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A description of the building materials data base for Cincinnati, Ohio

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A building materials sampling program for the Cincinnati, Ohio, region was conducted in January and February 1985 to examine the types and amounts of building surface materials exposed to acid deposition. The stratified, systematic, unaligned random sampling approach was used to generate sample points across four sampling frame areas. A minimum of 70 sample points was examined per sampling frame to yield a total sample size of 387 points. Building sizes, surface materials, roof characteristics, roof-mounted apparatus, chimneys, gutters, downspouts and fences were recorded. This report provides an initial summary of the data collected.

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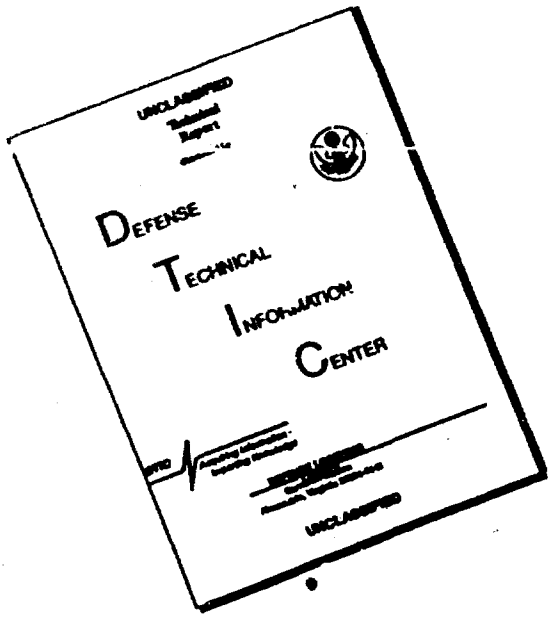

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PREFACE

This report was prepared by Carolyn J. Merry, Research Physical Scientist, Geological Sciences Branch, Research Division, U.S. Army Cold Regions Research and Engineering Laboratory, and Perry J. LaPotin, Senior Programmer, Department of Physics and Astronomy, Dartmouth College, Hanover, New Hampshire. This research has been funded as part of the National Acid Precipitation Assessment Program by the U.S. Environmental Protection Agency under reimbursable order number DW21930284-01-0.

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INTRODUCTION

Background

The Interagency Task Force on Acid Precipitation manages the National Acid Precipitation Assessment Program (NAPAP). There are ten Task Groups, one for each of the nine research areas in the National Program and one for international activities (Table 1). The goal of NAPAP is to develop and improve a data base that will help researchers understand the causes and effects of acid deposition and how it can be effectively managed. Our work on the acid rain program has been with the Environmental Protection Agency in support of Task Group G, which looks at Effects on Building Materials and Cultural Resources.

Table 1. The ten Task Groups in the National Acid Precipitation Assessment Program (after Interagency Task Force on Acid Precipitation 1984).

Task Group		Coordinating agency
A	Natural sources	NOAA
B	Man-made sources	DOE
C	Atmospheric processes	NOAA
D	Deposition monitoring	DOI
E	Aquatic effects	EPA
F	Terrestrial effects	USDA
G	Effects on materials and cultural resources	DOI
H	Control technologies	EPA
I	Assessments	EPA
J	International activities	DOS

NOAA - National Oceanic and Atmospheric Administration
DOE - Department of Energy
DOI - Department of Interior
EPA - Environmental Protection Agency
USDA - United States Department of Agriculture
DOS - Department of State

New Haven, Connecticut, was selected as the first New England test site to obtain ground truth data on building surface materials (Interagency Task Subgroup G Meeting, 14 December 1983). Data were also collected in Portland, Maine, and Pittsburgh, Pennsylvania, as part of an ongoing effort to examine the type and extent of building materials exposed to acid deposition in the northeastern U.S. Once sensitive building materials are located and their distribution understood within a few "representative" locations, the information may then be extrapolated or applied to other cities in the United States (Merry and McKim 1984).

Objective

This report presents the data base of building materials collected for Cincinnati, Ohio (Fig. 1). Distribution summaries will be presented in the form of frequency tables, summary statistics, histograms and bar charts. The data will be analyzed to determine the suitabilty of the collected variables for predicting the distribution of building materials when all surveys are completed.

