILER FORCED DRAFT FAN											
	ELEC	914	826	914	312	0	0	0	0	0	457	718	914	5,055
	PK	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2
1	EQ5307		BOILER CONTROLS											
	ELEC	372	336	372	127	0	0	0	0	0	186	292	372	2,057
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5013		WATER CIRC. PUMP C.V.											
	ELEC	278	251	278	101	0	0	0	0	0	139	245	278	1,567
	PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4
1	EQ5013		WATER CIRC. PUMP C.V.											

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2

BLDG 4109 DDC CONTROL FT LEONARD WOOD

ELEC	278	251	278	101	0	0	0	0	0	139	245	278	1,567
PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 4109 OA NIGHTIME FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	33,065	72	665	3
Feb	29,810	72	645	3
March	32,974	72	455	3
April	30,409	71	107	1
May	39,152	105	0	0
June	42,530	120	0	0
July	47,302	130	0	0
Aug	43,743	119	0	0
Sept	37,640	105	0	0
Oct	32,130	71	141	2
Nov	31,456	72	296	2
Dec	32,884	72	824	4
Total	433,096	130	3,133	4

Building Energy Consumption = 84,290 (Btu/Sq Ft/Year)
Source Energy Consumption = 224,188 (Btu/Sq Ft/Year)

Floor Area = 21,253 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 4109 OA NIGHTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	8341	7537	8544	8040	8442	8242	8240	8544	8040	8442	8040	8240	98,691
	PK	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
1	MISC LD													
	ELEC	15398	13910	15545	14877	15471	15024	15324	15545	14877	15471	14877	15324	181,645
	PK	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1121L	AIR-CLD RECIP 35-60 TONS												
	ELEC	0	0	0	0	4995	8797	12615	8822	4914	0	0	0	40,143
	PK	0.0	0.0	0.0	0.0	30.3	44.0	53.5	42.9	29.7	0.0	0.0	0.0	53.5
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	433	757	1047	757	431	0	0	0	3,425
	PK	0.0	0.0	0.0	0.0	2.5	3.4	3.4	3.4	2.5	0.0	0.0	0.0	3.4
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	2246	2377	2498	2498	2068	0	0	0	11,686
	PK	0.0	0.0	0.0	0.0	3.4	3.4	3.4	3.4	3.4	0.0	0.0	0.0	3.4
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	201	212	223	223	185	0	0	0	1,044
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1121L	AIR-CLD RECIP 35-60 TONS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 4109 OA NIGHTIME FT LEONARD WOOD

	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200			CONDENSER FANS									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001			CHILLED WATER PUMP C.V.									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5313			CONTROLS									
	ELEC	0	0	0	0	9	4	0	0	9	0	0	0	22
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	417	376	417	403	417	403	417	417	403	417	403	417	4,906
	PK	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	833	752	833	806	833	806	833	833	806	833	806	833	9,802
	PK	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	555	501	555	537	555	537	555	555	537	555	537	555	6,535
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
4	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001			GAS FIRE TUBE HOT WATER									
	GAS	665	645	455	107	0	0	0	0	0	141	296	824	3,133
	PK	3.1	3.3	2.7	1.1	0.0	0.0	0.0	0.0	0.0	1.8	2.0	3.6	3.6
1	EQ5020			HEAT WATER CIRC. PUMP C.V.									
	ELEC	347	305	240	67	0	0	0	0	0	75	222	345	1,601
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5240			BOILER FORCED DRAFT FAN									
	ELEC	761	670	526	147	0	0	0	0	0	165	488	757	3,513
	PK	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2
1	EQ5307			BOILER CONTROLS									
	ELEC	310	272	214	60	0	0	0	0	0	67	199	308	1,430
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5013			WATER CIRC. PUMP C.V.									
	ELEC	278	236	276	50	0	0	0	0	0	278	257	278	1,652
	PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4
1	EQ5013			WATER CIRC. PUMP C.V.									

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 4109 OA NIGHTIME FT LEONARD WOOD

ELEC	278	236	276	50	0	0	0	0	0	278	257	278	1,652
PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 4109 OA DAYTIME FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	GAS DMND On Peak (Thrm/hr)
Jan	32,994	72	1,312	4
Feb	29,807	71	1,118	4
March	33,259	70	856	3
April	31,084	70	194	1
May	38,609	100	0	0
June	41,237	115	0	0
July	46,037	124	0	0
Aug	42,494	111	0	0
Sept	36,692	100	0	0
Oct	32,565	70	338	2
Nov	31,732	70	671	2
Dec	32,897	71	1,310	4
Total	429,406	124	5,798	4

Building Energy Consumption = 96,239 (Btu/Sq Ft/Year)
Source Energy Consumption = 235,611 (Btu/Sq Ft/Year)

Floor Area = 21,253 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 4109 CA DAYTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	8341	7537	8544	8040	8442	8242	8240	8544	8040	8442	8040	8240	98,691
	PK	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1	27.1
1	MISC LD													
	ELEC	15398	13910	15545	14877	15471	15024	15324	15545	14877	15471	14877	15324	181,645
	PK	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5	43.5
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1121L	AIR-CLD RECIP 35-60 TONS												
	ELEC	0	0	0	0	4576	7697	11441	7783	3984	0	0	0	35,481
	PK	0.0	0.0	0.0	0.0	27.9	42.2	50.9	38.5	28.3	0.0	0.0	0.0	50.9
1	EQ5200	CONDENSER FANS												
	ELEC	0	0	0	0	406	672	956	675	358	0	0	0	3,068
	PK	0.0	0.0	0.0	0.0	2.4	3.4	3.4	3.1	2.4	0.0	0.0	0.0	3.4
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	2159	2276	2498	2377	2122	0	0	0	11,431
	PK	0.0	0.0	0.0	0.0	3.4	3.4	3.4	3.4	3.4	0.0	0.0	0.0	3.4
1	EQ5313	CONTROLS												
	ELEC	0	0	0	0	193	203	223	212	190	0	0	0	1,021
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
2	EQ1121L	AIR-CLD RECIP 35-60 TONS												

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 4109 OA DAYTIME FT LEONARD WOOD

	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5200			CONDENSER FANS									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5001			CHILLED WATER PUMP C.V.									
	ELEC	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	EQ5313			CONTROLS									
	ELEC	0	0	0	0	8	5	0	4	4	0	0	0	21
	PK	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.3
1	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	417	376	417	403	417	403	417	417	403	417	403	417	4,906
	PK	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	833	752	833	806	833	806	833	833	806	833	806	833	9,802
	PK	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
3	EQ4003			FC CENTRIF. FAN C.V.									
	ELEC	555	501	555	537	555	537	555	555	537	555	537	555	6,535
	PK	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
4	EQ4002			BI CENTRIF. FAN C.V.									
	ELEC	5550	5013	5550	5371	5550	5371	5550	5550	5371	5550	5371	5550	65,350
	PK	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
1	EQ2001			GAS FIRE TUBE HOT WATER									
	GAS	1312	1118	856	194	0	0	0	0	0	338	671	1310	5,798
	PK	4.5	3.7	3.2	1.3	0.0	0.0	0.0	0.0	0.0	2.0	2.3	3.9	4.5
1	EQ5020			HEAT WATER CIRC. PUMP C.V.									
	ELEC	329	297	309	125	0	0	0	0	0	181	284	348	1,874
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5240			BOILER FORCED DRAFT FAN									
	ELEC	723	652	677	275	0	0	0	0	0	398	623	764	4,113
	PK	1.2	1.2	1.2	1.2	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2
1	EQ5307			BOILER CONTROLS									
	ELEC	294	265	276	112	0	0	0	0	0	162	253	311	1,674
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5013			WATER CIRC. PUMP C.V.									
	ELEC	278	251	278	269	0	0	0	0	0	278	269	278	1,898
	PK	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4
1	EQ5013			WATER CIRC. PUMP C.V.									

COMPUTER SIMULATIONS

BUILDING 5265

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 5265
BLDG. TYPE: GENERAL MAINTENANCE

ENERGY CONSTANT CALCULATIONS

ECC	38169 kWH	– 37431 kWH	=	4.83E-06 kWH/CFM-HR
	194980 CFM	* 784 HR/YR		
ECHC	38169 kWH	– 37431 kWH	=	1.61E-06 kWH/CFM-HR
	194980 CFM	* 2346 HR/YR		
NSUCHC	65786 kWH	– 50566 kWH	=	1.22E-05 kWH/CFM-HR
	194980 CFM	* 6414 HR/YR		
NSUCC	65786 kWH	– 50566 kWH	=	3.64E-05 kWH/CFM-HR
	194980 CFM	* 2144 HR/YR		
DDCCHC	50566 kWH	– 38169 kWH	=	2.71E-05 kWH/CFM-HR
	194980 CFM	* 2346 HR/YR		
DDCCC	50566 kWH	– 38169 kWH	=	8.11E-05 kWH/CFM-HR
	194980 CFM	* 784 HR/YR		
NSC	22730.4 MBtu	– 17142.9 MBtu	=	8.53E+04 Btu/UA
	65507 UA			
DSC	17142.9 MBtu	– 15648.1 MBtu	=	2.28E+04 Btu/UA
	65507 UA			
OPT	(2 HR/DAY X 272 DAY/YR) – 294 HR/YR		=	250 HR/YR
CHWR	(0.915 kW X 0.012 Eff. X 632 HRS X 2 Degrees of Reset)		=	13.9 kWH/TON
OAR	506 HR/YR * 0.01		=	5.06 HR/YR

E M C ENGINEERS, INC
DENVER • ATLANTA • GERMANY

JOB: FT. LEONARD WOOD, MO (EMC #3204.000)
CALCULATED BY: BHS
CHECKED BY: AJN
DATE: 18-Mar-93
BUILDING NO.: 5265
BLDG. TYPE: GENERAL MAINTENANCE

ENERGY CONSTANT CALCULATIONS

	BASERUN	RUN1	RUN2	RUN3	RUN4	RUN5
HEATING (MBtu)	22730	17143	15648	15648	5185	5229
COOLING (kWH)	65786	50566	38169	37431	62724	60176

SUPPLY AIR FAN	194980 CFM
FLOOR AREA	198876 FT²
CFMI	29112 CFM
UA	65507 BTU/HR • °F
BUILDING CONST	2 (1 FOR LIGHT) (2 FOR HEAVY)

BEACON RUN DEFINITION:	
BASERUN	EXISTING OPERATION
RUN1	NIGHT SETBACK
RUN2	DDC CONTROL
RUN3	ECONOMIZER
RUN4	NIGHTIME INFILTRATION (OA)
RUN5	DAYTIME INFILTRATION (OA)

HOURS OF OCCUPANCY			
M-F	700	1600	45 HR
SAT.			0 HR
SUN.			0 HR
	TOTAL OCCUPY HR.		45 HR/WK
	TOTAL UNOCC. HR.		123 HR/WK
	ANNUAL OCCUPY HR.		2346 HR/YR
	ANNUAL UNOCC. HR.		6414 HR/YR

ANNUAL HEATING & COOLING HOURS	
HR. ON HEATING	1170 HR/YR
HR. ON COOLING	784 HR/YR
HR. OFF HEATING	3198 HR/YR
HR. OFF COOLING	2144 HR/YR

PRESENT HR. OF OPERATION FOR SYS. WITH HEATING AND COOLING 8760 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH HEATING ONLY 4368 HR/YR
PRESENT HR. OF OPERATION FOR SYS. WITH COOLING ONLY 2928 HR/YR

HOUR SAVE (HEATING ONLY) 4368 – 1170 = 3198 HR/YR
HOUR SAVE (COOLING ONLY) 2928 – 784 = 2144 HR/YR

HOAUHC	22730.4 MBtu	–	5184.7 MBtu	= 9.40E+01 Btu/CFM-HR
	29112 CFM	*	6414 HR/YR	
HOAUH	22730.4 MBtu	–	5184.7 MBtu	= 1.88E+02 Btu/CFM-HR
	29112 CFM	*	3198 HR/YR	
COAUHC	65786 kWH	–	62724 kWH	= 1.64E-05 kWH/CFM-HR
	29112 CFM	*	6414 HR/YR	
COAUC	65786 kWH	–	62724 kWH	= 4.91E-05 kWH/CFM-HR
	29112 CFM	*	2144 HR/YR	
HOAOHC	22730.4 MBtu	–	5229.4 MBtu	= 2.56E+02 Btu/CFM-HR
	29112 CFM	*	2346 HR/YR	
HOAOH	22730.4 MBtu	–	5229.4 MBtu	= 5.14E+02 Btu/CFM-HR
	29112 CFM	*	1170 HR/YR	
COAOHC	65786 kWH		60176 kWH	= 8.21E-05 kWH/CFM-HR
	29112 CFM	*	2346 HR/YR	
COAOC	65786 kWH		60176 kWH	= 2.46E-04 kWH/CFM-HR
	29112 CFM	*	784 HR/YR	
DC	1 / 6 (10 MINUTES PER HOUR)			= 0.17
DC DEMAND	1 / 6 (10 MINUTES PER HOUR)			= 0.17

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL1

BUILDING HEATING LOAD CALCULATION SHEET

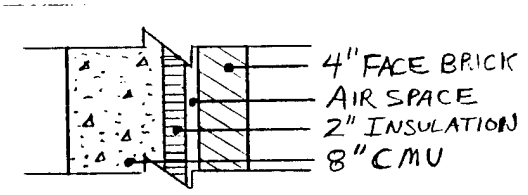
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 1 (UH's)
BLDG FUNCTION: REPAIR AND MAINTENANCE
FLOOR AREA: (SQ. FT) 19,255 # FLOORS 1
SLAB PERIMETER: (FT) 936

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	5,600	0	8,635	11,145	25,380
GLASS	(SQ. FT)	1,227	0	1,027	1,200	3,454
PERSONNEL DOOR,	(SQ. FT)	21	0	84	140	245
OVERHEAD DOOR,	(SQ. FT)	224	0	2,184	2,464	4,872
WALLS, NET	(SQ. FT)	4,128	0	5,340	7,341	16,809
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	19,923
OVERHEAD DOOR	(SQ. FT)	4,872	PERSONNEL DOOR		(SQ. FT)	245
INSULATED PANELS	(SQ. FT)	2,800	0	4,318	6,470	13,588

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

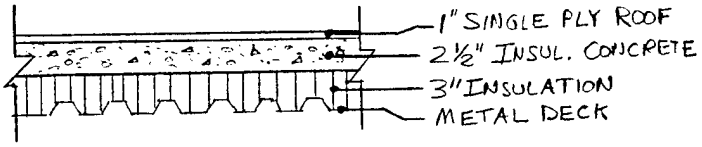
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	8.17
	U=1/R	0.122

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.) H	25380	X CFM / SQ.FT.	0.685	=	17,373
DOOR OPENINGS / HR - SINGLE DOOR	20	X CFM /OPENING /HR	1.600	=	32
DOOR OPENINGS / HR - DOUBLE DOORS	10	X CFM /OPENING /HR	1.385	=	14
		TOTAL INFILTRATION (CFM)		=	17419

UA ODOOR	=ODOOR AREA	4,872	X DOOR "U"	0.952	=	4,640
UA PDOOR	= PDOOR AREA	245	X DOOR "U"	0.391	=	96
UA WALL	= WALL AREA	16,809	X WALL "U"	0.122	=	2,056
UA ROOF	= ROOF AREA	19,923	X ROOF "U"	0.069	=	1,378
UA GLASS	= GLASS AREA	3,454	X GLASS "U"	0.568	=	1,963
UA SLAB	= SLAB PERIM.	936	X SLF	0.660	=	618
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	17419	X A. T. F.	1.035	=	18,029
			TOTAL UA (BTU/HR°F)			28,779

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL2

BUILDING HEATING LOAD CALCULATION SHEET

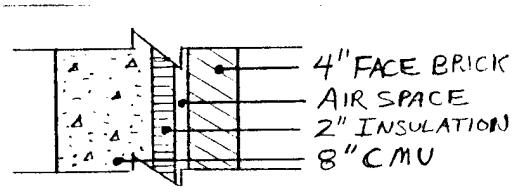
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 2 (HV UNITS)
BLDG FUNCTION: REPAIR AND MAINTENANCE
FLOOR AREA: (SQ. FT) 65,268 # FLOORS 1
SLAB PERIMETER: (FT) 64

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	1,232	0	0	390	1,622
GLASS	(SQ. FT)	293	0	0	0	293
PERSONNEL DOOR,	(SQ. FT)	0	0	0	112	112
OVERHEAD DOOR,	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	939	0	0	278	1,217
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	64,800
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	112
INSULATED PANELS	(SQ. FT)	616	0	0	250	866

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

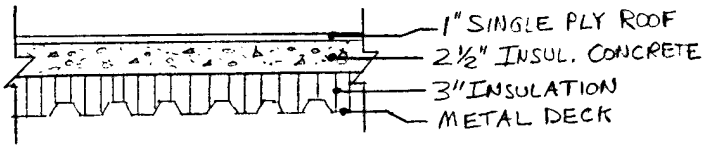
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	8.50
	U=1/R	0.118

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M 1622	X CFM / SQ.FT.	0.115	=	187
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	20	X CFM /OPENING /HR	1.385	=	28
		TOTAL INFILTRATION (CFM)		=	214

UA ODOOR	= ODOOR AREA	0	X DOOR "U"	0.952	=	0
UA PDOOR	= PDOOR AREA	112	X DOOR "U"	0.391	=	44
UA WALL	= WALL AREA	1,217	X WALL "U"	0.118	=	143
UA ROOF	= ROOF AREA	64,800	X ROOF "U"	0.069	=	4,481
UA GLASS	= GLASS AREA	293	X GLASS "U"	0.568	=	166
UA SLAB	= SLAB PERIM.	64	X SLF	0.660	=	42
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	214	X A. T. F.	1.035	=	222
			TOTAL UA (BTU/HR°F)			5,099

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL3

BUILDING HEATING LOAD CALCULATION SHEET

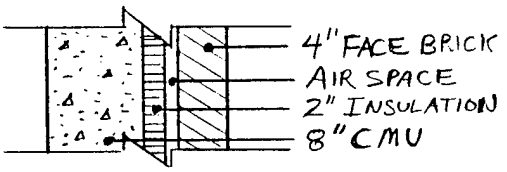
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 3 (AC UNITS)
BLDG FUNCTION: OFFICE AREA / LOUNGE AREA
FLOOR AREA: (SQ. FT) 4,216 # FLOORS 1
SLAB PERIMETER: (FT) 84

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		. NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	0	0	841	841
GLASS	(SQ. FT)	0	0	0	120	120
PERSONNEL DOOR,	(SQ. FT)	0	0	0	0	0
OVERHEAD DOOR,	(SQ. FT)	0	0	0	0	0
WALLS, NET	(SQ. FT)	0	0	0	721	721
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	0
OVERHEAD DOOR	(SQ. FT)	0	PERSONNEL DOOR		(SQ. FT)	0
INSULATED PANELS	(SQ. FT)	0	0	0	224	224

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

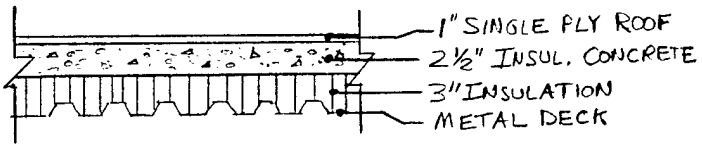
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	9.85
	U=1/R	0.102

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	841	X CFM / SQ.FT.	0.115	=	97
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR			X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS			X CFM /OPENING /HR	1.385	=	0
			TOTAL INFILTRATION (CFM)		=	97

UA ODOOR	=ODOOR AREA	0	X DOOR "U"	0.952	=	0
UA PDOOR	= PDOOR AREA	0	X DOOR "U"	0.391	=	0
UA WALL	= WALL AREA	721	X WALL "U"	0.102	=	73
UA ROOF	= ROOF AREA	0	X ROOF "U"	0.069	=	0
UA GLASS	= GLASS AREA	120	X GLASS "U"	0.568	=	68
UA SLAB	= SLAB PERIM.	84	X SLF	0.660	=	55
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	97	X A. T. F.	1.035	=	100
			TOTAL UA (BTU/HR°F)			297