Figure 1. Site location map of Cincinnati, Ohio.

DESIGN OF THE FIELD SAMPLING PROGRAM

Sample frame definition

The city of Cincinnati, Ohio, was subdivided into the sampling frames of Urban Central Business District (UCBD), Urban Livelihood, Industrial-Commercial (ULIC), Urban Multi-Family Residential (UMFR), Urban Single-Family Residential (USFR), Nonurban Suburbanizing (NSUB) and Nonurban Rural (NRUR) (Fig. 2). Each sampling frame consists of a number of census tracts that have a commonality on the basis of population density, single-unit dwellings and land use (Rosenfield 1984). The two 1980 census variables used to group the census tracts were population density (in persons per square kilometre), and dwelling units in one-unit structures (%). The three variables of land use (circa 1973) used for the grouping were built residential area (%), built nonresidential (%) and open land (%) (Table 2). The water surface area within a tract was not considered, since it was

Table 2. The U.S. Geological Survey land use and land cover categories (after Anderson et al. 1976 and Rosenfield 1984).

Collapsed categories	Level I	Level II
Built residential	1 Urban or builtup land	11 Residential
Built nonresidential		12 Commercial and services
		13 Industrial
		14 Transportation, communications and utilities
		15 Industrial and commercial complexes
		16 Mixed urban or builtup land
		17 Other urban or builtup land
	2 Agricultural Land	
Open land, with buildings		21 Cropland and pasture
		22 Orchards, groves, vineyards, nurseries and ornamental horticultural areas
		23 Confined feeding operations
		24 Other agricultural land
	3 Rangeland	
		31 Herbaceous rangeland
Open land, without buildings		32 Shrub and brush rangeland
		33 Mixed rangeland
	4 Forest Land	
		41 Deciduous forest land
		42 Evergreen forest land
		43 Mixed forest land
Omitted from analysis	5 Water	
		51 Streams and canals
		52 Lakes
		53 Reservoirs
		54 Bays and estuaries
Open land, without buildings	6 Wetland	
		61 Forested wetland
		62 Nonforested wetland
	7 Barren Land	
		71 Dry salt flats
		72 Beaches
		73 Sandy areas other than beaches
		74 Bare exposed rocks
		75 Strip mines, quarries and gravel pits
		76 Transitional areas
		77 Mixed barren land

improbable that a building would be sited there. These data were used in the Statistical Analysis System (SAS) to develop a trial classification. The classifications were adjusted by a discriminant function and by reviewing on the map the location and juxtaposition of tracts and the overall pattern of the tract classes.*

* Personal communication with James Wray, U.S. Geological Survey, 1984.