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL4

BUILDING HEATING LOAD CALCULATION SHEET

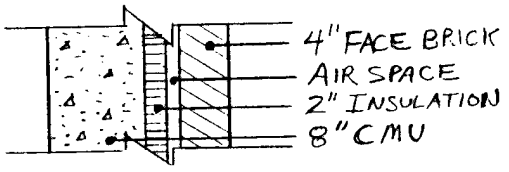
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 4 (UH's)
BLDG FUNCTION: REPAIR AND MAINTENANCE
FLOOR AREA: (SQ. FT) 8,520 # FLOORS 1
SLAB PERIMETER: (FT) 403

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	0	9,940	672	672	11,284
GLASS	(SQ. FT)	0	1,000	120	160	1,280
PERSONNEL DOOR,	(SQ. FT)	0	126	0	0	126
OVERHEAD DOOR,	(SQ. FT)	0	2,688	84	0	2,772
WALLS, NET	(SQ. FT)	0	6,126	468	512	7,106
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	8,520
OVERHEAD DOOR	(SQ. FT)	2,772	PERSONNEL DOOR		(SQ. FT)	126
INSULATED PANELS	(SQ. FT)	0	4,970	336	336	5,642

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

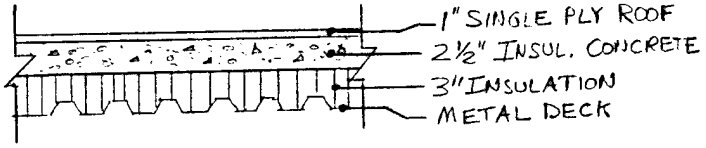
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	8.22
	U=1/R	0.122

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
LEAKY WALL H/M/L (SQ.FT.) H	11284	X CFM / SQ.FT.	0.693	=	7,824
DOOR OPENINGS / HR - SINGLE DOOR	80	X CFM /OPENING /HR	1.600	=	128
DOOR OPENINGS / HR - DOUBLE DOORS		X CFM /OPENING /HR	1.385	=	0
		TOTAL INFILTRATION (CFM)		=	7952

UA ODOOR	= ODOOR AREA	2,772	X DOOR "U"	0.952	=	2,640
UA PDOOR	= PDOOR AREA	126	X DOOR "U"	0.391	=	49
UA WALL	= WALL AREA	7,106	X WALL "U"	0.122	=	864
UA ROOF	= ROOF AREA	8,520	X ROOF "U"	0.069	=	589
UA GLASS	= GLASS AREA	1,280	X GLASS "U"	0.568	=	727
UA SLAB	= SLAB PERIM.	403	X SLF	0.660	=	266
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	7952	X A. T. F.	1.035	=	8,231
			TOTAL UA (BTU/HR°F)			13,367

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL5

BUILDING HEATING LOAD CALCULATION SHEET

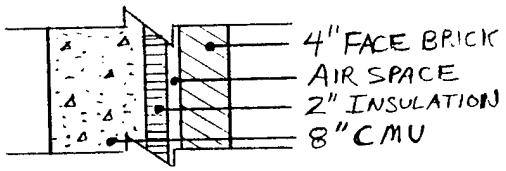
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 5 (HV UNITS)
BLDG FUNCTION: REPAIR AND MAINTENANCE
FLOOR AREA: (SQ. FT) 75,060 # FLOORS 1
SLAB PERIMETER: (FT) 784

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	5,236	7,513	4,375	2,912	20,036
GLASS	(SQ. FT)	1,247	1,687	991	587	4,512
PERSONNEL DOOR,	(SQ. FT)	42	105	77	21	245
OVERHEAD DOOR,	(SQ. FT)	0	756	364	224	1,344
WALLS, NET	(SQ. FT)	3,947	4,965	2,943	2,080	13,935
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	73,017
OVERHEAD DOOR	(SQ. FT)	1,344	PERSONNEL DOOR		(SQ. FT)	245
INSULATED PANELS	(SQ. FT)	2,619	3,165	1,900	1,456	9,140

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

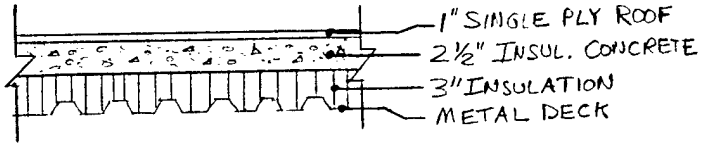
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	8.69
	U=1/R	0.115

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	M	20036	X CFM / SQ.FT.	0.115	=	2,304
LEAKY WALL H/M/L (SQ.FT.)			X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		50	X CFM /OPENING /HR	1.600	=	80
DOOR OPENINGS / HR - DOUBLE DOORS		10	X CFM /OPENING /HR	1.385	=	14
			TOTAL INFILTRATION (CFM)		=	2398

UA ODOOR	=ODOOR AREA	1,344	X DOOR "U"	0.952	=	1,280
UA PDOOR	= PDOOR AREA	245	X DOOR "U"	0.391	=	96
UA WALL	= WALL AREA	13,935	X WALL "U"	0.115	=	1,604
UA ROOF	= ROOF AREA	73,017	X ROOF "U"	0.069	=	5,050
UA GLASS	= GLASS AREA	4,512	X GLASS "U"	0.568	=	2,564
UA SLAB	= SLAB PERIM.	784	X SLF	0.660	=	517
UA BASEM.	=B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	2398	X A. T. F.	1.035	=	2,482
			TOTAL UA (BTU/HR°F)			13,592

E M C ENGINEERS, INC.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG.: DOUG CAGE
LOCATION: FT LEONARD WOOD

DATE:	22-Feb-93
BY:	TMB
JOB:	3204.000
CHK:	AJN
FILE:	5265BHL6

BUILDING HEATING LOAD CALCULATION SHEET

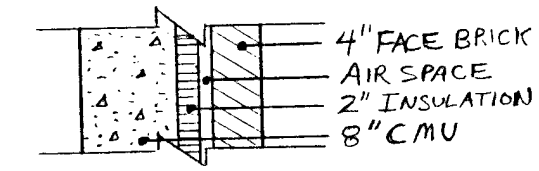
BLDG NO: 5265 BLDG NAME: GENERAL MAINTENANCE FACILITY ZONE 6 (AC UNITS)
BLDG FUNCTION: OFFICE AREA / LOUNGE AREA
FLOOR AREA: (SQ. FT) 26,557 # FLOORS 1
SLAB PERIMETER: (FT) 415

I. AREAS: ([ ] FIELD VERIFIED ELEVATION PLANS)

		NORTH	SOUTH	EAST	WEST	TOTAL
WALLS, GROSS	(SQ. FT)	5,538	750	1,092	0	7,380
GLASS	(SQ. FT)	315	145	108	0	568
PERSONNEL DOOR,	(SQ. FT)	84	0	0	0	84
OVERHEAD DOOR,	(SQ. FT)	280	0	0	0	280
WALLS, NET	(SQ. FT)	4,859	605	984	0	6,448
ROOF AREA (OR CEILING AREA IF ATTIC IS UNCONDITIONED)					(SQ. FT)	24,109
OVERHEAD DOOR	(SQ. FT)	280	PERSONNEL DOOR		(SQ. FT)	84
INSULATED PANELS	(SQ. FT)	3,325	200	682	0	4,207

II. CONSTRUCTION: ([ ] FIELD VERIFIED WALL, ROOF, WINDOW, DOOR TYPES)

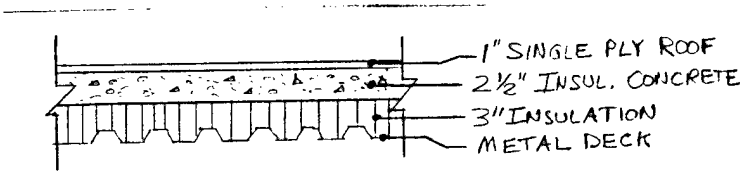
WALLS: (SKETCH CROSS SECTION OF WALL)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	4" FACE BRICK	0.43
3.	AIR SPACE	0.91
4.	2" RIGID INSULATION	6.68
5.	8" CONCRETE BLOCK	2.02
6.	INSIDE AIR FILM	0.68
7.	TOT. MASONRY WALL	10.89
8.	TOT. INSUL. PANEL	7.53
	TOTAL R-WALL =	8.70
	U=1/R	0.115

TOTAL R-WALL = [(INSUL. PANEL SQ.FT. X R-PANEL) + (MASONRY WALL SQ.FT. X R-MASONRY WALL)] / TOTAL SQ.FT.

ROOF: (SKETCH CROSS SECTION OF ROOF)



	COMPONENTS	R-VALUE
1.	OUTSIDE AIR FILM	0.17
2.	1" SINGLE PLY ROOF	0.88
3.	2.5" INSUL. CONCRETE	2.70
4.	3" RIGID INSULATION	10.03
5.	METAL DECK	0.00
6.		
7.	INSIDE AIR FILM	0.68
	TOTAL R-ROOF =	14.46
	U=1/R	0.069

GLASS TYPE:	DOUBLE PANE TRANSLUCENT FIBERGLASS	R-GLASS	1.76
SLAB TYPE FLOOR:	CONCRETE	SLF	0.66
INSULED PANEL TYPE:	METAL WITH 2" INSULATION	R-PANEL	7.53
OVERHEAD DOOR TYPE:	METAL	R-ODOOR	1.05
PERSONNEL DOOR TYPE:	METAL	R-PDOOR	2.56

III. INFILTRATION:

TIGHT WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
AVG. WALL H/M/L (SQ.FT.)	H 7380	X CFM / SQ.FT.	0.138	=	1,018
LEAKY WALL H/M/L (SQ.FT.)		X CFM / SQ.FT.	0.000	=	0
DOOR OPENINGS / HR - SINGLE DOOR		X CFM /OPENING /HR	1.600	=	0
DOOR OPENINGS / HR - DOUBLE DOORS	10	X CFM /OPENING /HR	1.385	=	14
		TOTAL INFILTRATION (CFM)		=	1032

UA ODOOR	= ODOOR AREA	280	X DOOR "U"	0.952	=	267
UA PDOOR	= PDOOR AREA	84	X DOOR "U"	0.391	=	33
UA WALL	= WALL AREA	6,448	X WALL "U"	0.115	=	741
UA ROOF	= ROOF AREA	24,109	X ROOF "U"	0.069	=	1,667
UA GLASS	= GLASS AREA	568	X GLASS "U"	0.568	=	323
UA SLAB	= SLAB PERIM.	415	X SLF	0.660	=	274
UA BASEM.	= B-WALL AREA	0	X BASE. "U"	0.000	=	0
INFILTRATION	= CFM	1032	X A. T. F.	1.035	=	1,068
			TOTAL UA (BTU/HR°F)			4,373

E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z1
BLDG: 5265 ZONE: 1

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
1	10	6	Light bench work	Factory	275	475	2,750	4,750
TOTAL	10					TOTAL	2,750	4,750

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
1	34	30	Tungsten-Halogen - 250w	250	8,500
	23	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,932
	6	8	Fluorescent, 4 - 34w lamps, 2 - 16w ballasts (2x4 ft. fix.)	168	1,008
	4	61	Exit Light	20	80
TOTAL	67			TOTAL	11,520

Peak Value for Internal Gains

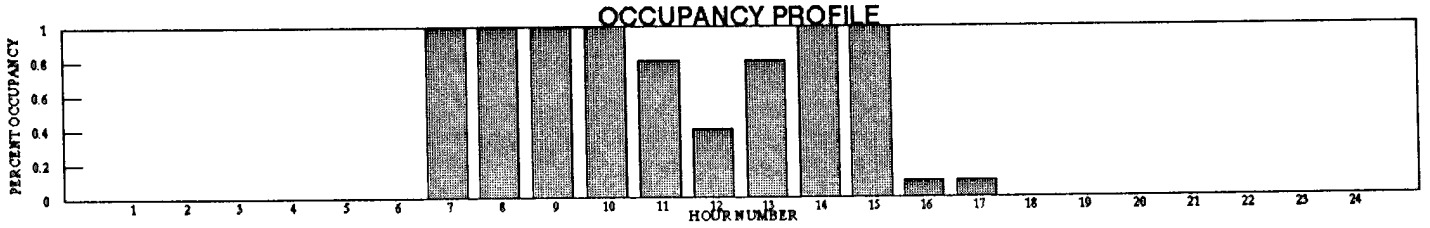
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
1	4		3 Ton Crane	746	5%	2,984	10,184
	2		10 Ton Crane	2,238	5%	4,476	15,277
	10		Small Industrial Machines	1,492	10%	14,920	50,922
				TOTAL	8%	22,380	76,383

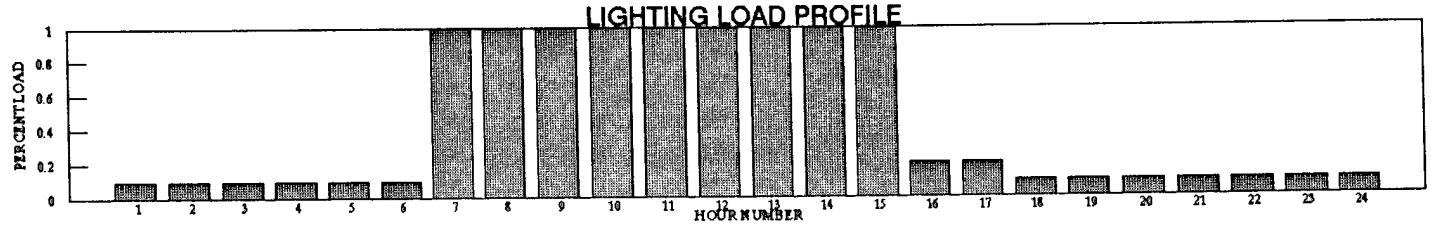
E M C Engineers, Inc.

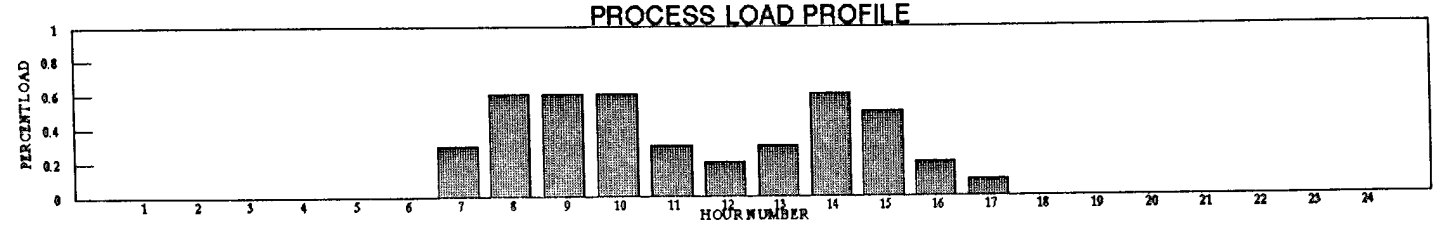
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z1
BLDG: 5265
ZONE: 1

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	Gen. Maint.	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							0.3	0.6	0.6	0.6	0.3	0.2	0.3	0.6	0.5	0.2	0.1							







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z2
BLDG: 5265 ZONE: 2

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
2	80	6	Light bench work	Factory	275	475	22,000	38,000
TOTAL	80					TOTAL	22,000	38,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
2	106	30	Tungsten-Halogen - 250w	250	26,500
	48	6	Fluorescent, 2 - 34w lamps, 16w ballast (2x4 ft. fixture)	84	4,032
	10	8	Fluorescent, 4 - 34w lamps, 2 - 16w ballasts (2x4 ft. fix.)	168	1,680
	16	61	Exit Light	20	320
TOTAL	180			TOTAL	32,532

Peak Value for Internal Gains

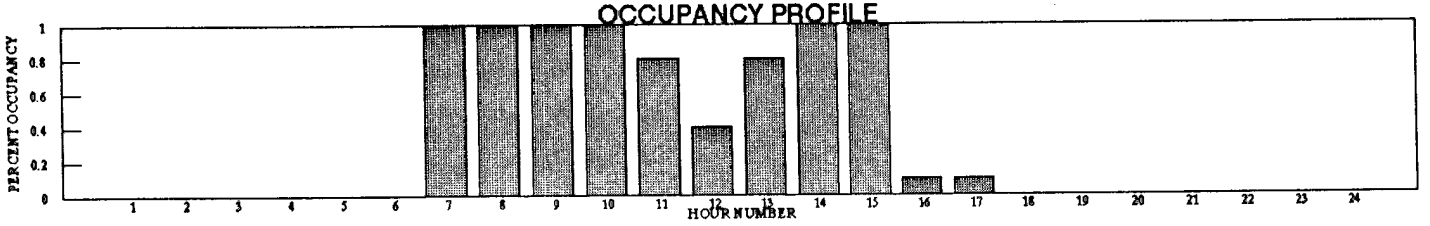
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
2	4		3 Ton Crane	746	5%	2,984	10,184
	5		10 Ton Crane	2,238	5%	11,190	38,191
	12		Large Industrial Machines (presses, lathes, etc.)	3,730	15%	44,760	152,766
	19		Small Industrial Machines (grinders, drills, etc.)	1,492	10%	28,348	96,752
	6		Industrial Welders	4,160	35%	24,960	85,188
				TOTAL	17%	112,242	383,082

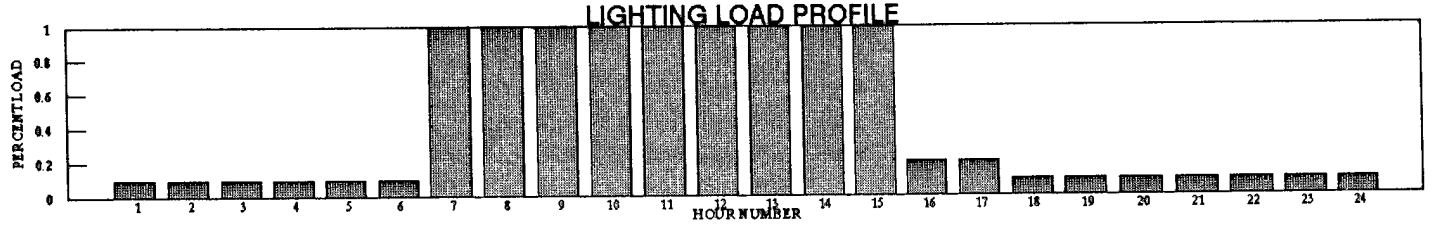
E M C Engineers, Inc.

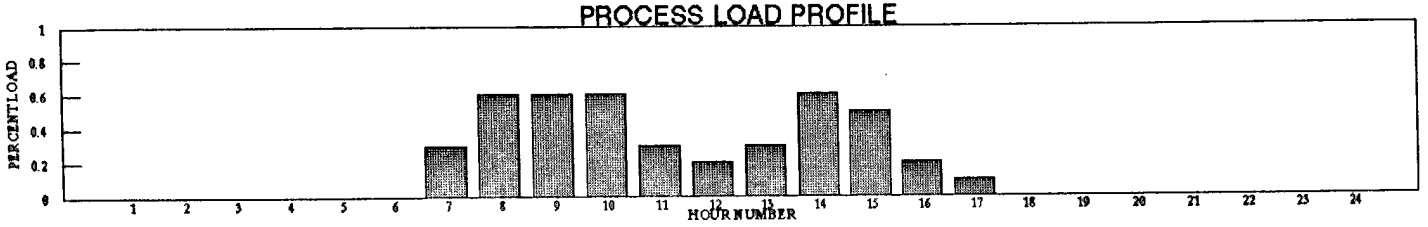
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z2
BLDG: 5265
ZONE: 2

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	Gen. Maint.	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							0.3	0.6	0.6	0.6	0.3	0.2	0.3	0.6	0.5	0.2	0.1							







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z3
BLDG: 5265 ZONE: 3

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
3	15	4	Seated, light work, typing	Offices, hotels, apts	250	200	3,750	3,000
TOTAL	15					TOTAL	3,750	3,000

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
3	6	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	504
	34	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	5,712
TOTAL	40			TOTAL	6,216

Peak Value for Internal Gains

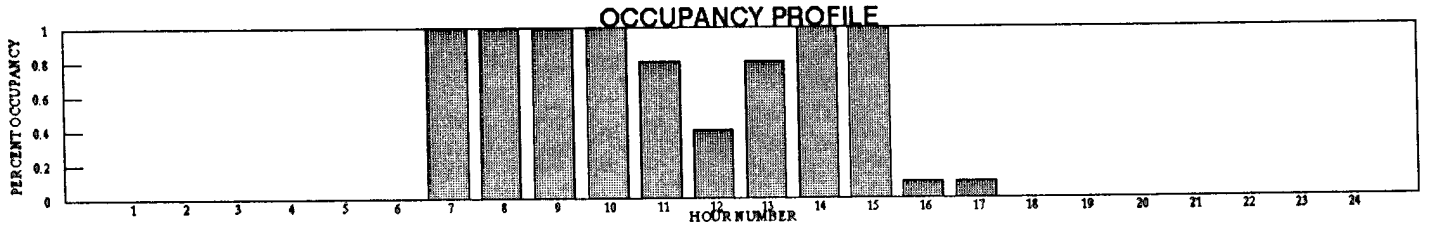
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
3	7	3	Microcomputer	350	91%	2,450	8,362
	6	5	Printer (laser)	870	34%	5,220	17,816
	4	45	Micro Fiche Machine	250	50%	1,000	3,413
	1	31	Fan (Circulating)	88	20%	88	300
	4	12	Typewriter	100	10%	400	1,365
	1	46	Microwave Oven	600	65%	600	2,048
	1	49	Radio	71	10%	71	242
	2	24	Coffee Maker	1,500	30%	3,000	10,239
	2	53	Refrigerator (12 cu. ft.)	241	20%	482	1,645
	1	54	Coke Machine	321	35%	321	1,096
				TOTAL	45%	13,632	46,526

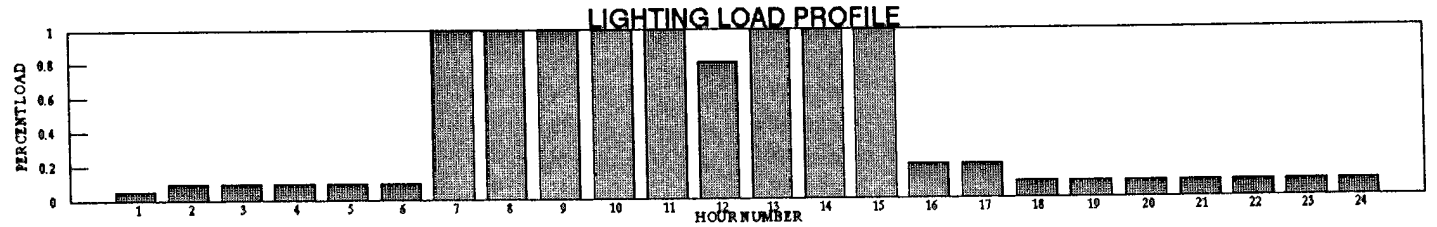
E M C Engineers, Inc.

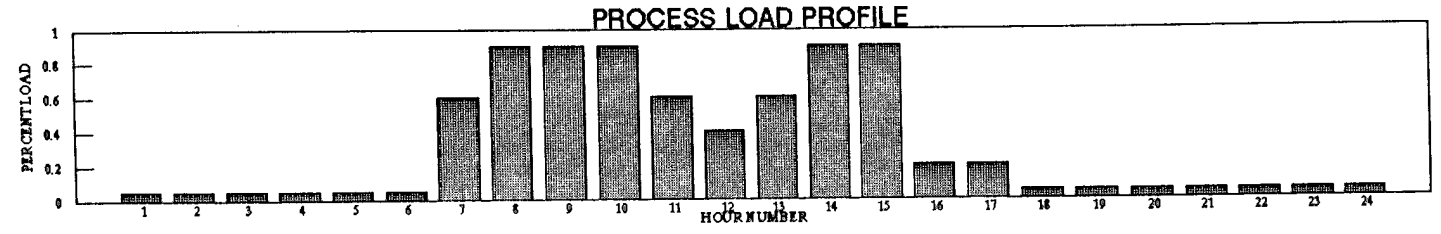
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z3
BLDG: 5265
ZONE: 3

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.8	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.05	0.05	0.05	0.05	0.05	0.05	0.6	0.9	0.9	0.9	0.6	0.4	0.6	0.9	0.9	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05







E M C Engineers, Inc.

PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z4
BLDG: 5265 ZONE: 4

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
4	10	6	Light bench work	Factory	275	475	2,750	4,750
TOTAL	10					TOTAL	2,750	4,750

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
4	14	57	HPS -- Mogul Base, 250w with 55w ballast	305	4,270
	6	61	Exit Light	20	120
TOTAL	20			TOTAL	4,390

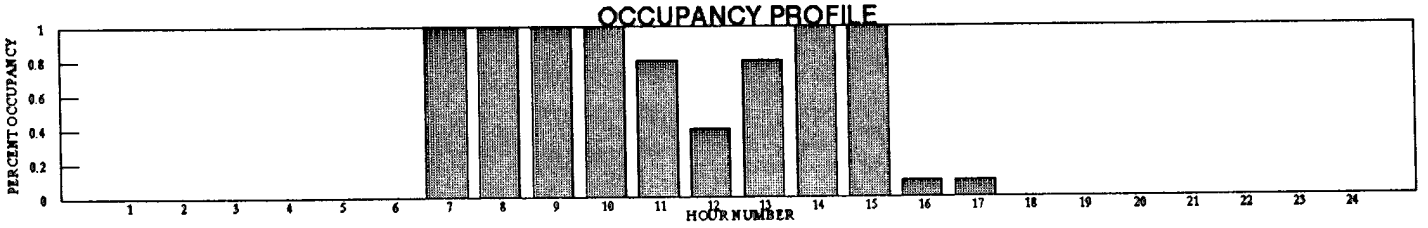
Peak Value for Internal Gains

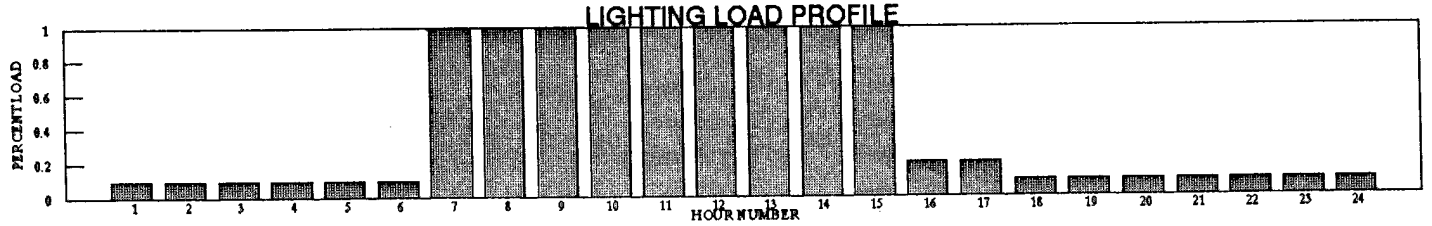
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
4	2		3 Ton Crane	746	5%	1,492	5,092
	1		10 Ton Crane	2,238	5%	2,238	7,638
	8		Small Industrial Machines	1,492	10%	11,936	40,738
				TOTAL	9%	15,666	53,468

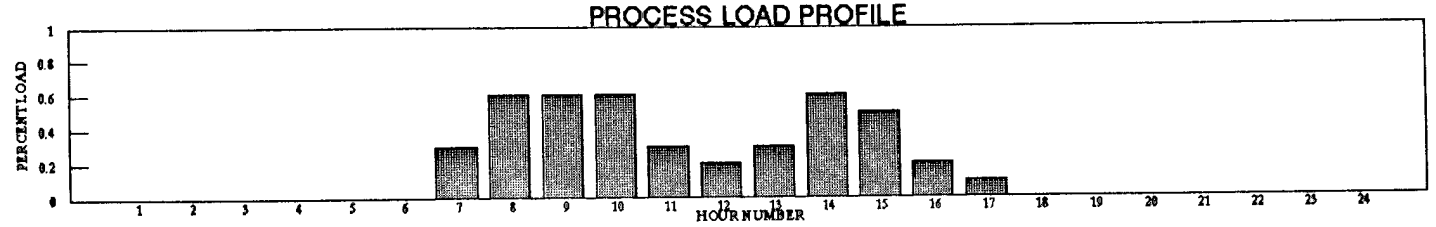
E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z4
BLDG: 5265
ZONE: 4

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	Gen. Maint.	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							0.3	0.6	0.6	0.6	0.3	0.2	0.3	0.6	0.5	0.2	0.1							







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z5
BLDG: 5265 ZONE: 5

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
5	50	6	Light bench work	Factory	275	475	13,750	23,750
TOTAL	50					TOTAL	13,750	23,750

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
5	164	57	HPS – Mogul Base, 250w with 55w ballast	305	50,020
	124	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	10,416
	6	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	1,008
	8	19	Incandescent – 75w	75	600
	10	61	Exit Light	20	200
TOTAL	312			TOTAL	62,244

Peak Value for Internal Gains

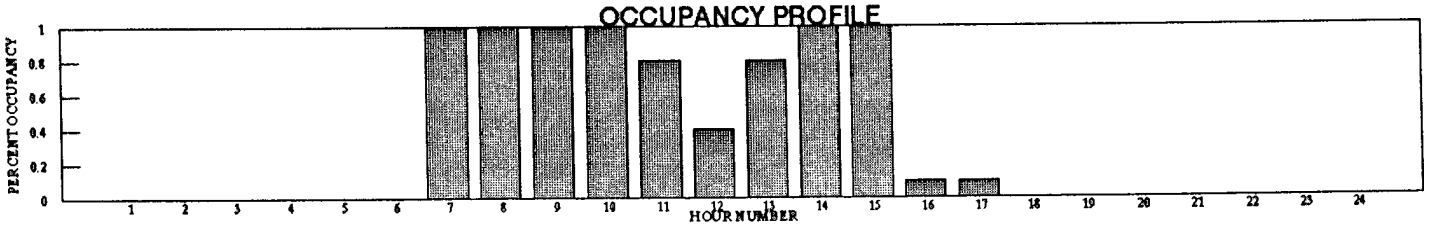
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
5	6		3 Ton Crane	746	5%	4,476	15,277
	10		10 Ton Crane	2,238	5%	22,380	76,383
	15		Wood Shop Industrial Tools	1,120	10%	16,800	57,338
	25		Small Industrial Machines (grinders, drills, etc.)	1,492	10%	37,300	127,305
	3	58	Sewing Machine	75	20%	225	768
	2	46	Microwave Oven	600	65%	1,200	4,096
	2	24	Coffee Maker	1,500	30%	3,000	10,239
				TOTAL	10%	85,381	291,405

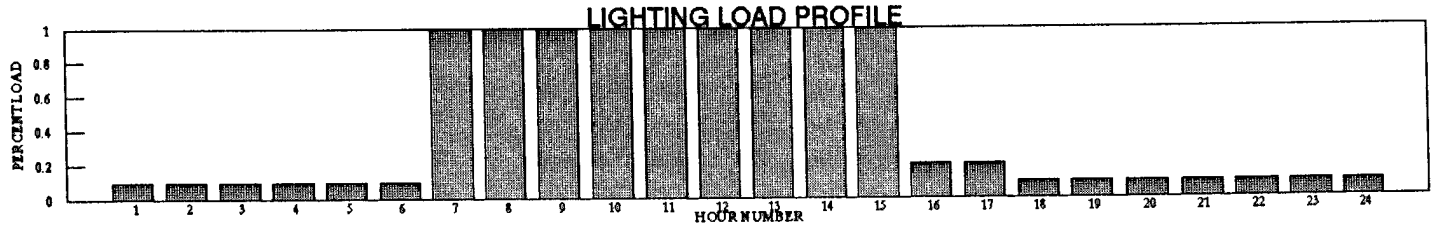
E M C Engineers, Inc.

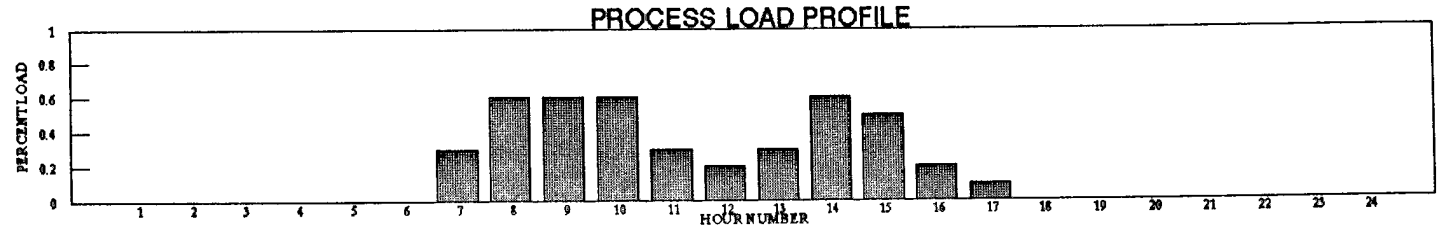
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z5
BLDG: 5265
ZONE: 5

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
7	Gen. Maint.	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	1	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS							0.3	0.6	0.6	0.6	0.3	0.2	0.3	0.6	0.5	0.2	0.1							







E M C Engineers, Inc.
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z6
BLDG: 5265 ZONE: 6

Rates of Heat Gain from Occupants of Conditioned Spaces

Zone No.	No. of People	Activity Type	Degree of Activity	Typical Application	Sensible (BTU/H)	Latent (BTU/H)	TOT Sen. (BTU/H)	TOT. Lat (BTU/H)
6	36	4	Seated, light work, typing	Offices, hotels, apts	250	200	9,000	7,200
TOTAL	36					TOTAL	9,000	7,200

Peak Wattage Value for Lights

Zone No.	No. of Fixtures	Fixture Type	Description	Watts/Fixture	Total Wattage
6	20	6	Fluorescent, 2 – 34w lamps, 16w ballast (2x4 ft. fixture)	84	1,680
	309	8	Fluorescent, 4 – 34w lamps, 2 – 16w ballasts (2x4 ft. fix.)	168	51,912
	4	57	HPS – Mogul Base, 250w with 55w ballast	305	1,220
	2	19	Incandescent – 75w	75	150
	2	61	Exit Light	20	40
	8	5	Fluorescent, 1 – 34w lamp, 16w ballast (1x4 ft. fixture)	50	400
TOTAL	345			TOTAL	55,402

Peak Value for Internal Gains

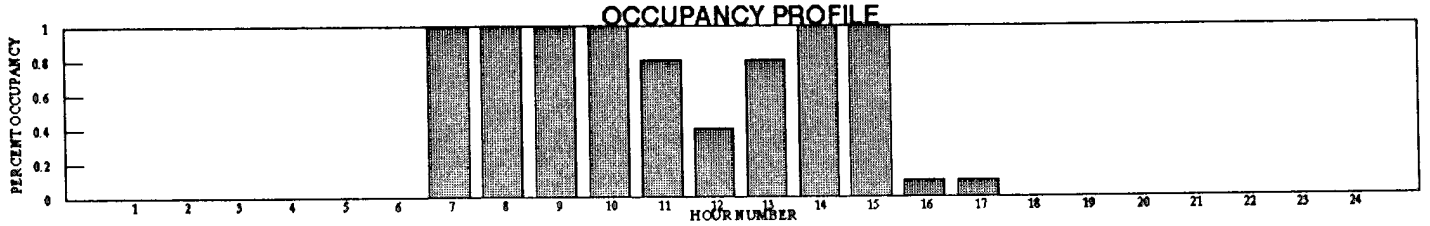
Zone No.	No. of Equipmen	Equip. Type	Description	Average Wattage	Heat Gain to Space(%)	Total Wattage	Total (BTU)
6	15	3	Microcomputer	350	91%	5,250	17,918
	15	5	Printer (laser)	870	34%	13,050	44,540
	4	45	Micro Fiche Machine	250	50%	1,000	3,413
	2	31	Fan (Circulating)	88	20%	176	601
	4	12	Typewriter	100	10%	400	1,365
	4	46	Microwave Oven	600	65%	2,400	8,191
	4	49	Radio	71	10%	284	969
	4	24	Coffee Maker	1,500	30%	6,000	20,478
	4	53	Refrigerator (12 cu. ft.)	241	20%	964	3,290
	2	54	Coke Machine	321	35%	642	2,191
	3	62	Television (Color, tube)	300	15%	900	3,072
	1	10	Copier	1,570	20%	1,570	5,358
	16	58	Sewing Machine	75	20%	1,200	4,096
				TOTAL	42%	33,836	115,482

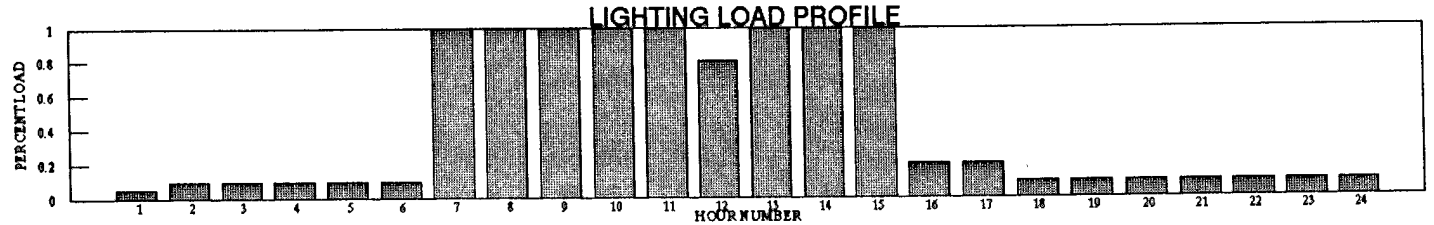
E M C Engineers, Inc.

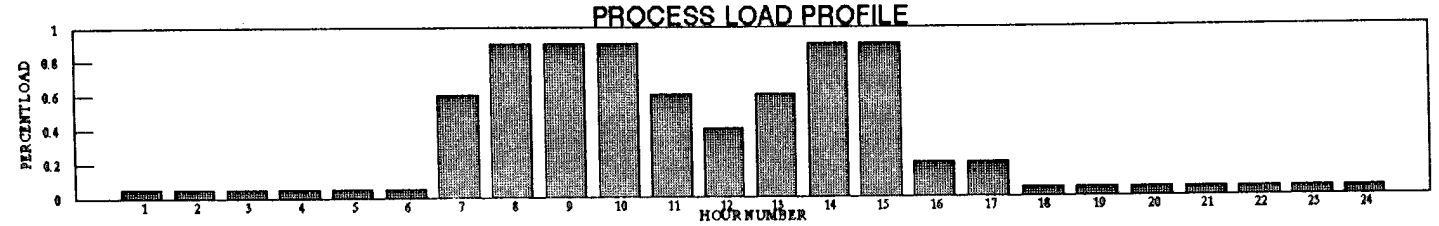
PROJECT: EEAP, EMCS EXPANSION FEASIBILITY STUDY
CLIENT CONTRACT NO.: DACA 41-92-C-0098
CLIENT PROJ. ENG: DOUG CAGE
LOCATION: FT. LEONARD WOOD

EMC NO.: 3204-000
DATE: 11-Feb-93
PREPARED BY: T.M.B.
CHECKED BY: CEL
FILE: 5265Z6
BLDG: 5265
ZONE: 6

BLDG TYPE	BLDG FUNCTION	TYPE OF PROFILE	HOUR NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	Administration / Repair	OCCUPANCY							1	1	1	1	0.8	0.4	0.8	1	1	0.1	0.1							
		LIGHTING	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.8	1	1	1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		PROCESS	0.05	0.05	0.05	0.05	0.05	0.05	0.6	0.9	0.9	0.9	0.6	0.4	0.6	0.9	0.9	0.2	0.2	0.05	0.05	0.05	0.05	0.05	0.05	0.05







01 Card - Job Information

Project: EEAP STUDY, EXPANSION OF EMCS
Location: FT. LEONARD WOOD, MO
Client: US ARMY
Program User: E M C ENGINEERS, INC.