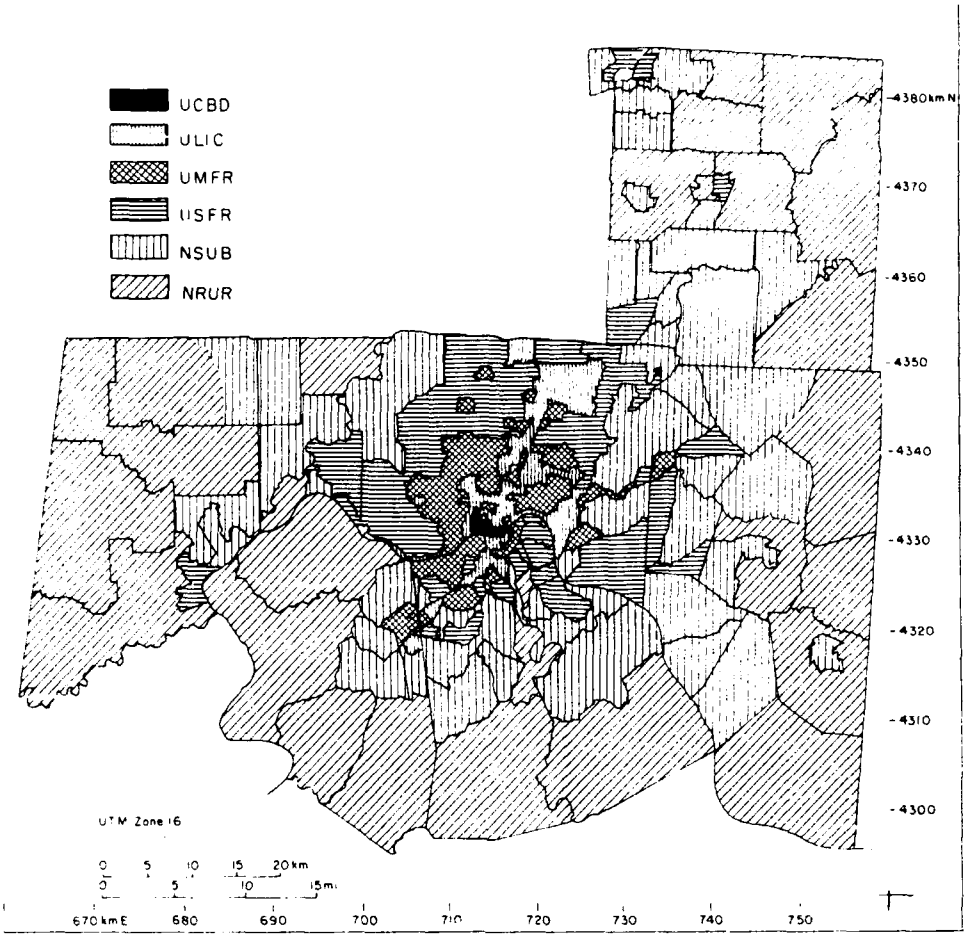


Figure 2. Sampling frames for the Cincinnati, Ohio, area (after Wray 1984).

Selection of sample points

The sample size of 70 was calculated previously from the Revere, Massachusetts, data base of buildings (Merry and LaPotin 1985a) by multiplying the minimum sample size determined from the cumulative multinomial distribution (30) by the design effect (2.34) using the Revere data (see Rosenfield 1984). To ensure the minimum of 70 buildings per sampling frame, 107 sample points were selected for each sampling frame (allowing for empty footprints in 35% of the sampled locations). The allowance for 35% empty footprints was determined from prior sampling studies in New Haven, Connecticut, and Pittsburgh, Pennsylvania (Merry and LaPotin 1985b, 1986a).

Table 3. Number of sample points for the Cincinnati, Ohio, building materials inventory.

Sampling frame	Number of points with buildings	Number of empty points	Total points
UCBD	72 (73%)	27 (27%)	99 (100%)
ULIC	48 (52%)	45 (48%)	93 (100%)
UMFR	47 (48%)	51 (52%)	98 (100%)
USFR	69 (71%)	22 (29%)	97 (100%)
NSUB	-	-	(92) (100%)
NRUR	-	-	(100) (100%)
Total*	236 (61%)	151 (39%)	387 (100%)

* Reflects only the sampled footprints. The points in the NSUB and NRUR sampling frames were not inventoried during the field survey.

The sample points were generated by the U.S. Geological Survey using a stratified, systematic, unaligned random sampling procedure. A similar sampling procedure (stratified, systematic, unaligned) was used previously by the U.S. Geological Survey for selecting samples for use in accuracy testing of the land use and land cover maps produced under the National Land Use and Land Cover Mapping Program (Ling and Rosenfield 1980). The advantage of the systematic sampling algorithm is that it distributes the sample units equitably over the entire sampling frame. In addition, it is area-weighted, which means that points are allocated on the basis of area (Rosenfield 1984). Table 3 shows the total number of points that were generated for the Cincinnati field survey program. The UTM coordinates for each sample point are shown in Appendix A.

Each sample point had a corresponding "footprint" or a given spatial area on the ground that had to be examined in the field. The total land area and the density of buildings (using the number of dwelling units) for each sampling frame from the 1980 census data were used as input to a simple PASCAL program written to determine the footprint size for each sampling frame (Appendix B). The footprint areas were constrained to sample no more than 30% of the total UCBD sampling frame. The final footprint sizes are presented in Table 4.

The field program began in January 1985 and was completed within two months by two-person teams. One person normally recorded the dimensions and material types of the building, the other person took photographs of the building and used an optical rangefinder to determine building height. Because of monetary constraints, only the four most urban sampling frames (i.e., UCBD to USFR) were inventoried in Cincinnati.