-----CARD 08-- Climatic Information

Weather Code	Summer Clearness Number	Winter Clearness Number	Summer Design Dry Bulb	Summer Design Wet Bulb	Winter Design Dry Bulb	Building Orientation	Summer Ground Reflect	Winter Ground Reflect
SPRINGFM	.97	.97	94	78	3			

-----CARD 09-- Load Simulation Periods

1st Month Cooling Simulation	Last Month Cooling Simulation	Peak Cooling Load Hr	1st Month Summer Period	Last Month Summer Period	1st Month Daylight Savings	Last Month Daylight Savings
MAY	SEP		JUN	SEP	APR	OCT

-----CARD 10 -- Load Simulation Parameters

Cooling Load Method	Heating Load Method	Ventilation Method	Airflow Input Units	Airflow Output Units	Room Circulation Rate	Put Wall RA Load to Room
TETD-TA1	TETD-TA1	OADB	ACTUAL	ACTUAL	MED-RCR	NO

-----CARD 11-- Energy Simulation Parameters

1st Month Energy Simulation	Last Month Energy Simulation	Level Of Calculation	Holiday Code	Calendar Code	Building Floor Area
JAN	DEC	ROOM	1978	1978	198876

-----CARD 13-- Daylighting Parameters

----------Atmospheric----------								
---Moisture---		---Turbidity---		----Inside Visible Reflectivity----				Daylighting
Summer	Winter	Summer	Winter	Floor	Ceiling	Wall	Partition	Geometry
		.07	.07					

---------- Load Section Alternative #1 ----------

---- Load Alternative ----

Number	Description
1	BLDG 5265 BASERUN FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	GEN MAINT BAYS	802.292	24	8	0		27.1			
2	2	GEN MAINT SHOP	1000	65.268	8	0		28			
3	3	GEN MAINT ADMIN	70.267	60	8	0		10			
4	4	GEN MAINT BAYS	355	24	8	0		28			
5	5	GEN MAINT SHOP	1000	75.06	8	0		24.6			
6	6	GEN MAINT ADMIN	1000	26.557	8	0		18.6			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	72			CLG72SUM	70		HTG70WNT	ROOM	LIGHT10	NO
1										
2										
3					72		HTG72WNT			
4										
5										
6					72		HTG72WNT			

-----CARD 22-- Roof Parameters ----------

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	NO	1000	19.923	.069	20			.45
2	1	NO	1000	64.8	.069	20			.45
4	1	YES			.069	20			.45
5	1	NO	1000	73.017	.069	20			.45
6	1	NO	1000	24.109	.069	20			.45

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
M	1				71			.45	

-----CARD 24-- Wall Parameters ----------

Room Number	Wall Number	Wall Length	Wall Height	Wall U-Value	Wall Constuc Type	Wall Direction	Wall Tilt	Wall Alpha	Ground Reflectance Multiplier
1	1	100	56	.16		0			
1	2	100	86.35	.364		90			
1	3	1000	11.145	.335		270			
2	1	100	12.32	.115		0			
2	2	39	10	.203		270			
3	1	100	8.41	.102		270			
4	1	100	99.4	.376		180			
4	2	67.2	10	.245		90			
4	3	67.2	10	.115		270			
5	1	100	52.36	.118		0			
5	2	100	75.13	.228		180			
5	3	100	43.75	.211		90			
5	4	100	29.12	.2		270			
6	1	100	55.38	.166		0			
6	2	75	10	.102		180			
6	3	100	10.92	.117		90			

-----CARD 25-- Wall/Glass Parameters ----------

Room Number	Wall Number	Glass Length	Glass Width	Pct Glass or No. of Windows	Glass U-Value	Shading Coefficient	External Shading Type	Internal Shading Type	Percent Solar to Ret. Air	Visible Transmittance	Inside Visible Reflectance
M	1			1	.568	.58				.2	
1	1	100	12.27								
1	2	100	10.27								
1	3	100	12								
2	1	29.3	10								
3	1	12	10								
4	1	100	10								
4	2	12	10								
4	3	16	10								
5	1	100	12.47								
5	2	100	16.87								
5	3	99.1	10								
5	4	58.7	10								
6	1	31.5	10								
6	2	14.5	10								
6	3	10.8	10								

-----CARD 26-- Schedules ----------

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
M	FLW-P716	FLW-L716	AVAIL	AVAIL		AVAIL	AVAIL			
1						OFF	FLWFANWT			

-----CARD 26-- Schedules ----------

Room Number	People	Lights	Ventilation	Infiltration	Reheat Minimum	Cooling Fans	Heating Fan	Auxiliary Fan	Room Exhaust	Daylighting Controls
2										
3										
4						OFF	FLWFANWT			
5										
6										

-----CARD 27-- People and Lights ----------

Room Number	People Value	People Units	People Sensible	People Latent	Lighting Value	Lighting Units	Lighting Fixture Type	Ballast Factor	Percent Lights to Ret. Air	--- Daylighting ---- Reference Point 1	Reference Point 2
M		PEOPLE	275	475		WATTS					
1	10				11520		INCAND			1	1
2	80				32532		INCAND				
3	15				6216		SUSFLUOR				
4	10				4390		INCAND				
5	50				62244		INCAND				
6	36				55402		SUSFLUOR				

-----CARD 28--- Miscellaneous Equipment ----------

Room Number	Misc Equipment Number	Equipment Descrip	Energy Consump Value	Energy Consump Units	Schedule Code	Energy Meter Code	Percent of Load Sensible	Percent Misc. Load to Room	Percent Misc. Sens to Ret. Air	Radiant Fraction	Optional Air Path
M	1	PROCESS		WATTS	FLW1E716	ELEC	100				SAME-RA
1	1		22380						8		
2	1		112242					17			
3	1		13632		FLW2E716			45			
4	1		15666					9			
5	1		85381					10			
6	1		33836		FLW2E716			42			

-----CARD 29--- Room Airflows ----------

Room	Ventilation Cooling Value	Ventilation Cooling Units	Ventilation Heating Value	Ventilation Heating Units	Infiltration Cooling Value	Infiltration Cooling Units	Infiltration Heating Value	Infiltration Heating Units	Reheat Minimum Value	Reheat Minimum Units
Number										
M		CFM		CFM		CFM		CFM		
1			0				17419			
2	0		35000				214			
3	10	PCT-MCLG	10	PCT-MHTG	97		97			
4			0				7952			
5			69072				2398			
6	2370	CFM	2370	CFM	1032		1032			

-----CARD 30- Fan Airflows ----------

	Main				Auxiliary					
Room	Cooling		Heating		Cooling		Heating		Room Exhaust	
Number	Value	Units	Value	Units	Value	Units	Value	Units	Value	Units
1	79100	CFM	79100	CFM						
2	83900	CFM	83900	CFM						
3	8080	CFM	8080	CFM						
4	59261	CFM	59261	CFM						
5	83550	CFM	83550	CFM						
6	23700	CFM	18930	CFM						

-----CARD 31-- Partition Parameters ----------

Room	Partition	Partition	Partition	Partition	Const	Temp	Cooling	Heating	Adjacent
Number	Number	Length	Height	U-Value	Type	Flag	Temp	Temp	Room No
M	1				109	CONSTANT			
1	1	103	10						
2	1	1000	10.08						
3	1	15	10						
4	1	15	10						
5	1	1000	13.536						
6	1	1000	10.8						

-----CARD 32-- Exposed Floor Parameters----------

	Exposed	Slab		Exposed Floor						
Room	Floor	Perimeter	Loss	Floor	Floor	Const	Temp	Cooling	Heating	Adjacent
Number	Number	Length	Coefficient	Area	U-Value	Type	Flag	Temp	Temp	Room No
1	1	936	.66							
2	1	64	.66							
3	1	84	.66							
4	1	403	.66							
5	1	784	.66							
6	1	415	.66							

---------- System Section Alternative #1 ----------

-----CARD 39-- System Alternative -----

Number	Description
1	BLDG 5265 BASERUN FT LEONARD WOOD

-----CARD 40--- System Type ----------

		Ventil			Optional Ventilation System		Fan
System Set Number	System Type	Deck Location	Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Static Pressure
1	UH						

-----CARD 40--- System Type ----------

System Set Number	System Type	Ventil Deck Location	Cooling SADBVh	Heating SADBVh	Cooling Schedule	Heating Schedule	Fan Static Pressure
			----------OPTIONAL VENTILATION SYSTEM----------				
2	UV						
3	SZ						
4	TABVAV						

-----CARD 41-- Zone Assignment ----------

System Set Number	Ref #1 Begin	Ref #1 End	Ref #2 Begin	Ref #2 End	Ref #3 Begin	Ref #3 End	Ref #4 Begin	Ref #4 End	Ref #5 Begin	Ref #5 End	Ref #6 Begin	Ref #6 End
1	1	1	4	4								
2	2	2	5	5								
3	3	3										
4	6	6										

-----CARD 42--- Fan SP and Duct Parameters----------

System Set Number	Cool Fan SP	Heat Fan SP	Return Fan SP	Mn Exh Fan SP	Aux Fan SP	Rm Exh Fan SP	Cool Fan Mtr Loc	Return Fan Mtr Loc	Supply Duct Ht Gn	Supply Duct Loc	Return Air Path
1	.6						OMIT	OMIT			ROOMDK
2	.904						OMIT	OMIT			ROOMDK
3	.704										DUCTED
4	1.86	.8									DUCTED

-----CARD 43-- Airflow Design Temperatures ----------

System Set Number	Minimum Cooling SADB	Maximum Cooling SADB	Minimum Heating SADB	Maximum Heating SADB	Minimum Cooling Lv DB	Maximum Cooling Lv DB	Minimum Preheat Lv DB	Maximum Preheat Lv DB	Minimum Room RH	Design Ht Rec Diff
1										
2										
3	65.8	65.8								
4										

-----CARD 44-- System Options ----------

System Set Number	Econ Type Flag	Econ On Point	Max Pct Outside Air	Direct Evap Cooling	Indirect Evap Cooling	1st Stage Evap Cooling	Fan Cycling	--- Exhaust Air Heat Recovery --- Effectiveness --- System	Room	--- Control Method --- System	Room
1											

-----CARD 44-- System Options ----------

System Set Number	Econ Type Flag	Econ On Point	Max Pct Outside Air	Direct Evap Cooling	Indirect Evap Cooling	1st Stage Evap Cooling	Fan Cycling	Exhaust Air Heat Recovery --- Effectiveness --- System	Room	--- Control Method --- System	Room
2											
3	DRY-BULB	65	100								
4	DRY-BULB	65	100								

-----CARD 45--- Equipment Schedules ----------

System Set Number	Main Cooling Coil	Economizer	Direct Evap Coil	Indirect Evap Coil	Auxiliary Cooling Coil	Main Heating Coil	Main Preheat Coil	Reheat Coil	Mech. Humidity	Auxiliary Heating Coil
1	OFF	OFF				AVAIL				
2	OFF	OFF				AVAIL	OFF			
3	AVAIL	AVAIL				AVAIL	OFF			
4	AVAIL	AVAIL				AVAIL	OFF	AVAIL		

-----CARD 48-- Cooling Capacity Overrides ----------

System Set Number	People Variance	Lights Variance	Misc Loads Variance	MAIN COOLING Capacity Value	MAIN COOLING Capacity Units	MAIN COOLING Capacity Sizing	MAIN COOLING Capacity Location	AUX COOLING Capacity Value	AUX COOLING Capacity Units
1				0	MBH				
2				0	MBH				
3				207.3	MBH				
4				607.9	MBH				

-----CARD 49-- Heating Capacity Overrides ----------

System Set Number	MAIN HEATING Capacity Value	MAIN HEATING Capacity Units	PREHEAT Capacity Value	PREHEAT Capacity Units	REHEAT Capacity Value	REHEAT Capacity Units	HUMIDIFICATION Capacity Value	HUMIDIFICATION Capacity Units	AUX HEATING Capacity Value	AUX HEATING Capacity Units
1	3766.2	MBH								
2	7799.6	MBH	0	MBH						
3	96.7	MBH	0	MBH						
4	363.3	MBH	0	MBH						

---------- Equipment Section Alternative #1 ----------

-----CARD 59-- Equipment Description / TOD Schedules ----------

Alternative Number	Elec Consump Time of Day Schedule	Elec Demand Time of Day Schedule	Demand Limit Max KW	Alternative Description
1				BLDG 5265 BASERUN FT LEONARD WOOD

-----CARD 60--- Cooling Load Assignment----------

Load Assgn Ref	All Coil Loads To Cool Ref	Cooling Equipment Sizing	-Group 1- Begin	End	-Group 2- Begin	End	-Group 3- Begin	End	-Group 4- Begin	End	-Group 5- Begin	End	-Group 6- Begin	End	-Group 7- Begin	End	-Group 8- Begin	End	-Group 9- Begin	End
1	1		3	4																

-----CARD 62-- Cooling Equipment Parameters ----------

Cool Equip Ref Num	Equip Code Name	Num Of Units	----------COOLING---------- --Capacity-- Value	Units	----Energy---- Value	Units	---------HEAT RECOVERY---------- --Capacity-- Value	Units	----Energy---- Value	Units	Seq Order Num	Seq Type	Demand Limit Number
1	EQ10018	1											

-----CARD 63-- Cooling Pumps and References ----------

Cool Ref Num	---CHILLED WATER---- Full Load Value	Full Load Units	-----CONDENSER------ Full Load Value	Full Load Units	---HT REC or AUX---- Full Load Value	Full Load Units	Switch-over Control	Cold Storage	Cooling Tower	Misc. Access.
1	3.544	KW	3.73	KW						

-----CARD 65-- Heating Load Assignment ----------

Load Assignment Reference	All Coil Loads To Heating Ref	-Group 1- Begin	End	-Group 2- Begin	End	-Group 3- Begin	End	-Group 4- Begin	End	-Group 5- Begin	End	-Group 6- Begin	End	-Group 7- Begin	End	-Group 8- Begin	End	-Group 9- Begin	End
1	1	1	4																

-----CARD 67-- Heating Equipment Parameters ----------

Heat Ref Number	Equip Code Name	Number Of Units	HW Pmp Full Ld Value	Units	Cap'y Value	Units	Energy Rate Value	Units	Seq Order Number	Switch over Control	Hot Strg	Misc. Acc.	Cogen	Demand Limit Number
1	EQ2002	1	8.579	KW		MBH	80	PCTEFF						

-----CARD 69-- Fan Equipment Parameters ----------

System Set Number	Cooling Fan	Heating Fan	Return Fan	Exhaust Fan	Auxiliary Supply	Room Exhaust	Optional Ventilation
1	EQ4371						
2	EQ4372						
3	EQ4002						
4	EQ4002	EQ4003					

-----CARD 70-- Fan Equipment KW Overrides ----------

System Set Number	-----MAIN SYSTEM----- Cool Fan KW	Heat Fan KW	Ret Fan KW	Exh Fan KW	--OTHER SYSTEM-- Aux Sup KW	Room Exh KW	Opt Vent KW	----DEMAND LIMIT PRIORITY--- Cool Fan	Heat Fan	Aux Fan	Room Exh Fan	Opt Vent Fan
1	5.968											
2	73.108											
3	3.544											
4	16.9729.427											

---------- Load Section Alternative #2 ----------

---- Load Alternative ----

Number	Description
2	BLDG 5265 NIGHT SETBACK FT LEONARD WOOD

-----CARD 20-- General Room Parameters ----------

Room Number	Zone Reference Number	Room Descrip	Floor Length	Floor Width	Const Type	Plenum Height	Acoustic Ceiling Resistance	Floor to Floor Height	Duplicate Floors Multiplier	Duplicate Rooms per Zone	Perimeter Depth
1	1	GEN MAINT BAYS	802.292	24	8	0		27.1			
2	2	GEN MAINT SHOP	1000	65.268	8	0		28			
3	3	GEN MAINT ADMIN	70.267	60	8	0		10			
4	4	GEN MAINT BAYS	355	24	8	0		28			
5	5	GEN MAINT SHOP	1000	75.06	8	0		24.6			
6	6	GEN MAINT ADMIN	1000	26.557	8	0		18.6			

-----CARD 21-- Thermostat Parameters ----------

Room Number	Cooling Room Design DB	Room Design RH	Cooling T'stat Driftpoint	Cooling T'stat Schedule	Heating Room Design DB	Heating T'stat Driftpoint	Heating T'stat Schedule	T'stat Location Flag	Mass / No. Hrs Average	Carpet On Floor
M	72			CSB72SUM	70		HSB70WNT	ROOM	LIGHT10	NO
1										
2										
3					72		HSB72WNT			
4										
5										
6					72		HSB72WNT			

-----CARD 22-- Roof Parameters ----------

Room Number	Roof Number	Roof Equal to Floor?	Roof Length	Roof Width	Roof U-Value	Const Type	Roof Direction	Roof Tilt	Roof Alpha
1	1	NO	1000	19.923	.069	20			.45
2	1	NO	1000	64.8	.069	20			.45

Utility Description Reference Table

Schedules:
- AVAIL AVAILABLE (100%)
- CDDC78SM CLG DDC T-STAT AT 78 (MAY THRU SEPT)
- CLG72SUM COOLING TSTAT AT 72 (MAY TO SEPT)
- CSB72SUM COOLING SB TSTAT AT 72 (MAY THRU SEPT)
- FLW-L716 LIGHTING SCHEDULE - 0700 TO 1600
- FLW-P716 PEOPLE SCHEDULE - 0700 TO 1600
- FLW1E716 EQUIP. SCHD.-0700 TO 1600 (NO NITE LOAD)
- FLW2E716 EQUIP. SCHD.-0700 TO 1600 (5% NITE LOAD)
- FLWFANWT FAN SCHEDULE - OCT THRU APR
- HDDC68WT HEATING DDC T-STAT AT 68 (OCT TO APR)
- HSB70WNT HEATING SB T-STAT AT 70 (OCT TO APR)
- HSB72WNT HEATING SB T-STAT AT 72 (OCT TO APR)
- HTG70WNT HEATING T-STAT AT 70 (OCT TO APR)
- HTG72WNT HEATING T-STAT AT 72 (OCT TO APR)
- OFF ALWAYS OFF

System:
- SZ SINGLE ZONE
- TABVAV TERMINAL AIR BLENDER VAV
- UH UNIT HEATERS
- UV UNIT VENTILATOR

Equipment:

Cooling:
- EQ1001S 2-STG CTV <555 TONS

Heating:
- EQ2002 GAS FIRE TUBE STEAM

Fan:
- EQ4002 BI CENTRIF. FAN C.V.
- EQ4003 FC CENTRIF. FAN C.V.
- EQ4371 FAN COIL SUPPLY FAN
- EQ4372 UNIT VENTILATOR FAN

Schedule Name: AVAIL
Project: AVAILABLE (100)
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: CDDC78SM
Project: CLG DDC T-STAT AT 78 (MAY THRU
Location:
Client:
Program User:
Comments: CLG DDC T-STAT AT 78 (MAY THRU

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	78
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CLG72SUM
Project: COOLING TSTAT SCHEDULE - 72
Location:
Client:
Program User:
Comments: COOLING T-STAT - SET AT 72 (MA

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: CSB72SUM
Project: COOLING SB TSTAT AT 72 (MAY THR
Location:
Client:
Program User:
Comments: COOLING SB TSTAT AT 72 (MAY TH

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	90
6	72
19	90
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	100
24	

Schedule Name: FLW-L716
Project: LIGHTING SCHEDULE
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: LIGHTING SCHEDULE - 0700 TO 16

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	10
7	100
16	20
18	10
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	10
24	

Schedule Name: FLW-P716
Project: PEOPLE SCHEDULE
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: PEOPLE SCHEDULE - 0700 TO 1600

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	100
11	80
12	40
13	80
14	100
16	10
18	0
24	

Schedule Name: FLW1E716
Project: EQUIPMENT SCHEDULE
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - 0700 TO 1

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	0
7	30
8	60
11	30
12	20
13	30
14	60
15	50
16	20
17	10
18	0
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	-1
24	

Schedule Name: FLW2E716
Project: EQUIPMENT SCHEDULE
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: EQUIPMENT SCHEDULE - 0700 TO 1

Starting Month: JAN Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: WKDY

Hour	Util Percent
0	5
7	30
8	60
11	30
12	20
13	30
14	60
15	50
16	20
17	10
18	5
24	

Starting Month: JAN Ending Month: DEC
Starting Day Type: SAT Ending Day Type: SUN

Hour	Util Percent
0	5
24	

Schedule Name: FLWFANWT
Project: FAN SCHEDULE - OCT THRU APR
Location: FT LEONARD WOOD, MO
Client: US ARMY
Program User: EMC ENGINEERS, INC.
Comments: FAN SCHEDULE - OCT THRU APR

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	100
24	

Schedule Name: HDDC68WT
Project: HEATING DDC T-STAT AT 68 (OCT T
Location:
Client:
Program User:
Comments: HEATING DDC T-STAT AT 68 (OCT

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	68
19	55
24	

Schedule Name: HSB70WNT
Project: HEATING SB T-STAT AT 70 (OCT TO
Location:
Client:
Program User:
Comments: HEATING SB T-STAT AT 70 (OCT T

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	70
19	55
24	

Schedule Name: HSB72WNT
Project: HEATING SB T-STAT AT 72 (OCT TO
Location:
Client:
Program User:
Comments: HEATING SB T-STAT AT 72 (OCT T

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	72
19	55
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	55
6	72
19	55
24	

Schedule Name: HTG70WNT
Project: HEATING T-STAT AT 70 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 70 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	70
24	

Schedule Name: HTG72WNT
Project: HEATING T-STAT AT 72 (OCT TO AP
Location:
Client:
Program User:
Comments: HEATING T-STAT AT 72 (OCT TO A

Starting Month: JAN Ending Month: APR
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Starting Month: MAY Ending Month: SEP
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	35
24	

Starting Month: OCT Ending Month: DEC
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Temperature
0	72
24	

Schedule Name: OFF
Project: ALWAYS OFF
Location:
Client:
Program User:
Comments:

Starting Month: JAN Ending Month: HTG
Starting Day Type: DSGN Ending Day Type: SUN

Hour	Util Percent
0	0
24	

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**
** TRACE 600 ANALYSIS **
**
** by **
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****
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EEAP STUDY, EXPANSION OF EMCS
FT. LEONARD WOOD, MO
US ARMY
E M C ENGINEERS, INC.

Weather File Code:	SPRINGFM
Location:	SPRINGFIELD, MISSOURI
Latitude:	37.0 (deg)
Longitude:	93.0 (deg)
Time Zone:	6
Elevation:	1,265 (ft)
Barometric Pressure:	28.5 (in. Hg)
Summer Clearness Number:	0.97
Winter Clearness Number:	0.97
Summer Design Dry Bulb:	94 (F)
Summer Design Wet Bulb:	78 (F)
Winter Design Dry Bulb:	3 (F)
Summer Ground Relectance:	0.20
Winter Ground Relectance:	0.20
Air Density:	0.0724 (Lbm/cuft)
Air Specific Heat:	0.2444 (Btu/lbm/F)
Density-Specific Heat Prod:	1.0621 (Btu-min./hr/cuft/F)
Latent Heat Factor:	4,675.1 (Btu-min./hr/cuft)
Enthalpy Factor:	4.3449 (Lb-min./hr/cuft)

Design Simulation Period: May To September
System Simulation Period: January To December
Cooling Load Methodology: TETD/Time Averaging

Time/Date Program was Run: 21:19:34 3/17/93
Dataset Name: 5265 .TM

AIRFLOW - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Airflow Quantities)

System Number	System Type	Main: Outside Airflow (Cfm)	Main: Cooling Airflow (Cfm)	Main: Heating Airflow (Cfm)	Main: Return Airflow (Cfm)	Main: Exhaust Airflow (Cfm)	Auxil. Supply Airflow (Cfm)	Room Exhaust Airflow (Cfm)
1	UH	0	0	138,361	0	25,371	0	0
2	UV	104,072	0	167,450	170,062	106,684	0	0
3	SZ	808	8,080	8,080	8,177	8,080	0	0
4	TABVAV	2,370	19,450	18,930	20,482	19,450	0	0
Totals		107,250	27,530	332,821	198,721	159,585	0	0

CAPACITY - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

S Y S T E M S U M M A R Y
(Design Capacity Quantities)

System Number	System Type	Cooling: Main Sys. Capacity (Tons)	Cooling: Aux. Sys. Capacity (Tons)	Cooling: Opt. Vent Capacity (Tons)	Cooling Totals (Tons)	Heating: Main Sys. Capacity (Btuh)	Heating: Aux. Sys. Capacity (Btuh)	Heating: Preheat Capacity (Btuh)	Heating: Reheat Capacity (Btuh)	Heating: Humidif. Capacity (Btuh)	Heating: Opt. Vent Capacity (Btuh)	Heating Totals (Btuh)
1	UH	0.0	0.0	0.0	0.0	-3,766,200	0	0	0	0	0	-3,766,200
2	UV	0.0	0.0	0.0	0.0	-7,799,600	0	0	0	0	0	-7,799,600
3	SZ	17.3	0.0	0.0	17.3	-96,700	0	0	0	0	0	-96,700
4	TABVAV	50.7	0.0	0.0	50.7	-363,300	0	0	0	0	0	-363,300
Totals		67.9	0.0	0.0	67.9	12,025,800	0	0	0	0	0	-12,025,800

The building peaked at hour 15 month 7 with a capacity of 59.5 tons

ENGINEERING CHECKS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

E N G I N E E R I N G C H E C K S

System Number	Main/ Auxiliary	System Type	Percent Outside Air	Cooling: Cfm/ Sq Ft	Cooling: Cfm/ Ton	Cooling: Sq Ft /Ton	Cooling: Btuh/ Sq Ft	Heating: Cfm/ Sq Ft	Heating: Btuh/ Sq Ft	Floor Area Sq Ft
1	Main	UH	0.00	0.00	0.0	0.0	0.00	4.98	-135.60	27,775
2	Main	UV	62.15	0.00	0.0	0.0	0.00	1.19	-55.58	140,328
3	Main	SZ	10.00	1.92	467.7	244.1	49.17	1.92	-22.94	4,216
4	Main	TABVAV	12.19	0.73	383.9	524.2	22.89	0.71	-13.68	26,557

System 1 Block UH - UNIT HEATERS

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 0/ 0					Mo/Hr: 0/ 0			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0					OADB: 0			OADB: 3		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	-131,492	-131,492	4.57
Glass Solar	0	0		0	0.00	0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00	0	0.00	-189,031	-189,031	6.57
Wall Cond	0	0		0	0.00	0	0.00	-693,860	-693,860	24.10
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-59,211	-59,211	2.06
Infiltration	0			0	0.00	0	0.00	-1,805,369	-1,805,369	62.71
Sub Total==>	0	0		0	0.00	0	0.00	-2,878,963	-2,878,963	100.00
Internal Loads										
Lights	0	0		0	0.00	0	0.00	0	0	0.00
People	0			0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00	0	0.00	0	0	0.00
Sup. Fan Heat				0	0.00		0.00		0	0.00
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	0	0	0	0	0.00	0	0.00	-2,878,963	-2,878,963	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	27,775		
Part	1,180		
ExFlr	1,339		
Roof	28,443	0	0
Wall	36,664	4,734	13

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-3,766.2	138,361	64.0	89.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3,766.2			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	0
Infil	0	25,371
Supply	0	138,361
Mincfm	0	0
Return	0	138,361
Exhaust	0	0
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	0.0
Htg Cfm/SqFt	4.98
Htg Btuh/SqFt	-135.60

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	89.6
Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	70.0
Runarnd	0.0	70.0
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.2	0.0

System 2 Block UV - UNIT VENTILATOR

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK	
Peaked at Time ==>	Mo/Hr: 0/ 0					Mo/Hr: 0/ 0			Mo/Hr: 13/ 1	
Outside Air ==>	OADB/WB/HR: 0/ 0/ 0.0					OADB: 0			OADB: 3	
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot	Space Peak Space Sens	Coil Peak Tot Sens	Percnt Of Tot
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	-637,128	-637,128	7.42
Glass Solar	0	0		0	0.00	0	0.00	0	0	0.00
Glass Cond	0	0		0	0.00	0	0.00	-192,021	-192,021	2.24
Wall Cond	0	0		0	0.00	0	0.00	-212,016	-212,016	2.47
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-37,499	-37,499	0.44
Infiltration	0			0	0.00	0	0.00	-185,867	-185,867	2.16
Sub Total==>	0	0		0	0.00	0	0.00	-1,264,531	-1,264,531	14.72
Internal Loads										
Lights	0	0		0	0.00	0	0.00	0	0	0.00
People	0			0	0.00	0	0.00	0	0	0.00
Misc	0	0	0	0	0.00	0	0.00	0	0	0.00
Sub Total==>	0	0	0	0	0.00	0	0.00	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	0	0.00	0	0.00	0	-7,405,637	86.21
Sup. Fan Heat				0	0.00		0.00		80,376	-0.94
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	0	0	0	0	0.00	0	0.00	-1,264,531	-8,589,792	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	(Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Deg F	Grains	Leaving DB/WB/HR Deg F	Deg F	Grains
Main Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	0.0	0.0								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	140,328		
Part	23,616		
ExFlr	848		
Roof	137,817	0	0
Wall	21,658	4,809	22

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-7,799.6	167,450	33.3	77.1
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	167,450	28.8	0.0
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-7,799.6			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	0	104,072
Infil	0	2,612
Supply	0	167,450
Mincfm	0	0
Return	0	167,450
Exhaust	0	104,072
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	0.0
Clg Cfm/Sqft	0.00
Clg Cfm/Ton	0.00
Clg Sqft/Ton	0.00
Clg Btuh/Sqft	0.00
No. People	0
Htg % OA	62.2
Htg Cfm/SqFt	1.19
Htg Btuh/SqFt	-55.58

TEMPERATURES (F)

Type	Clg	Htg
SADB	0.0	77.1
Plenum	0.0	70.0
Return	0.0	70.0
Ret/OA	0.0	28.4
Runarnd	0.0	70.0
Fn MtrTD	0.2	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

System 3 Peak SZ - SINGLE ZONE

	COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15			Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94			OADB: 3		
	Space Sens.+Lat. (Btuh)	Ret. Air Sensible (Btuh)	Ret. Air Latent (Btuh)	Net Total (Btuh)	Percnt Of Tot (%)	Space Sensible (Btuh)	Percnt Of Tot (%)	Space Peak Space Sens (Btuh)	Coil Peak Tot Sens (Btuh)	Percnt Of Tot (%)
Envelope Loads										
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	0	0		0	0.00	0	0.00	0	0	0.00
Glass Solar	8,520	0		8,520	8.05	8,520	16.01	0	0	0.00
Glass Cond	1,486	0		1,486	1.40	1,486	2.79	-4,935	-4,935	6.48
Wall Cond	3,265	0		3,265	3.09	3,265	6.14	-5,074	-5,074	6.67
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-3,825	-3,825	5.02
Infiltration	4,683			4,683	4.43	2,266	4.26	-7,108	-7,108	9.34
Sub Total==>	17,954	0		17,954	16.97	15,538	29.20	-20,943	-20,943	27.51
Internal Loads										
Lights	21,215	0		21,215	20.06	21,215	39.87	0	0	0.00
People	11,250			11,250	10.64	4,125	7.75	0	0	0.00
Misc	11,725	0	0	11,725	11.08	11,725	22.04	0	0	0.00
Sub Total==>	44,190	0	0	44,190	41.78	37,065	69.66	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	39,006	36.88	0	0.00	0	-59,213	77.77
Sup. Fan Heat				4,022	3.80		0.00		4,022	-5.28
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	603			603	0.57	603	1.13	0	0	-0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	0.00		0.00		0	0.00
Grand Total==>	62,747	0	0	105,774	100.00	53,206	100.00	-20,943	-76,134	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB/WB/HR Deg F	Entering DB/WB/HR Deg F	Entering DB/WB/HR Grains	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Deg F	Leaving DB/WB/HR Grains
Main Clg	17.3	207.3	149.2	8,080	74.2	66.5	90.5	65.3	58.6	66.6
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	17.3	207.3								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	4,216		
Part	150		
ExFlr	84		
Roof	0	0	0
Wall	841	120	14

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-96.7	8,080	62.7	74.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	8,080	65.1	65.3
Reheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-96.7			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	808	808
Infil	97	97
Supply	8,080	8,080
Mincfm	0	0
Return	8,080	8,080
Exhaust	808	808
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	10.0
Clg Cfm/Sqft	1.92
Clg Cfm/Ton	467.73
Clg Sqft/Ton	244.05
Clg Btuh/Sqft	49.17
No. People	15
Htg % OA	10.0
Htg Cfm/SqFt	1.92
Htg Btuh/SqFt	-22.94

TEMPERATURES (F)

Type	Clg	Htg
SADB	65.8	74.4
Plenum	72.0	72.0
Return	72.0	72.0
Ret/OA	74.2	65.1
Runarnd	72.0	72.0
Fn MtrTD	0.1	0.0
Fn BldTD	0.1	0.0
Fn Frict	0.3	0.0

System 4 Block TABVAV - TERMINAL AIR BLENDER VAV

	COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK		
Peaked at Time ==>	Mo/Hr: 7/15					Mo/Hr: 7/15		Mo/Hr: 13/ 1		
Outside Air ==>	OADB/WB/HR: 94/ 78/124.0					OADB: 94		OADB: 3		
	Space Sens.+Lat.	Ret. Air Sensible	Ret. Air Latent	Net Total	Percnt Of Tot	Space Sensible	Percnt Of Tot	Space Peak Space Sens	Coil Peak Tot Sens	Percnt Of Tot
Envelope Loads	(Btuh)	(Btuh)	(Btuh)	(Btuh)	(%)	(Btuh)	(%)	(Btuh)	(Btuh)	(%)
Skylite Solr	0	0		0	0.00	0	0.00	0	0	0.00
Skylite Cond	0	0		0	0.00	0	0.00	0	0	0.00
Roof Cond	64,378	0		64,378	10.59	64,378	17.54	-114,783	-114,783	41.12
Glass Solar	14,768	0		14,768	2.43	14,768	4.02	0	0	0.00
Glass Cond	7,033	0		7,033	1.16	7,033	1.92	-23,358	-23,358	8.37
Wall Cond	30,063	0		30,063	4.95	30,063	8.19	-72,026	-72,026	25.80
Partition	0			0	0.00	0	0.00	0	0	0.00
Exposed Floor	0			0	0.00	0	0.00	-18,899	-18,899	6.77
Infiltration	67,202			67,202	11.06	24,113	6.57	-75,628	-75,628	27.10
Sub Total==>	183,444	0		183,444	30.18	140,356	38.25	-304,694	-304,694	109.16
Internal Loads										
Lights	189,087	0		189,087	31.11	189,087	51.52	0	0	0.00
People	27,000			27,000	4.44	9,900	2.70	0	0	0.00
Misc	27,646	0	0	27,646	4.55	27,646	7.53	0	0	0.00
Sub Total==>	243,733	0	0	243,733	40.10	226,633	61.75	0	0	0.00
Ceiling Load	0	0		0	0.00	0	0.00	0	0	0.00
Outside Air	0	0	0	154,330	25.39	0	0.00	0	0	0.00
Sup. Fan Heat				26,279	4.32		0.00		25,577	-9.16
Ret. Fan Heat		0		0	0.00		0.00		0	0.00
Duct Heat Pkup		0		0	0.00		0.00		0	0.00
OV/UNDR Sizing	0			0	0.00	0	0.00	0	0	0.00
Exhaust Heat		0	0	0	0.00		0.00		0	0.00
Terminal Bypass		0	0	0	-0.00		0.00		0	0.00
Grand Total==>	427,178	0	0	607,786	100.00	366,989	100.00	-304,694	-279,118	100.00

COOLING COIL SELECTION

	Total Capacity (Tons)	Total Capacity (Mbh)	Sens Cap. (Mbh)	Coil Airfl (cfm)	Entering DB Deg F	Entering WB Deg F	Entering WB Grains	Leaving DB Deg F	Leaving WB Deg F	Leaving WB Grains
Main Clg	50.7	607.9	448.7	19,450	74.7	62.4	69.1	53.0	51.4	57.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Totals	50.7	607.9								

AREAS

	Gross Total	Glass (sf)	(%)
Floor	26,557		
Part	10,800		
ExFlr	415		
Roof	24,109	0	0
Wall	7,380	568	8

HEATING COIL SELECTION

	Capacity (Mbh)	Coil Airfl (cfm)	Ent Deg F	Lvg Deg F
Main Htg	-363.3	18,930	69.1	87.2
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.0	2,370	3.0	53.0
Reheat	-0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-363.3			

AIRFLOWS (cfm)

Type	Cooling	Heating
Vent	2,370	0
Infil	1,032	1,032
Supply	19,450	18,930
Mincfm	0	0
Return	19,450	0
Exhaust	2,370	0
Rm Exh	0	0
Auxil	0	0

ENGINEERING CHECKS

Clg % OA	12.2
Clg Cfm/Sqft	0.73
Clg Cfm/Ton	383.94
Clg Sqft/Ton	524.24
Clg Btuh/Sqft	22.89
No. People	36
Htg % OA	0.0
Htg Cfm/SqFt	0.71
Htg Btuh/SqFt	-13.68

TEMPERATURES (F)

Type	Clg	Htg
SADB	54.2	87.2
Plenum	72.0	72.0
Return	72.0	72.0
Ret/OA	74.7	3.0
Runarnd	72.0	72.0
Fn MtrTD	0.3	0.1
Fn BldTD	0.2	0.1
Fn Fricт	0.7	0.3

MAIN SYSTEM COOLING - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

PEAK COOLING LOADS
(Main System)

Room Number	Description	Peak Time Mo/Hr	Space: OA Cond. DB/WB (F)	Space: Rm Dry Blb (F)	Space: Supp. Dry Bulb (F)	Space: Air Flow (Cfm)	Space: Sens. Load (Btuh)	Space: Lat. Load (Btuh)	Coil: Peak Time Mo/Hr	Coil: OA Cond. DB/WB (F)	Coil: Rm Dry Blb (F)	Coil: Supp. Dry Bulb (F)	Coil: Air Flow (Cfm)	Coil: Sens. Load (Btuh)	Coil: Lat. Load (Btuh)
3	GEN MAINT ADMIN	7/15	94	78	72	65.8	8,080	53,206	9,541	7/15	94	78	72	65.8	8,080	76,107	29,668
Zone 3	Total/Ave.		94	78	72	65.8	8,080	53,206	9,541		94	78	72	65.8	8,080	76,107	29,668
Zone 3	Block	7/15	94	78	72	65.8	8,080	53,206	9,541	7/15	94	78	72	65.8	8,080	76,107	29,668
System 3	Total/Ave.		94	78	72	65.8	8,080	53,206	9,541		94	78	72	65.8	8,080	76,107	29,668
System 3	Block	7/15	94	78	72	65.8	8,080	53,206	9,541	7/15	94	78	72	65.8	8,080	76,107	29,668
6	GEN MAINT ADMIN	7/15	94	78	72	54.2	23,700	447,186	60,189	7/15	94	78	72	54.2	19,450	448,644	159,142
Zone 6	Total/Ave.		94	78	72	54.2	23,700	447,186	60,189		94	78	72	54.2	19,450	448,644	159,142
Zone 6	Block	7/15	94	78	72	54.2	23,700	447,186	60,189	7/15	94	78	72	54.2	19,450	448,644	159,142
System 4	Total/Ave.		94	78	72	54.2	23,700	447,186	60,189		94	78	72	54.2	19,450	448,644	159,142
System 4	Block	7/15	94	78	72	54.2	19,450	366,989	60,189	7/15	94	78	72	54.2	19,450	448,644	159,142

MAIN SYSTEM HEATING - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

PEAK HEATING LOADS
(Main System)