Table 4. Footprint sizes for the Cincinnati, Ohio, sampling frames.

Sampling frame	Footprint size (ft)	(m)
UCBD	435	133
ULIC	223	68
UMFR	201	61
USFR	321	98
NSUB	790	241
NRUR	1608	490

The building worksheet was developed by a committee composed of representatives from CRREL, the U.S. Environmental Protection Agency at Research Triangle Park, N.C., and the U.S. Bureau of Standards. The worksheet form was designed to provide information on the location of the building in UTM coordinates; characteristics of the surrounding terrain in terms of census tract, land use type and sampling frame; dimensions and type of building; lot size dimensions; material distribution percentages in the foundation, first story and all above stories; and the surface area and material types for the roof, roof-mounted apparatus (vents, flues, stacks, skylights and flashing), chimneys, rain gutters, downspouts and fences. The worksheet used in the Cincinnati field survey is shown in Appendix A.

DATA DESCRIPTION

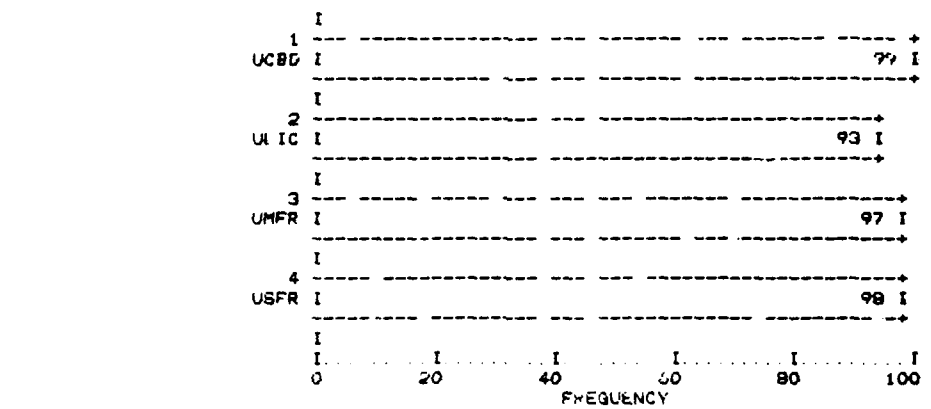
Each sample point was recorded on an individual data sheet during the survey. If the sample point was empty, the sections concerning description of the building were coded as zeros. If there was more than one building per sample point, a separate worksheet was completed for every building. From our Pittsburgh field inventory, we found that the number of buildings within a footprint could be quite high (Merry and LaPotin 1986a). Therefore, we modified the field sampling procedure to sample only the building closest to the center of the footprint, with the constraint that at least 10% of the footprint area was to be inventoried. In this manner, a maximum of three buildings was sampled for any individual

footprint. If more than one building was inventoried, a random selection was made of one of them and coded into our data base. The data were checked several times using the procedures outlined in Appendix A.

Appendix C describes the variables assigned to the Cincinnati field data. The frequency runs for the variables are organized by variable type (e.g., major classification, census tract data, general building description). Page formats are organized so that for each variable, numeric summaries are provided first (for example, the labels for each value with frequency of occurrence and percent of the distribution), followed by graphic presentation (histogram or bar chart), and ending with statistical summaries (for example, mean, mode, skewness and kurtosis). The sample size is presented at the bottom of each summary section, along with the

SFRAME SAMPLING FRAME

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
UCBD	1	99	25.6	25.6	25.6
UMIC	2	93	24.0	24.0	49.6
UMFR	3	97	25.1	25.1	74.7
USFR	4	98	25.3	25.3	100.0
	TOTAL	387	100.0	100.0	



MEAN	2.501	STD ERR	.057	MEDIAN	3.000
MODE	1.000	STD DEV	1.128	VARIANCE	1.271
KURTOSIS	-1.381	S E KURT	1.995	SKEWNESS	-.009
S E SKEW	.124	RANGE	3.000	MINIMUM	1.000
MAXIMUM	4.000	SUM	968.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
50.00	3.000	66.70	3.000	75.00	4.000
90.00	4.000				

VALID CASES 387 MISSING CASES 0

Figure 3. Sample page of frequency analysis data.

number of missing cases (or observations). Each observation corresponds to a footprint sample point for the four sampling frames in Cincinnati. Figure 3 is an example of how the frequency runs are presented in Appendix C.