Room Number	Description	Floor Area (Sq Ft)	Space Peak Time Mo/Hr	Space OA Cond. DB/WB (F)	Space Rm Dry Blb (F)	Space Supp. Dry Bulb (F)	Space Air Flow (Cfm)	Space Sens. Load (Btuh)	Coil Peak Time Mo/Hr	Coil OA Cond. DB/WB (F)	Coil Rm Dry Blb (F)	Coil Supp. Dry Bulb (F)	Coil Air Flow (Cfm)	Coil Sens. Load (Btuh)
1	GEN MAINT BAYS	19,255	13/ 1	3	1 70	93.4	79,100	-1,966,566	13/ 1	3	1 70	93.4	79,100	-1,966,566
Zone 1	Total/Ave.	19,255		3	1 70	93.4	79,100	-1,966,566		3	1 70	93.4	79,100	-1,966,566
Zone 1	Block	19,255	13/ 1	3	1 70	93.4	79,100	-1,966,566	13/ 1	3	1 70	93.4	79,100	-1,966,566
4	GEN MAINT BAYS	8,520	13/ 1	3	1 70	84.5	59,261	-912,397	13/ 1	3	1 70	84.5	59,261	-912,397
Zone 4	Total/Ave.	8,520		3	1 70	84.5	59,261	-912,397		3	1 70	84.5	59,261	-912,397
Zone 4	Block	8,520	13/ 1	3	1 70	84.5	59,261	-912,397	13/ 1	3	1 70	84.5	59,261	-912,397
System 1	Total/Ave.	27,775		3	1 70	89.6	138,361	-2,878,963		3	1 70	89.6	138,361	-2,878,963
System 1	Block	27,775	13/ 1	3	1 70	89.6	138,361	-2,878,963	13/ 1	3	1 70	89.6	138,361	-2,878,963
2	GEN MAINT SHOP	65,268	13/ 1	3	1 70	73.8	83,900	-341,970	13/ 1	3	1 70	73.8	83,900	-2,792,256
Zone 2	Total/Ave.	65,268		3	1 70	73.8	83,900	-341,970		3	1 70	73.8	83,900	-2,792,256
Zone 2	Block	65,268	13/ 1	3	1 70	73.8	83,900	-341,970	13/ 1	3	1 70	73.8	83,900	-2,792,256
5	GEN MAINT SHOP	75,060	13/ 1	3	1 70	80.4	83,550	-922,560	13/ 1	3	1 70	80.4	83,550	-5,797,537
Zone 5	Total/Ave.	75,060		3	1 70	80.4	83,550	-922,560		3	1 70	80.4	83,550	-5,797,537
Zone 5	Block	75,060	13/ 1	3	1 70	80.4	83,550	-922,560	13/ 1	3	1 70	80.4	83,550	-5,797,537
System 2	Total/Ave.	140,328		3	1 70	77.1	167,450	-1,264,531		3	1 70	77.1	167,450	-8,589,792
System 2	Block	140,328	13/ 1	3	1 70	77.1	167,450	-1,264,531	13/ 1	3	1 70	77.1	167,450	-8,589,792
3	GEN MAINT ADMIN	4,216	13/ 1	3	1 72	74.4	8,080	-20,943	13/ 1	3	1 72	74.4	8,080	-76,134
Zone 3	Total/Ave.	4,216		3	1 72	74.4	8,080	-20,943		3	1 72	74.4	8,080	-76,134
Zone 3	Block	4,216	13/ 1	3	1 72	74.4	8,080	-20,943	13/ 1	3	1 72	74.4	8,080	-76,134
System 3	Total/Ave.	4,216		3	1 72	74.4	8,080	-20,943		3	1 72	74.4	8,080	-76,134
System 3	Block	4,216	13/ 1	3	1 72	74.4	8,080	-20,943	13/ 1	3	1 72	74.4	8,080	-76,134
6	GEN MAINT ADMIN	26,557	13/ 1	3	1 72	87.2	18,930	-304,694	13/ 1	3	1 72	87.2	18,930	-293,925
Zone 6	Total/Ave.	26,557		3	1 72	87.2	18,930	-304,694		3	1 72	87.2	18,930	-293,925
Zone 6	Block	26,557	13/ 1	3	1 72	87.2	18,930	-304,694	13/ 1	3	1 72	87.2	18,930	-293,925
System 4	Total/Ave.	26,557		3	1 72	87.2	18,930	-304,694		3	1 72	87.2	18,930	-293,925
System 4	Block	26,557	13/ 1	3	1 72	87.2	18,930	-304,694	13/ 1	3	1 72	87.2	18,930	-293,925

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Coil Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	CLF	Total (Btuh)
3	GEN MAINT ADMIN	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
Zone	3 Total/Ave.	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
Zone	3 Block	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
System	3 Total/Ave.	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
System	3 Block	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
6	GEN MAINT ADMIN	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
Zone	6 Total/Ave.	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
Zone	6 Block	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
System	4 Total/Ave.	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
System	4 Block	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

INTERNAL COOLING LOADS
(At time of Space Peak)

Room Number	Description	Lights Room Sensible (Btuh)	Lights Ret. Air Lites Sensible (Btuh)	CLF	People Sensible (Btuh)	People Latent (Btuh)	Peopl CLF	Misc. Space Sensible (Btuh)	Misc. Space Latent (Btuh)	Misc. Ret. Air Misc. Sensible (Btuh)	CLF	Total (Btuh)
3	GEN MAINT ADMIN	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
Zone	3 Total/Ave.	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
Zone	3 Block	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
System	3 Total/Ave.	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
System	3 Block	21,215	0	1.000	4,125	7,125	1.000	11,725	0	0	0.560	44,190
6	GEN MAINT ADMIN	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
Zone	6 Total/Ave.	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
Zone	6 Block	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
System	4 Total/Ave.	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733
System	4 Block	189,087	0	1.000	9,900	17,100	1.000	27,646	0	0	0.570	243,733

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	GEN MAINT ADMIN	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System	3 Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System	3 Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
Zone	6 Total/Ave.	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
Zone	6 Block	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
System	4 Total/Ave.	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
System	4 Block	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	GEN MAINT ADMIN	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
Zone	3 Total/Ave.	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
Zone	3 Block	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
System	3 Total/Ave.	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
System	3 Block	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
6	GEN MAINT ADMIN	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
Zone	6 Total/Ave.	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
Zone	6 Block	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
System	4 Total/Ave.	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
System	4 Block	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	GEN MAINT ADMIN	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
Zone	3 Total/Ave.	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
Zone	3 Block	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
System	3 Total/Ave.	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
System	3 Block	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
6	GEN MAINT ADMIN	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
Zone	6 Total/Ave.	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
Zone	6 Block	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
System	4 Total/Ave.	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
System	4 Block	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
3	GEN MAINT ADMIN	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone	3 Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System	3 Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System	3 Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
Zone	6 Total/Ave.	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
Zone	6 Block	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
System	4 Total/Ave.	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0
System	4 Block	0	0.0	64,378	38.7	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
3	GEN MAINT ADMIN	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
Zone	3 Total/Ave.	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
Zone	3 Block	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
System	3 Total/Ave.	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
System	3 Block	0	0.0	3,265	44.4	8,520	0	0.580	1,486	21.8	0	0.0
6	GEN MAINT ADMIN	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
Zone	6 Total/Ave.	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
Zone	6 Block	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
System	4 Total/Ave.	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0
System	4 Block	0	0.0	30,063	28.8	14,768	0	0.530	7,033	21.8	0	0.0

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
3	GEN MAINT ADMIN	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
Zone	3 Total/Ave.	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
Zone	3 Block	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
System	3 Total/Ave.	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954
System	3 Block	0	0.0	0	0.0	97	2,266	2,416	72.0	0	17,954

COOLING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE COOLING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
6	GEN MAINT ADMIN	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
Zone 6	Total/Ave.	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
Zone 6	Block	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
System 4	Total/Ave.	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444
System 4	Block	0	0.0	0	0.0	1,032	24,113	43,089	72.0	0	183,444

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Coil Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	GEN MAINT BAYS	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
4	GEN MAINT BAYS	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-131,492	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-131,492	-67.0	0	0	0.000	0	0.0	0	0.0
2	GEN MAINT SHOP	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
5	GEN MAINT SHOP	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Block	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-637,128	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-637,128	-67.0	0	0	0.000	0	0.0	0	0.0
3	GEN MAINT ADMIN	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Total/Ave.	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Block	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	GEN MAINT BAYS	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
Zone 1	Block	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
4	GEN MAINT BAYS	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
Zone 4	Block	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-693,860	-67.0	0	0	0.000	-189,031	-67.0	0	0.0
System 1	Block	0	0.0	-693,860	-67.0	0	0	0.000	-189,031	-67.0	0	0.0
2	GEN MAINT SHOP	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Coil Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone	2 Total/Ave.	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0
Zone	2 Block	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0
5	GEN MAINT SHOP	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
Zone	5 Total/Ave.	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
Zone	5 Block	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
System	2 Total/Ave.	0	0.0	-212,016	-67.0	0	0	0.000	-192,021	-67.0	0	0.0
System	2 Block	0	0.0	-212,016	-67.0	0	0	0.000	-192,021	-67.0	0	0.0
3	GEN MAINT ADMIN	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
Zone	3 Total/Ave.	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
Zone	3 Block	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
System	3 Total/Ave.	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
System	3 Block	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
Zone	6 Total/Ave.	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
Zone	6 Block	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
System	4 Total/Ave.	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
System	4 Block	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	GEN MAINT BAYS	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
Zone	1 Total/Ave.	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
Zone	1 Block	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
4	GEN MAINT BAYS	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
Zone	4 Total/Ave.	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
Zone	4 Block	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
System	1 Total/Ave.	-59,211	-67.0	0	0.0	25,371	-1,805,369	0	70.0	0	-2,878,963
System	1 Block	-59,211	-67.0	0	0.0	25,371	-1,805,370	0	70.0	0	-2,878,963
2	GEN MAINT SHOP	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
Zone	2 Total/Ave.	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
Zone	2 Block	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
5	GEN MAINT SHOP	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
Zone	5 Total/Ave.	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
Zone	5 Block	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
System	2 Total/Ave.	-37,499	-67.0	0	0.0	2,612	-185,867	0	70.0	0	-1,264,531
System	2 Block	-37,499	-67.0	0	0.0	2,612	-185,867	0	70.0	0	-1,264,531
3	GEN MAINT ADMIN	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
Zone	3 Total/Ave.	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Coil Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
Zone	3 Block	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
System	3 Total/Ave.	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
System	3 Block	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
6	GEN MAINT ADMIN	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
Zone	6 Total/Ave.	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
Zone	6 Block	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
System	4 Total/Ave.	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
System	4 Block	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Roof - Skylight)
(At time of Space Peak)

Room Number	Description	Roof Return Air Sensible Load (Btuh)	Roof R.A. CLTD (F)	Roof Space Sensible Load (Btuh)	Roof Space CLTD (F)	Skylight Return Air Solar (Btuh)	Skylight Space Solar (Btuh)	Skylt Solar CLF	Skylight Return Air Conduction Load (Btuh)	Skylt R.A. CLTD (F)	Skylight Space Conduction Load (Btuh)	Skylt Space CLTD (F)
1	GEN MAINT BAYS	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 1	Block	0	0.0	-92,104	-67.0	0	0	0.000	0	0.0	0	0.0
4	GEN MAINT BAYS	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 4	Block	0	0.0	-39,388	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Total/Ave.	0	0.0	-131,492	-67.0	0	0	0.000	0	0.0	0	0.0
System 1	Block	0	0.0	-131,492	-67.0	0	0	0.000	0	0.0	0	0.0
2	GEN MAINT SHOP	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Total/Ave.	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 2	Block	0	0.0	-299,570	-67.0	0	0	0.000	0	0.0	0	0.0
5	GEN MAINT SHOP	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
Zone 5	Block	0	0.0	-337,558	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Total/Ave.	0	0.0	-637,128	-67.0	0	0	0.000	0	0.0	0	0.0
System 2	Block	0	0.0	-637,128	-67.0	0	0	0.000	0	0.0	0	0.0
3	GEN MAINT ADMIN	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
Zone 3	Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System 3	Total/Ave.	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
System 3	Block	0	0.0	0	0.0	0	0	0.000	0	0.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Total/Ave.	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
Zone 6	Block	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
System 4	Total/Ave.	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0
System 4	Block	0	0.0	-114,783	-69.0	0	0	0.000	0	0.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
1	GEN MAINT BAYS	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
Zone 1	Total/Ave.	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
Zone 1	Block	0	0.0	-455,638	-67.0	0	0	0.000	-137,920	-67.0	0	0.0
4	GEN MAINT BAYS	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
Zone 4	Total/Ave.	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
Zone 4	Block	0	0.0	-238,223	-67.0	0	0	0.000	-51,111	-67.0	0	0.0
System 1	Total/Ave.	0	0.0	-693,860	-67.0	0	0	0.000	-189,031	-67.0	0	0.0
System 1	Block	0	0.0	-693,860	-67.0	0	0	0.000	-189,031	-67.0	0	0.0
2	GEN MAINT SHOP	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Wall - Window)
(At time of Space Peak)

Room Number	Description	Wall Plenum Load (Btuh)	Wall Plenm CLTD (F)	Wall Space Load (Btuh)	Wall Space CLTD (F)	Glass Space Solar (Btuh)	Glass Return Air Solar (Btuh)	Glass Solar CLF	Glass Space Conduction (Btuh)	Glass Space CLTD (F)	Glass Return Air Conduction (Btuh)	Glass R.A. CLTD (F)
Zone 2	Total/Ave.	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0
Zone 2	Block	0	0.0	-12,486	-67.0	0	0	0.000	-11,855	-67.0	0	0.0
5	GEN MAINT SHOP	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
Zone 5	Total/Ave.	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
Zone 5	Block	0	0.0	-199,530	-67.0	0	0	0.000	-180,166	-67.0	0	0.0
System 2	Total/Ave.	0	0.0	-212,016	-67.0	0	0	0.000	-192,021	-67.0	0	0.0
System 2	Block	0	0.0	-212,016	-67.0	0	0	0.000	-192,021	-67.0	0	0.0
3	GEN MAINT ADMIN	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
Zone 3	Total/Ave.	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
Zone 3	Block	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
System 3	Total/Ave.	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
System 3	Block	0	0.0	-5,074	-69.0	0	0	0.000	-4,935	-69.0	0	0.0
6	GEN MAINT ADMIN	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
Zone 6	Total/Ave.	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
Zone 6	Block	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
System 4	Total/Ave.	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0
System 4	Block	0	0.0	-72,026	-69.0	0	0	0.000	-23,358	-69.0	0	0.0

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
1	GEN MAINT BAYS	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
Zone 1	Total/Ave.	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
Zone 1	Block	-41,390	-67.0	0	0.0	17,419	-1,239,515	0	70.0	0	-1,966,566
4	GEN MAINT BAYS	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
Zone 4	Total/Ave.	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
Zone 4	Block	-17,821	-67.0	0	0.0	7,952	-565,855	0	70.0	0	-912,397
System 1	Total/Ave.	-59,211	-67.0	0	0.0	25,371	-1,805,369	0	70.0	0	-2,878,963
System 1	Block	-59,211	-67.0	0	0.0	25,371	-1,805,370	0	70.0	0	-2,878,963
2	GEN MAINT SHOP	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
Zone 2	Total/Ave.	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
Zone 2	Block	-2,830	-67.0	0	0.0	214	-15,228	0	70.0	0	-341,970
5	GEN MAINT SHOP	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
Zone 5	Total/Ave.	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
Zone 5	Block	-34,668	-67.0	0	0.0	2,398	-170,639	0	70.0	0	-922,560
System 2	Total/Ave.	-37,499	-67.0	0	0.0	2,612	-185,867	0	70.0	0	-1,264,531
System 2	Block	-37,499	-67.0	0	0.0	2,612	-185,867	0	70.0	0	-1,264,531
3	GEN MAINT ADMIN	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
Zone 3	Total/Ave.	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943

HEATING LOADS AT SPACE PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING ENVELOPE HEATING LOADS

(Exposed Floor - Partitions - Infiltration)
(At time of Space Peak)

Room Number	Description	Exposed Floor Sensible (Btuh)	Expsd Floor CLTD (F)	Partition Sensible (Btuh)	Part. CLTD (F)	Infilt. Airflow (Cfm)	Infilt. Sensible (Btuh)	Infilt. Latent (Btuh)	Plenm Dry B Temp. (F)	Ceiling Sensible Load (Btuh)	Envelope Total (Btuh)
Zone 3	Block	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
System 3	Total/Ave.	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
System 3	Block	-3,825	-69.0	0	0.0	97	-7,108	0	72.0	0	-20,943
6	GEN MAINT ADMIN	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
Zone 6	Total/Ave.	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
Zone 6	Block	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
System 4	Total/Ave.	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694
System 4	Block	-18,899	-69.0	0	0.0	1,032	-75,628	0	72.0	0	-304,694

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

COOLING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

AIRFLOW COOLING LOADS

(At time of Coil Peak)

Room Number	Description	Ventilation Airflow (Cfm)	Ventilation Sensible (Btuh)	Ventilation Latent (Btuh)	Optional Ventilation Airflow (Cfm)	Optional Ventilation Sensible (Btuh)	Optional Ventilation Latent (Btuh)	Bypass Airflow (Cfm)	Bypass Sensible (Btuh)	Bypass Latent (Btuh)	Ov/Undr Sizing (Btuh)
3	GEN MAINT ADMIN	808	18,879	20,126	0	0	0	0	0	0	603
Zone	3 Total/Ave.	808	18,879	20,126	0	0	0	0	0	0	603
Zone	3 Block	808	18,879	20,126	0	0	0	0	0	0	603
System	3 Total/Ave.	808	18,879	20,126	0	0	0	0	0	0	603
System	3 Block	808	18,879	20,126	0	0	0	0	0	0	0
6	GEN MAINT ADMIN	2,370	55,376	98,953	0	0	0	0	0	0	80,197
Zone	6 Total/Ave.	2,370	55,376	98,953	0	0	0	0	0	0	0
Zone	6 Block	2,370	55,376	98,953	0	0	0	0	0	0	80,197
System	4 Total/Ave.	2,370	55,376	98,953	0	0	0	0	0	0	0
System	4 Block	2,370	55,376	98,953	0	0	0	0	0	0	0

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

HEATING LOADS AT COIL PEAK - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

AIRFLOW HEATING LOADS

(At time of Coil Peak)

Room Number	Description	--- Ventilation -- Airflow (Cfm)	Sensible (Btuh)	---- Op. Vent.---- Airflow (Cfm)	Sensible (Btuh)	----- Reheat ----- Airflow (Cfm)	Sensible (Btuh)	---- Humidif. ---- Airflow (Cfm)	Latent (Btuh)	Total (Btuh)
1	GEN MAINT BAYS	0	0	0	0	0	0	0	0	0
Zone 1	Total/Ave.	0	0	0	0	0	0	0	0	0
Zone 1	Block	0	0	0	0	0	0	0	0	0
4	GEN MAINT BAYS	0	0	0	0	0	0	0	0	0
Zone 4	Total/Ave.	0	0	0	0	0	0	0	0	0
Zone 4	Block	0	0	0	0	0	0	0	0	0
System 1	Total/Ave.	0	0	0	0	0	0	0	0	0
System 1	Block	0	0	0	0	0	0	0	0	0
2	GEN MAINT SHOP	35,000	-2,490,558	0	0	0	0	0	0	-2,490,558
Zone 2	Total/Ave.	35,000	-2,490,558	0	0	0	0	0	0	-2,490,558
Zone 2	Block	35,000	-2,490,558	0	0	0	0	0	0	-2,490,558
5	GEN MAINT SHOP	69,072	-4,915,080	0	0	0	0	0	0	-4,915,080
Zone 5	Total/Ave.	69,072	-4,915,080	0	0	0	0	0	0	-4,915,080
Zone 5	Block	69,072	-4,915,080	0	0	0	0	0	0	-4,915,080
System 2	Total/Ave.	104,072	-7,405,637	0	0	0	0	0	0	-7,405,637
System 2	Block	104,072	-7,405,637	0	0	0	0	0	0	-7,405,637
3	GEN MAINT ADMIN	808	-59,213	0	0	0	0	0	0	-59,213
Zone 3	Total/Ave.	808	-59,213	0	0	0	0	0	0	-59,213
Zone 3	Block	808	-59,213	0	0	0	0	0	0	-59,213
System 3	Total/Ave.	808	-59,213	0	0	0	0	0	0	-59,213
System 3	Block	808	-59,213	0	0	0	0	0	0	-59,213
6	GEN MAINT ADMIN	0	0	0	0	0	0	0	0	0
Zone 6	Total/Ave.	0	0	0	0	0	0	0	0	0
Zone 6	Block	0	0	0	0	0	0	0	0	0
System 4	Total/Ave.	0	0	0	0	0	0	0	0	0
System 4	Block	0	0	0	0	0	0	0	0	0

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

COOLING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS

(At time of Coil Peak)

Room Number	Description	Cooling: Duct Heat Pickup (Btuh)	Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
3	GEN MAINT ADMIN	0	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
Zone 3	Total/Ave.	0	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
Zone 3	Block	0	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
System 3	Total/Ave.	0	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
System 3	Block	0	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
6	GEN MAINT ADMIN	0	26,279	0	0	26,279	2,370	0	19,450	0	0	0	19,450
Zone 6	Total/Ave.	0	26,279	0	0	26,279	2,370	0	19,450	0	0	0	19,450
Zone 6	Block	0	26,279	0	0	26,279	2,370	0	19,450	0	0	0	19,450
System 4	Total/Ave.	0	26,279	0	0	26,279	2,370	0	19,450	0	0	0	19,450
System 4	Block	0	26,279	0	0	26,279	2,370	0	19,450	0	0	0	19,450

HEATING AIRFLOW HEAT GAIN/LOSS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

AIRFLOW HEAT GAIN AND LOSS
(At time of Coil Peak)