Variables with continuous distributions or discrete variables with large numeric diversity are graphically represented by a histogram. Variables with small numbers of categories (e.g., sampling frame and land use), are presented by horizontal bar charts with the sample sizes shown within the bar areas. Summary statistics are included to describe the variable's distribution (e.g., mean, median, skewness and kurtosis).

Certain variables act as descriptors of building materials exposure and distribution, for example, exposed walls in footprint (EWIF) and average wall height (HT). Their corresponding frequency runs are tabulated using the sample of size 236, where buildings were observed in the footprints (Table 2). All other variables, not related to the building description, use the 387 total cases.

The column headings marked VALUE represent the actual observed value for the variable. Frequency (denoted FREQ) represents the number of cases falling within the category. Percent (PCT) and cumulative percent (CUM PCT) represent the percent of the total falling within the specified category and the running cumulative percent, respectively; the cumulative percent for the last category is always 100.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS) software on a VAX-11/785 minicomputer (Nie et al. 1975). More in-depth discussion of the summary statistics used can be found in most elementary applied statistics texts (e.g., Snedecor and Cochran 1980).

DISCUSSION

The frequencies provided in Appendix C are separated into six sections.

The Major Classification Variables are land use designation (LU), sampling frame (SFRAME), sample point number (SPOINT) and census tract (TRACT) for the 387 total observations.

The land use classification for each sample point (LU) was based on its location within the digital land use data base from the Geographic Information Retrieval and Analysis System (GIRAS) (Mitchell et al. 1977). The aerial photography used in GIRAS is from 1972-74 (Loelkes 1977). The

minimum mapping unit for the land cover map is 10 acres (0.04 km^2) for the level II categories 11-17, 23-24, 51-54, 75 and urban occurrences of 76 (Table 2). The minimum mapping unit for the remaining level II categories was 40 acres (0.16 km^2).

Almost half of the sampled structures fall within the residential land use class (LU). Another 21% are within the commercial and services land use class, 15% are within the transportation land use class and 11% are within the industrial class. These four land use types make up 93% of the footprints sampled. Cumulative percents show that 98% of the sample points fall within the level I category of urban or builtup land, with the remaining 2% found within the level I category of agriculture (the cropland category).

The sampling frame number (SFRAME) shows the distribution of footprints within a given sampling frame. The distribution is uniform across the four sampling frames, with between 93 and 99 footprints per frame. The minimum number of sampled points for a given subcategory is 93, corresponding to the ULIC class. The frequency table for SFRAME displays the sample point distribution. The histogram shows that all of the sampling frames contain the minimum of 93 points.

The census tract (TRACT) variable represents the distribution of sampled footprints within a given 1980 census tract. The majority of sample points (17%) are within census tract 10, census tract 1 in Figure 4 (each census tract shown in Appendix C should be divided by 10 to account for subdivided census tracts) that corresponds to the UCBD sampling frame (Fig. 2 and 4). Another 9% were found within two census tracts (40 and 60 located within UCBD [4 and 6 in Fig. 4]) and 4% within tract 7010 (701 in Fig. 4) in the UMFR. The remaining 71% of the sample points are distributed uniformly, ranging from 1 to 9 sample points observed within each of the remaining sampled tracts. The histogram has three modes, illustrating that most of the sampled structures fall in the following tracts: 40% in tracts that number less than 1000, 24% between tract numbers 2100 and 2600, and 27% in tracts with a number above 5100.