Room Number	Description	Heating: Supply Fan Heat (Btuh)	Return Fan Heat (Btuh)	System Exhaust Heat Loss (Btuh)	Total (Btuh)	System Exhaust Airflow (Cfm)	Room Exhaust Airflow (Cfm)	Ducted Airflow (Cfm)	Plenum Airflow (Cfm)	Run Around Airflow (Cfm)	Corridr Airflow (Cfm)	System Return Airflow (Cfm)
1	GEN MAINT BAYS	0	0	0	0	0	0	0	0	0	0	79,100
Zone 1	Total/Ave.	0	0	0	0	0	0	0	0	0	0	79,100
Zone 1	Block	0	0	0	0	0	0	0	0	0	0	79,100
4	GEN MAINT BAYS	0	0	0	0	0	0	0	0	0	0	59,261
Zone 4	Total/Ave.	0	0	0	0	0	0	0	0	0	0	59,261
Zone 4	Block	0	0	0	0	0	0	0	0	0	0	59,261
System 1	Total/Ave.	0	0	0	0	0	0	0	0	0	0	138,361
System 1	Block	0	0	0	0	0	0	0	0	0	0	138,361
2	GEN MAINT SHOP	40,272	0	0	40,272	35,000	0	0	0	0	0	83,900
Zone 2	Total/Ave.	40,272	0	0	40,272	35,000	0	0	0	0	0	83,900
Zone 2	Block	40,272	0	0	40,272	35,000	0	0	0	0	0	83,900
5	GEN MAINT SHOP	40,104	0	0	40,104	69,072	0	0	0	0	0	83,550
Zone 5	Total/Ave.	40,104	0	0	40,104	69,072	0	0	0	0	0	83,550
Zone 5	Block	40,104	0	0	40,104	69,072	0	0	0	0	0	83,550
System 2	Total/Ave.	80,376	0	0	80,376	104,072	0	0	0	0	0	167,450
System 2	Block	80,376	0	0	80,376	104,072	0	0	0	0	0	167,450
3	GEN MAINT ADMIN	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
Zone 3	Total/Ave.	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
Zone 3	Block	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
System 3	Total/Ave.	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
System 3	Block	4,022	0	0	4,022	808	0	8,080	0	0	0	8,080
6	GEN MAINT ADMIN	25,577	0	0	25,577	0	0	18,930	0	18,930	0	0
Zone 6	Total/Ave.	25,577	0	0	25,577	0	0	18,930	0	18,930	0	0
Zone 6	Block	25,577	0	0	25,577	0	0	18,930	0	18,930	0	0
System 4	Total/Ave.	25,577	0	0	25,577	0	0	18,930	0	18,930	0	0
System 4	Block	25,577	0	0	25,577	0	0	18,930	0	18,930	0	0

ZONE PSYCHROMETRICS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

Zone 3

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	72.0	65.1	70.1	86.7	30.8	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	72.0	65.1	70.1	86.7	30.8	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	74.2	66.5	67.8	90.5	31.9	
Blow through Fan						0.0
Entering Coil	74.2	66.5	67.8	90.5	31.9	
Leaving Coil	65.3	62.5	86.0	84.6	28.9	
Draw Through Fan						0.2
Duct Frictional Heat						0.3
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	65.8	62.7	84.6	84.6	29.0	
Supply Air	65.8	62.7	84.6	84.6	29.0	

Percent Outside Air	10.00	(%)
Sensible Heat Ratio (SHR)	0.826	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	8,080	(Cfm)

SYSTEM PSYCHROMETRICS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

---------- P S Y C H R O M E T R I C S T A T E P O I N T S ----------

System 4

	Dry Bulb (F)	Wet Bulb (F)	Relat. Humid. (%)	Humid. Ratio (GR)	Enthalpy (Btu/Lb)	Temp. Diff. (F)
Space	72.0	59.9	50.0	61.5	26.9	
Main System						
Return Air Heat Pickup						0.0
Return Fan						0.0
Return Air	72.0	59.9	50.0	61.5	26.9	
Outdoor Air	94.0	77.6	48.8	124.0	42.1	
Return/Outdoor Air Mix	74.7	62.4	51.3	69.1	28.7	
Blow through Fan						0.0
Entering Coil	74.7	62.4	51.3	69.1	28.7	
Leaving Coil	53.0	51.5	91.3	57.3	21.6	
Draw Through Fan						0.6
Duct Frictional Heat						0.7
Supply Duct Heat Gain						0.0
Cold Deck Supply Air	54.2	52.1	87.1	57.3	21.9	
Supply Air	54.2	52.1	87.1	57.3	21.9	

Percent Outside Air	12.19	(%)
Sensible Heat Ratio (SHR)	0.859	
Percent Supply Air Bypassing Coil	0.00	(%)
Coil Airflow	19,450	(Cfm)

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

BUILDING U-VALUES - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

B U I L D I N G U - V A L U E S

Room Number	Description	Room U-Values (Btu/hr/sqft/F) Part.	ExFlr	Summr Skylt	Wintr Skylt	Roof	Summr Windo	Wintr Windo	Wall	Ceil.	Room Mass (lb/ sqft)	Room Capac. (Btu/ sqft/F)
1	GEN MAINT BAYS	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.310	0.000	107.0	21.77
Zone 1	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.310	0.000	107.0	21.77
4	GEN MAINT BAYS	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.355	0.000	105.2	21.38
Zone 4	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.355	0.000	105.2	21.38
System 1	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.324	0.000	106.4	21.65
2	GEN MAINT SHOP	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.141	0.000	102.6	21.39
Zone 2	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.141	0.000	102.6	21.39
5	GEN MAINT SHOP	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.192	0.000	103.6	21.49
Zone 5	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.192	0.000	103.6	21.49
System 2	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.188	0.000	103.1	21.45
3	GEN MAINT ADMIN	0.297	0.660	0.000	0.000	0.000	0.568	0.596	0.102	0.000	71.8	14.27
Zone 3	Total/Ave.	0.297	0.660	0.000	0.000	0.000	0.568	0.596	0.102	0.000	71.8	14.27
System 3	Total/Ave.	0.297	0.660	0.000	0.000	0.000	0.568	0.596	0.102	0.000	71.8	14.27
6	GEN MAINT ADMIN	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.153	0.000	107.7	22.24
Zone 6	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.153	0.000	107.7	22.24
System 4	Total/Ave.	0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.153	0.000	107.7	22.24
Building		0.297	0.660	0.000	0.000	0.069	0.568	0.596	0.260	0.000	103.5	21.43

BUILDING AREAS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

BUILDING AREAS

Room Number	Description	Number of Duplicate Flr	Number of Duplicate Rm	Floor Area/Dupl Room (sqft)	Total Floor Area (sqft)	Partition Area (sqft)	Exposed Floor Area (sqft)	Skylight Area (sqft)	Skl /Rf (%)	Net Roof Area (sqft)	Window Area (sqft)	Win /Wl (%)	Net Wall Area (sqft)
1	GEN MAINT BAYS	1	1	19,255	19,255	1,030	936	0	0	19,923	3,454	14	21,926
Zone 1	Total/Ave.				19,255	1,030	936	0	0	19,923	3,454	14	21,926
4	GEN MAINT BAYS	1	1	8,520	8,520	150	403	0	0	8,520	1,280	11	10,004
Zone 4	Total/Ave.				8,520	150	403	0	0	8,520	1,280	11	10,004
System 1	Total/Ave.				27,775	1,180	1,339	0	0	28,443	4,734	13	31,930
2	GEN MAINT SHOP	1	1	65,268	65,268	10,080	64	0	0	64,800	297	18	1,325
Zone 2	Total/Ave.				65,268	10,080	64	0	0	64,800	297	18	1,325
5	GEN MAINT SHOP	1	1	75,060	75,060	13,536	784	0	0	73,017	4,512	23	15,524
Zone 5	Total/Ave.				75,060	13,536	784	0	0	73,017	4,512	23	15,524
System 2	Total/Ave.				140,328	23,616	848	0	0	137,817	4,809	22	16,849
3	GEN MAINT ADMIN	1	1	4,216	4,216	150	84	0	0	0	120	14	721
Zone 3	Total/Ave.				4,216	150	84	0	0	0	120	14	721
System 3	Total/Ave.				4,216	150	84	0	0	0	120	14	721
6	GEN MAINT ADMIN	1	1	26,557	26,557	10,800	415	0	0	24,109	568	8	6,812
Zone 6	Total/Ave.				26,557	10,800	415	0	0	24,109	568	8	6,812
System 4	Total/Ave.				26,557	10,800	415	0	0	24,109	568	8	6,812
Building					198,876	35,746	2,686	0	0	190,369	10,231	15	56,312

ASHRAE 90 ANALYSIS - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

ASHRAE 90 ANALYSIS

Overall Roof U-Value = 0.069 (Btu/Hr/Sq Ft/F)
Overall Wall U-Value = 0.307 (Btu/Hr/Sq Ft/F)
Overall Building U-Value = 0.131 (Btu/Hr/Sq Ft/F)

Roof Overall Thermal Transfer Value (OTTVr) = 3.47 (Btu/Hr/Sq Ft)
Wall Overall Thermal Transfer Value (OTTVw) = 23.29 (Btu/Hr/Sq Ft)

SYSTEM TOTALS LOAD PROFILE - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

SYSTEM LOAD PROFILE

System Totals

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	3.4	13	406	-601,290	3	122	16,667.0	31	2,731	946.5	0	0
5 - 10	6.8	9	278	-1,202,580	5	231	33,334.1	11	941	1,893.0	0	0
10 - 15	10.2	8	254	-1,803,870	7	319	50,001.1	0	0	2,839.5	0	0
15 - 20	13.6	12	357	-2,405,160	8	366	66,668.1	0	0	3,786.0	0	0
20 - 25	17.0	9	260	-3,006,450	11	519	83,335.2	0	0	4,732.5	0	0
25 - 30	20.4	8	232	-3,607,740	12	576	100,002.2	0	0	5,679.0	0	0
30 - 35	23.8	5	139	-4,209,031	13	591	116,669.3	0	0	6,625.5	0	0
35 - 40	27.2	7	210	-4,810,321	10	460	133,336.3	0	0	7,572.0	0	0
40 - 45	30.6	6	180	-5,411,610	7	314	150,003.3	0	0	8,518.5	0	0
45 - 50	34.0	5	152	-6,012,901	7	328	166,670.4	0	0	9,465.0	0	0
50 - 55	37.4	4	129	-6,614,191	8	380	183,337.4	0	0	10,411.5	0	0
55 - 60	40.8	6	190	-7,215,481	8	383	200,004.5	0	0	11,358.0	0	0
60 - 65	44.2	2	65	-7,816,771	1	62	216,671.5	0	0	12,304.5	0	0
65 - 70	47.6	2	65	-8,418,062	0	0	233,338.5	0	0	13,251.0	0	0
70 - 75	51.0	2	65	-9,019,352	0	0	250,005.6	0	0	14,197.5	0	0
75 - 80	54.3	1	20	-9,620,642	0	0	266,672.6	0	0	15,144.0	0	0
80 - 85	57.7	1	20	-10,221,932	0	0	283,339.7	0	0	16,090.5	0	0
85 - 90	61.1	0	0	-10,823,222	0	0	300,006.7	0	0	17,037.0	0	0
90 - 95	64.5	0	0	-11,424,512	0	0	316,673.7	58	5,088	17,983.5	0	0
95 - 100	67.9	0	0	-12,025,802	0	0	333,340.7	0	0	18,930.0	100	8,760
Hours Off	0.0	0	5,738	0	0	4,109	0.0	0	0	0.0	0	0

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

Main System 1 UH UNIT HEATERS

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-188,310	7	292	6,918.1	0	0	0.0	0	0
5 - 10	0.0	0	0	-376,620	11	474	13,836.1	0	0	0.0	0	0
10 - 15	0.0	0	0	-564,930	21	920	20,754.2	0	0	0.0	0	0
15 - 20	0.0	0	0	-753,240	20	871	27,672.2	0	0	0.0	0	0
20 - 25	0.0	0	0	-941,550	13	590	34,590.3	0	0	0.0	0	0
25 - 30	0.0	0	0	-1,129,860	13	573	41,508.3	0	0	0.0	0	0
30 - 35	0.0	0	0	-1,318,170	14	603	48,426.4	0	0	0.0	0	0
35 - 40	0.0	0	0	-1,506,480	2	104	55,344.4	0	0	0.0	0	0
40 - 45	0.0	0	0	-1,694,790	0	0	62,262.5	0	0	0.0	0	0
45 - 50	0.0	0	0	-1,883,100	0	0	69,180.5	0	0	0.0	0	0
50 - 55	0.0	0	0	-2,071,410	0	0	76,098.6	0	0	0.0	0	0
55 - 60	0.0	0	0	-2,259,720	0	0	83,016.6	0	0	0.0	0	0
60 - 65	0.0	0	0	-2,448,030	0	0	89,934.7	0	0	0.0	0	0
65 - 70	0.0	0	0	-2,636,341	0	0	96,852.7	0	0	0.0	0	0
70 - 75	0.0	0	0	-2,824,650	0	0	103,770.8	0	0	0.0	0	0
75 - 80	0.0	0	0	-3,012,961	0	0	110,688.8	0	0	0.0	0	0
80 - 85	0.0	0	0	-3,201,271	0	0	117,606.9	0	0	0.0	0	0
85 - 90	0.0	0	0	-3,389,580	0	0	124,524.9	0	0	0.0	0	0
90 - 95	0.0	0	0	-3,577,891	0	0	131,443.0	0	0	0.0	0	0
95 - 100	0.0	0	0	-3,766,200	0	0	138,361.0	100	5,088	0.0	0	0
Hours Off	0.0	0	8,760	0	0	4,333	0.0	0	3,672	0.0	0	8,760

Main System 2 UV UNIT VENTILATOR

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.0	0	0	-389,980	2	92	8,372.5	0	0	0.0	0	0
5 - 10	0.0	0	0	-779,960	2	101	16,745.0	0	0	0.0	0	0
10 - 15	0.0	0	0	-1,169,940	5	212	25,117.5	0	0	0.0	0	0
15 - 20	0.0	0	0	-1,559,920	5	250	33,490.0	0	0	0.0	0	0
20 - 25	0.0	0	0	-1,949,900	8	362	41,862.5	0	0	0.0	0	0
25 - 30	0.0	0	0	-2,339,880	7	344	50,235.0	0	0	0.0	0	0
30 - 35	0.0	0	0	-2,729,860	10	485	58,607.5	0	0	0.0	0	0
35 - 40	0.0	0	0	-3,119,840	10	455	66,980.0	0	0	0.0	0	0
40 - 45	0.0	0	0	-3,509,820	10	464	75,352.5	0	0	0.0	0	0
45 - 50	0.0	0	0	-3,899,800	8	379	83,725.0	0	0	0.0	0	0
50 - 55	0.0	0	0	-4,289,781	7	312	92,097.5	0	0	0.0	0	0
55 - 60	0.0	0	0	-4,679,761	6	295	100,470.0	0	0	0.0	0	0
60 - 65	0.0	0	0	-5,069,741	7	309	108,842.5	0	0	0.0	0	0
65 - 70	0.0	0	0	-5,459,721	6	298	117,215.0	0	0	0.0	0	0
70 - 75	0.0	0	0	-5,849,701	6	293	125,587.5	0	0	0.0	0	0
75 - 80	0.0	0	0	-6,239,681	0	0	133,960.0	0	0	0.0	0	0
80 - 85	0.0	0	0	-6,629,661	0	0	142,332.5	0	0	0.0	0	0
85 - 90	0.0	0	0	-7,019,641	0	0	150,705.0	0	0	0.0	0	0
90 - 95	0.0	0	0	-7,409,622	0	0	159,077.5	0	0	0.0	0	0
95 - 100	0.0	0	0	-7,799,601	0	0	167,450.0	100	5,088	0.0	0	0
Hours Off	0.0	0	8,760	0	0	4,109	0.0	0	3,672	0.0	0	8,760

SYSTEM LOAD PROFILE - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

Main System 3 SZ SINGLE ZONE

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	0.9	24	633	-4,835	6	148	404.0	0	0	0.0	0	0
5 - 10	1.7	16	415	-9,670	6	141	808.0	0	0	0.0	0	0
10 - 15	2.6	13	339	-14,505	5	128	1,212.0	0	0	0.0	0	0
15 - 20	3.5	11	294	-19,340	11	287	1,616.0	0	0	0.0	0	0
20 - 25	4.3	14	361	-24,175	11	269	2,020.0	0	0	0.0	0	0
25 - 30	5.2	8	220	-29,010	15	374	2,424.0	0	0	0.0	0	0
30 - 35	6.0	8	211	-33,845	10	266	2,828.0	0	0	0.0	0	0
35 - 40	6.9	4	105	-38,680	15	382	3,232.0	0	0	0.0	0	0
40 - 45	7.8	2	65	-43,515	19	490	3,636.0	0	0	0.0	0	0
45 - 50	8.6	1	20	-48,350	2	62	4,040.0	0	0	0.0	0	0
50 - 55	9.5	0	0	-53,185	0	0	4,444.0	0	0	0.0	0	0
55 - 60	10.4	0	0	-58,020	0	0	4,848.0	0	0	0.0	0	0
60 - 65	11.2	0	0	-62,855	0	0	5,252.0	0	0	0.0	0	0
65 - 70	12.1	0	0	-67,690	0	0	5,656.0	0	0	0.0	0	0
70 - 75	13.0	0	0	-72,525	0	0	6,060.0	0	0	0.0	0	0
75 - 80	13.8	0	0	-77,360	0	0	6,464.0	0	0	0.0	0	0
80 - 85	14.7	0	0	-82,195	0	0	6,868.0	0	0	0.0	0	0
85 - 90	15.5	0	0	-87,030	0	0	7,272.0	0	0	0.0	0	0
90 - 95	16.4	0	0	-91,865	0	0	7,676.0	0	0	0.0	0	0
95 - 100	17.3	0	0	-96,700	0	0	8,080.0	100	8,760	0.0	0	0
Hours Off	0.0	0	6,097	0	0	6,213	0.0	0	0	0.0	0	8,760

Main System 4 TABVAV TERMINAL AIR BLENDER VAV

Percent Design Load	Cooling Load Cap. (Ton)	Cooling Load Hours (%)	Cooling Load Hours	Heating Load Capacity (Btuh)	Heating Load Hours (%)	Heating Load Hours	Cooling Airflow Cap. (Cfm)	Cooling Airflow Hours (%)	Cooling Airflow Hours	Heating Airflow Cap. (Cfm)	Heating Airflow Hours (%)	Heating Airflow Hours
0 - 5	2.5	8	246	-18,165	6	100	972.5	9	256	946.5	0	0
5 - 10	5.1	10	291	-36,330	7	116	1,945.0	15	439	1,893.0	0	0
10 - 15	7.6	9	272	-54,495	6	104	2,917.5	10	284	2,839.5	0	0
15 - 20	10.1	7	220	-72,660	15	249	3,889.9	7	208	3,786.0	0	0
20 - 25	12.7	9	271	-90,825	13	226	4,862.4	12	369	4,732.5	0	0
25 - 30	15.2	8	226	-108,990	10	175	5,834.9	4	132	5,679.0	0	0
30 - 35	17.7	6	181	-127,155	16	273	6,807.4	4	127	6,625.5	0	0
35 - 40	20.3	5	160	-145,320	22	372	7,779.9	6	165	7,572.0	0	0
40 - 45	22.8	6	186	-163,485	4	73	8,752.4	2	62	8,518.5	0	0
45 - 50	25.3	5	149	-181,650	0	0	9,724.9	1	40	9,465.0	0	0
50 - 55	27.9	6	185	-199,815	0	0	10,697.3	2	67	10,411.5	0	0
55 - 60	30.4	4	112	-217,980	0	0	11,669.8	5	149	11,358.0	0	0
60 - 65	32.9	3	102	-236,145	0	0	12,642.3	5	151	12,304.5	0	0
65 - 70	35.5	5	147	-254,310	0	0	13,614.8	6	171	13,251.0	0	0
70 - 75	38.0	2	65	-272,475	0	0	14,587.3	4	108	14,197.5	0	0
75 - 80	40.5	2	65	-290,640	0	0	15,559.8	4	127	15,144.0	0	0
80 - 85	43.1	2	65	-308,805	0	0	16,532.3	1	43	16,090.5	0	0
85 - 90	45.6	1	20	-326,970	0	0	17,504.7	2	65	17,037.0	0	0
90 - 95	48.1	1	20	-345,135	0	0	18,477.2	1	20	17,983.5	0	0
95 - 100	50.7	0	0	-363,300	0	0	19,449.7	0	0	18,930.0	100	8,760
Hours Off	0.0	0	5,777	0	0	7,072	0.0	0	5,777	0.0	0	0

BUILDING TEMPERATURE PROFILES - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

B U I L D I N G T E M P E R A T U R E P R O F I L E S

Temperature Range (F)	Room Number 1	4	2	5	3	6
Max. Temp.	104.9	99.9	87.0	93.0	83.9	84.6
Mo./Hr.	7 19	8 18	7 20	8 18	4 18	4 16
Day Type	1	1	2	1	1	2
	Number of Hours					
Above 100	0	0	0	0	0	0
95 - 100	171	0	0	0	0	0
90 - 95	514	419	0	371	0	0
85 - 90	811	755	605	1,402	0	0
80 - 85	942	892	1,848	1,144	222	501
75 - 80	694	1,243	1,007	737	844	1,567
70 - 75	867	990	612	457	7,694	6,692
65 - 70	4,743	4,332	4,688	4,649	0	0
60 - 65	18	129	0	0	0	0
55 - 60	0	0	0	0	0	0
50 - 55	0	0	0	0	0	0
Below 50	0	0	0	0	0	0
Min. Temp.	63.6	63.3	66.5	64.8	70.3	71.3
Mo./Hr.	5 6	5 6	5 7	5 6	5 8	9 7
Day Type	1	1	1	1	3	3

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	511,329
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3
1	MISC LD													
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	321,019
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ10018	2-STG CTV <555 TONS												
	ELEC	0	0	0	0	6427	10150	13350	10223	6236	0	0	0	46,385
	PK	0.0	0.0	0.0	0.0	30.5	40.6	45.8	38.6	31.5	0.0	0.0	0.0	45.8
1	EQ5100	COOLING TOWER												
	ELEC	0	0	0	0	2994	3258	3924	3710	2532	0	0	0	16,418
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	5.5
1	EQ5100	COOLING TOWER												
	WATER	0	0	0	0	31	51	66	51	31	0	0	0	230
	PK	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.2
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1928	2098	2527	2389	1630	0	0	0	10,572
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5
1	EQ5010	CONDENSER WATER PUMP C.V.												
	ELEC	0	0	0	0	2029	2208	2659	2514	1716	0	0	0	11,127

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 5265 BASERUN FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	544	592	713	674	460	0	0	0	2,983
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	0	0	0	0	0	54392	52638	54392	371,974
	PK	73.1	73.1	73.1	73.1	73.1	0.0	0.0	0.0	0.0	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2920	3506	4147	3809	2579	0	0	0	16,961
	PK	0.0	0.0	0.0	0.0	17.0	15.6	17.0	16.0	14.7	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	46344	42767	36471	11314	0	0	0	0	0	16093	25724	48592	227,304
	PK	93.2	88.8	79.5	39.8	0.0	0.0	0.0	0.0	0.0	51.3	61.1	89.4	93.2
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	6383	5765	6383	3946	0	0	0	0	0	4598	6177	6383	39,635
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	8947	8081	8947	5532	0	0	0	0	0	6446	8659	8947	55,559
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	372	336	372	230	0	0	0	0	0	268	360	372	2,310
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	421	380	421	260	0	0	0	0	0	303	407	421	2,611
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	46	42	46	29	0	0	0	0	0	33	45	46	288
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2

BLDG 5265 NIGHT SETBACK FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	WATER (1000 Gl)	GAS DMND On Peak (Thrm/hr)
Jan	152,227	456	35,543	41	132
Feb	137,580	456	33,308	37	136
March	156,126	456	27,559	37	130
April	137,586	456	8,323	14	85
May	142,233	476	0	25	0
June	131,299	477	0	46	0
July	121,651	428	0	56	0
Aug	133,382	473	0	46	0
Sept	130,900	474	0	29	0
Oct	146,310	456	11,171	16	98
Nov	144,520	456	17,525	34	113
Dec	149,605	456	37,999	41	137
Total	1,683,420	477	171,429	420	137

Building Energy Consumption = 115,089 (Btu/Sq Ft/Year)

Source Energy Consumption = 177,414 (Btu/Sq Ft/Year)

Floor Area = 198,876 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 5265 NIGHT SETBACK FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	511,329
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3
1	MISC LD													
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	321,019
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ10018	2-STG CTV <555 TONS												
	ELEC	0	0	0	0	5047	8560	10591	8544	5487	0	0	0	38,228
	PK	0.0	0.0	0.0	0.0	30.5	40.6	45.8	39.6	31.5	0.0	0.0	0.0	45.8
1	EQ5100	COOLING TOWER												
	ELEC	0	0	0	0	2020	2102	2218	2174	1926	0	0	0	10,441
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	5.5
1	EQ5100	COOLING TOWER												
	WATER	0	0	0	0	25	46	56	46	29	0	0	0	202
	PK	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.2
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1301	1354	1428	1400	1240	0	0	0	6,723
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5
1	EQ5010	CONDENSER WATER PUMP C.V.												
	ELEC	0	0	0	0	1369	1425	1503	1473	1306	0	0	0	7,076

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 5265 NIGHT SETBACK FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	367	382	403	395	350	0	0	0	1,897
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	47450	32966	24930	31210	42187	54392	52638	54392	550,717
	PK	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2771	3383	3912	3655	2519	0	0	0	16,241
	PK	0.0	0.0	0.0	0.0	17.0	15.6	17.0	17.0	14.7	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	35543	33308	27559	8323	0	0	0	0	0	11171	17525	37999	171,429
	PK	132.2	135.7	130.3	84.5	0.0	0.0	0.0	0.0	0.0	97.6	113.1	137.2	137.2
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	5585	5044	5053	1887	0	0	0	0	0	2205	4633	5585	29,992
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	7829	7071	7083	2646	0	0	0	0	0	3091	6494	7829	42,042
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	326	294	294	110	0	0	0	0	0	128	270	326	1,748
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	368	332	333	124	0	0	0	0	0	145	305	368	1,976
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	41	37	37	14	0	0	0	0	0	16	34	41	218
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 5265 DDC CONTROL FT LEONARD WOOD

M O N T H L Y E N E R G Y C O N S U M P T I O N

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	WATER (1000 Gl)	GAS DMND On Peak (Thrm/hr)
Jan	152,227	456	33,163	41	123
Feb	137,580	456	31,138	37	128
March	156,126	456	25,055	37	120
April	136,936	456	6,738	12	75
May	145,273	480	0	15	0
June	140,458	477	0	32	0
July	132,911	479	0	43	0
Aug	142,390	477	0	33	0
Sept	135,484	476	0	18	0
Oct	145,639	456	9,541	14	88
Nov	144,520	456	15,253	34	99
Dec	149,605	456	35,594	41	129
Total	1,719,149	480	156,481	356	129

Building Energy Consumption = 108,186 (Btu/Sq Ft/Year)
Source Energy Consumption = 171,342 (Btu/Sq Ft/Year)

Floor Area = 198,876 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 5265 DDC CONTROL FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													511,329
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	172.3
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	
1	MISC LD													321,019
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	169.9
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	
2	MISC LD													0
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	MISC LD													0
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4	MISC LD													0
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	MISC LD													0
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6	MISC LD													0
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0.0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
1	EQ10018	2-STG CTV <555 TONS												27,737
	ELEC	0	0	0	0	3177	6377	8197	6394	3593	0	0	0	40.0
	PK	0.0	0.0	0.0	0.0	26.0	35.2	40.0	33.3	26.9	0.0	0.0	0.0	
1	EQ5100	COOLING TOWER												8,828
	ELEC	0	0	0	0	1409	1904	2097	2042	1376	0	0	0	5.5
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	
1	EQ5100	COOLING TOWER												142
	WATER	0	0	0	0	15	32	43	33	18	0	0	0	0.2
	PK	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	
1	EQ5001	CHILLED WATER PUMP C.V.												5,685
	ELEC	0	0	0	0	907	1226	1350	1315	886	0	0	0	3.5
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	
1	EQ5010	CONDENSER WATER PUMP C.V.												5,983
	ELEC	0	0	0	0	955	1291	1421	1384	932	0	0	0	

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 3
BLDG 5265 DDC CONTROL FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	256	346	381	371	250	0	0	0	1,604
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	54392	45332	39371	43247	50595	54392	52638	54392	604,912
	PK	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2268	2854	3428	3107	1967	0	0	0	13,625
	PK	0.0	0.0	0.0	0.0	14.6	15.7	17.0	15.9	14.5	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	33163	31138	25055	6738	0	0	0	0	0	9541	15253	35594	156,481
	PK	123.3	127.7	120.2	75.3	0.0	0.0	0.0	0.0	0.0	88.4	99.1	129.4	129.4
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	5585	5044	5053	1630	0	0	0	0	0	1939	4633	5585	29,469
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	7829	7071	7083	2285	0	0	0	0	0	2718	6494	7829	41,309
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	326	294	294	95	0	0	0	0	0	113	270	326	1,718
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	368	332	333	107	0	0	0	0	0	128	305	368	1,942
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	41	37	37	12	0	0	0	0	0	14	34	41	214
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 5265 ECONOMIZER FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	WATER (1000 Gl)	GAS DMND On Peak (Thrm/hr)
Jan	152,227	456	33,163	41	123
Feb	137,580	456	31,138	37	128
March	156,126	456	25,055	37	120
April	136,936	456	6,738	12	75
May	145,134	480	0	14	0
June	140,308	477	0	31	0
July	132,830	479	0	42	0
Aug	142,204	477	0	32	0
Sept	135,301	476	0	17	0
Oct	145,639	456	9,541	14	88
Nov	144,520	456	15,253	34	99
Dec	149,605	456	35,594	41	129
Total	1,718,411	480	156,481	350	129

Building Energy Consumption = 108,173 (Btu/Sq Ft/Year)
Source Energy Consumption = 171,304 (Btu/Sq Ft/Year)

Floor Area = 198,876 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 5265 ECONOMIZER FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	511,329
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3
1	MISC LD													
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	321,019
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1001S	2-STG CTV <555 TONS												
	ELEC	0	0	0	0	3038	6227	8116	6208	3410	0	0	0	26,999
	PK	0.0	0.0	0.0	0.0	26.0	35.2	40.0	33.3	26.9	0.0	0.0	0.0	40.0
1	EQ5100	COOLING TOWER												
	ELEC	0	0	0	0	1409	1904	2097	2042	1376	0	0	0	8,828
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	5.5
1	EQ5100	COOLING TOWER												
	WATER	0	0	0	0	14	31	42	32	17	0	0	0	136
	PK	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	907	1226	1350	1315	886	0	0	0	5,685
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5
1	EQ5010	CONDENSER WATER PUMP C.V.												
	ELEC	0	0	0	0	955	1291	1421	1384	932	0	0	0	5,983

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 4
BLDG 5265 ECONOMIZER FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	256	346	381	371	250	0	0	0	1,604
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	54392	45332	39371	43247	50595	54392	52638	54392	604,912
	PK	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2268	2854	3428	3107	1967	0	0	0	13,625
	PK	0.0	0.0	0.0	0.0	14.6	15.7	17.0	15.9	14.5	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	33163	31138	25055	6738	0	0	0	0	0	9541	15253	35594	156,481
	PK	123.3	127.7	120.2	75.3	0.0	0.0	0.0	0.0	0.0	88.4	99.1	129.4	129.4
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	5585	5044	5053	1630	0	0	0	0	0	1939	4633	5585	29,469
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	7829	7071	7083	2285	0	0	0	0	0	2718	6494	7829	41,309
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	326	294	294	95	0	0	0	0	0	113	270	326	1,718
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	368	332	333	107	0	0	0	0	0	128	305	368	1,942
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	41	37	37	12	0	0	0	0	0	14	34	41	214
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

Trane Air Conditioning Economics
By: Trane Customer Direct Service Network

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 5265 OA NIGHTIME FT LEONARD WOOD

---------- M O N T H L Y E N E R G Y C O N S U M P T I O N ----------

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	WATER (1000 Gl)	GAS DMND On Peak (Thrm/hr)
Jan	154,242	456	11,704	46	33
Feb	139,400	456	10,331	42	31
March	158,987	456	8,220	45	27
April	140,187	456	1,902	21	11
May	98,318	411	0	28	0
June	102,245	422	0	46	0
July	102,925	428	0	56	0
Aug	107,260	420	0	47	0
Sept	90,772	412	0	30	0
Oct	148,326	456	2,066	22	13
Nov	145,604	456	5,006	37	18
Dec	151,621	456	12,618	46	32
Total	1,539,887	456	51,847	467	33

Building Energy Consumption = 52,497 (Btu/Sq Ft/Year)
Source Energy Consumption = 106,730 (Btu/Sq Ft/Year)

Floor Area = 198,876 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 5265 OA NIGHTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	511,329
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3
1	MISC LD													
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	321,019
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1001S	2-STG CTV <555 TONS												
	ELEC	0	0	0	0	5994	9456	11857	9634	5972	0	0	0	42,914
	PK	0.0	0.0	0.0	0.0	30.5	40.6	45.8	38.6	31.5	0.0	0.0	0.0	45.8
1	EQ5100	COOLING TOWER												
	ELEC	0	0	0	0	2994	3258	4095	3710	2532	0	0	0	16,588
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	5.5
1	EQ5100	COOLING TOWER												
	WATER	0	0	0	0	28	46	56	47	30	0	0	0	208
	PK	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.2
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1928	2098	2637	2389	1630	0	0	0	10,682
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5
1	EQ5010	CONDENSER WATER PUMP C.V.												
	ELEC	0	0	0	0	2029	2208	2775	2514	1716	0	0	0	11,242

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 1
BLDG 5265 OA NIGHTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	544	592	744	674	460	0	0	0	3,014
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	0	0	0	0	0	54392	52638	54392	371,974
	PK	73.1	73.1	73.1	73.1	0.0	0.0	0.0	0.0	0.0	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2920	3506	4152	3809	2579	0	0	0	16,966
	PK	0.0	0.0	0.0	0.0	17.0	15.6	17.0	16.0	14.7	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	11704	10331	8220	1902	0	0	0	0	0	2066	5006	12618	51,847
	PK	32.9	31.3	27.5	11.2	0.0	0.0	0.0	0.0	0.0	13.2	17.7	31.5	32.9
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	6383	5765	6185	2917	0	0	0	0	0	3003	5062	6383	35,697
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	8947	8081	8671	4089	0	0	0	0	0	4209	7095	8947	50,039
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	372	336	360	170	0	0	0	0	0	175	295	372	2,081
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	421	380	408	192	0	0	0	0	0	198	333	421	2,352
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	46	42	45	21	0	0	0	0	0	22	37	46	259
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

MONTHLY ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 5265 OA DAYTIME FT LEONARD WOOD

MONTHLY ENERGY CONSUMPTION

Month	ELEC On Peak (kWh)	DEMAND On Peak (kW)	GAS On Peak (Therm)	WATER (1000 Gl)	GAS DMND On Peak (Thrm/hr)
Jan	154,242	456	11,819	46	33
Feb	139,400	456	10,425	42	32
March	158,987	456	8,289	45	28
April	140,187	456	1,903	21	11
May	97,895	407	0	28	0
June	101,630	412	0	43	0
July	101,984	415	0	54	0
Aug	106,679	411	0	44	0
Sept	90,485	407	0	28	0
Oct	148,326	455	2,077	22	13
Nov	145,604	456	5,055	37	18
Dec	151,621	456	12,726	46	32
Total	1,537,039	456	52,294	456	33

Building Energy Consumption = 52,672 (Btu/Sq Ft/Year)
Source Energy Consumption = 106,820 (Btu/Sq Ft/Year)

Floor Area = 198,876 (Sq Ft)

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 5265 OA DAYTIME FT LEONARD WOOD

EQUIPMENT ENERGY CONSUMPTION

Ref Num	Equip Code	Monthly Consumption Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
0	LIGHTS													
	ELEC	42852	38751	45712	41008	44282	43869	41422	45712	41008	44282	41008	41422	511,329
	PK	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3	172.3
1	MISC LD													
	ELEC	26785	24231	29168	25537	27976	27919	25593	29168	25537	27976	25537	25593	321,019
	PK	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9	169.9
2	MISC LD													
	GAS	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	MISC LD													
	OIL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	MISC LD													
	P STEAM	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	MISC LD													
	P HOTH2O	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	MISC LD													
	P CHILL	0	0	0	0	0	0	0	0	0	0	0	0	0
	PK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	EQ1001S	2-STG CTV <555 TONS												
	ELEC	0	0	0	0	6007	8852	11360	9065	5693	0	0	0	40,977
	PK	0.0	0.0	0.0	0.0	25.6	29.9	32.8	29.3	25.9	0.0	0.0	0.0	32.8
1	EQ5100	COOLING TOWER												
	ELEC	0	0	0	0	2823	3258	3924	3710	2532	0	0	0	16,247
	PK	0.0	0.0	0.0	0.0	5.5	5.5	5.5	5.5	5.5	0.0	0.0	0.0	5.5
1	EQ5100	COOLING TOWER												
	WATER	0	0	0	0	28	43	54	44	28	0	0	0	197
	PK	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2
1	EQ5001	CHILLED WATER PUMP C.V.												
	ELEC	0	0	0	0	1818	2098	2527	2389	1630	0	0	0	10,462
	PK	0.0	0.0	0.0	0.0	3.5	3.5	3.5	3.5	3.5	0.0	0.0	0.0	3.5
1	EQ5010	CONDENSER WATER PUMP C.V.												
	ELEC	0	0	0	0	1913	2208	2659	2514	1716	0	0	0	11,011

EQUIPMENT ENERGY CONSUMPTION - ALTERNATIVE 2
BLDG 5265 OA DAYTIME FT LEONARD WOOD

	PK	0.0	0.0	0.0	0.0	3.7	3.7	3.7	3.7	3.7	0.0	0.0	0.0	3.7
1	EQ5300				CONTROL PANEL & INTERLOCK									
	ELEC	0	0	0	0	513	592	713	674	460	0	0	0	2,952
	PK	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0
1	EQ4371				FAN COIL SUPPLY FAN									
	ELEC	4440	4011	4440	4297	0	0	0	0	0	4440	4297	4440	30,365
	PK	6.0	6.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0	6.0
2	EQ4372				UNIT VENTILATOR FAN									
	ELEC	54392	49129	54392	52638	0	0	0	0	0	54392	52638	54392	371,974
	PK	73.1	73.1	73.1	73.1	0.0	0.0	0.0	0.0	0.0	73.1	73.1	73.1	73.1
3	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	2637	2382	2637	2552	2637	2552	2637	2637	2552	2637	2552	2637	31,045
	PK	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
4	EQ4002				BI CENTRIF. FAN C.V.									
	ELEC	0	0	0	0	2911	3495	4134	3798	2571	0	0	0	16,909
	PK	0.0	0.0	0.0	0.0	17.0	15.6	17.0	16.0	14.6	0.0	0.0	0.0	17.0
4	EQ4003				FC CENTRIF. FAN C.V.									
	ELEC	7014	6335	7014	6787	7014	6787	7014	7014	6787	7014	6787	7014	82,580
	PK	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
1	EQ2002				GAS FIRE TUBE STEAM									
	GAS	11819	10425	8289	1903	0	0	0	0	0	2077	5055	12726	52,294
	PK	33.4	31.8	27.9	11.2	0.0	0.0	0.0	0.0	0.0	13.5	17.7	32.1	33.4
1	EQ5020				HEAT WATER CIRC. PUMP C.V.									
	ELEC	6383	5765	6185	2917	0	0	0	0	0	3003	5062	6383	35,697
	PK	8.6	8.6	8.6	8.6	0.0	0.0	0.0	0.0	0.0	8.6	8.6	8.6	8.6
1	EQ5240				BOILER FORCED DRAFT FAN									
	ELEC	8947	8081	8671	4089	0	0	0	0	0	4209	7095	8947	50,039
	PK	12.0	12.0	12.0	12.0	0.0	0.0	0.0	0.0	0.0	12.0	12.0	12.0	12.0
1	EQ5307				BOILER CONTROLS									
	ELEC	372	336	360	170	0	0	0	0	0	175	295	372	2,081
	PK	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
1	EQ5061				CONDENSATE RETURN PUMP									
	ELEC	421	380	408	192	0	0	0	0	0	198	333	421	2,352
	PK	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6
1	EQ5406				MAKE-UP WATER									
	WATER	46	42	45	21	0	0	0	0	0	22	37	46	259
	PK	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1

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