The second section in Appendix C is the available Census Tract Information. These seven variables are derived from the U.S. Bureau of Census (1980) for the land areas within the five land use classes given by the U.S. Geological Survey GIRAS data base (corresponding to the 131 sampled

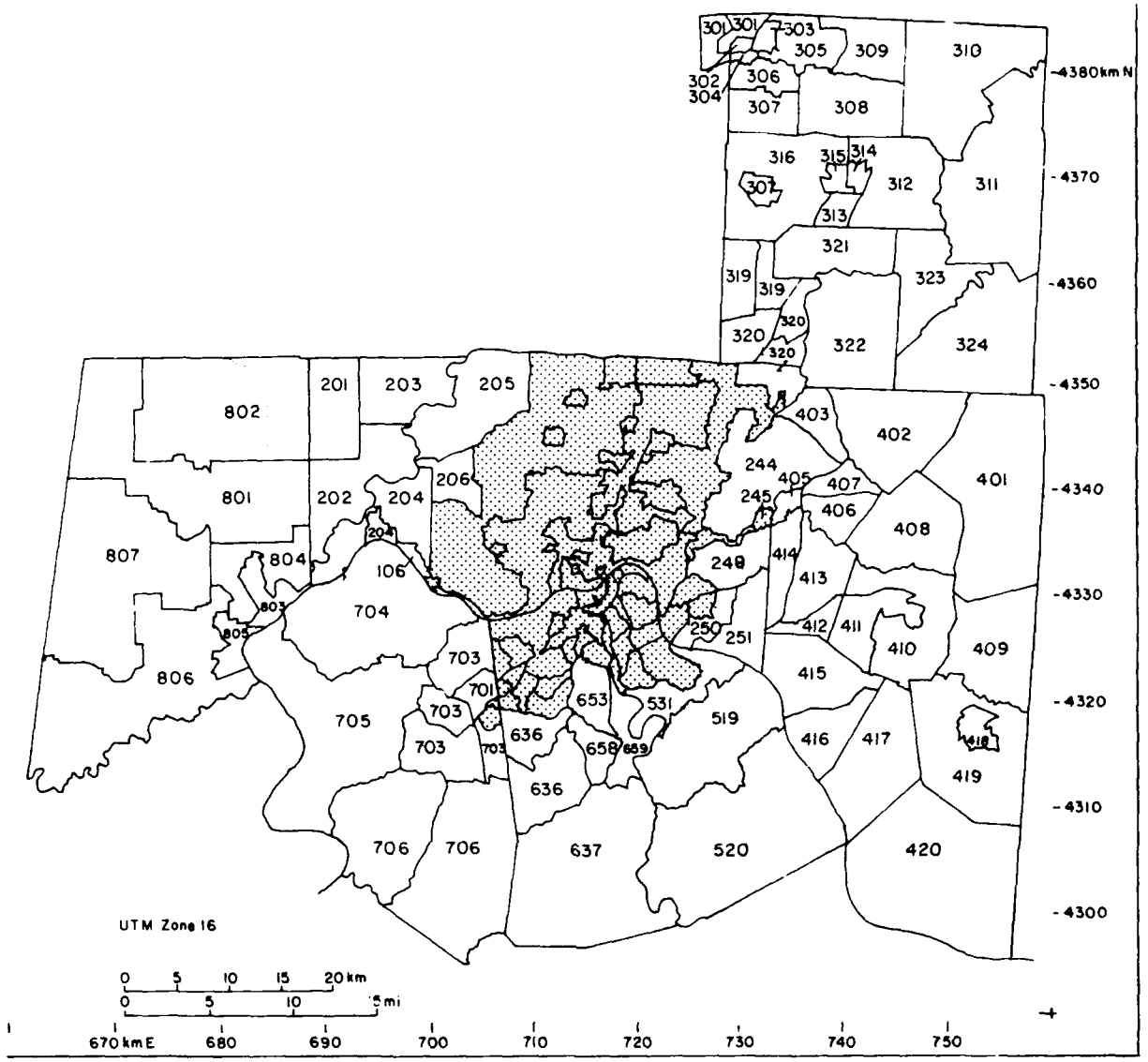


Figure 4. Census tracts for the Cincinnati, Ohio, area (after US Census Bureau 1980).

census tracts in Cincinnati). They are the total population in the census tract (POP), the total number of housing (dwelling) units in a census tract (DU) and the number of dwelling units in one-unit structures (U1), and the following four land cover classes: the built residential land use (ABR), the built nonresidential land use (ABNR), the open land containing buildings (AOB) and the open land containing no buildings (AO). All are in millions of square feet.

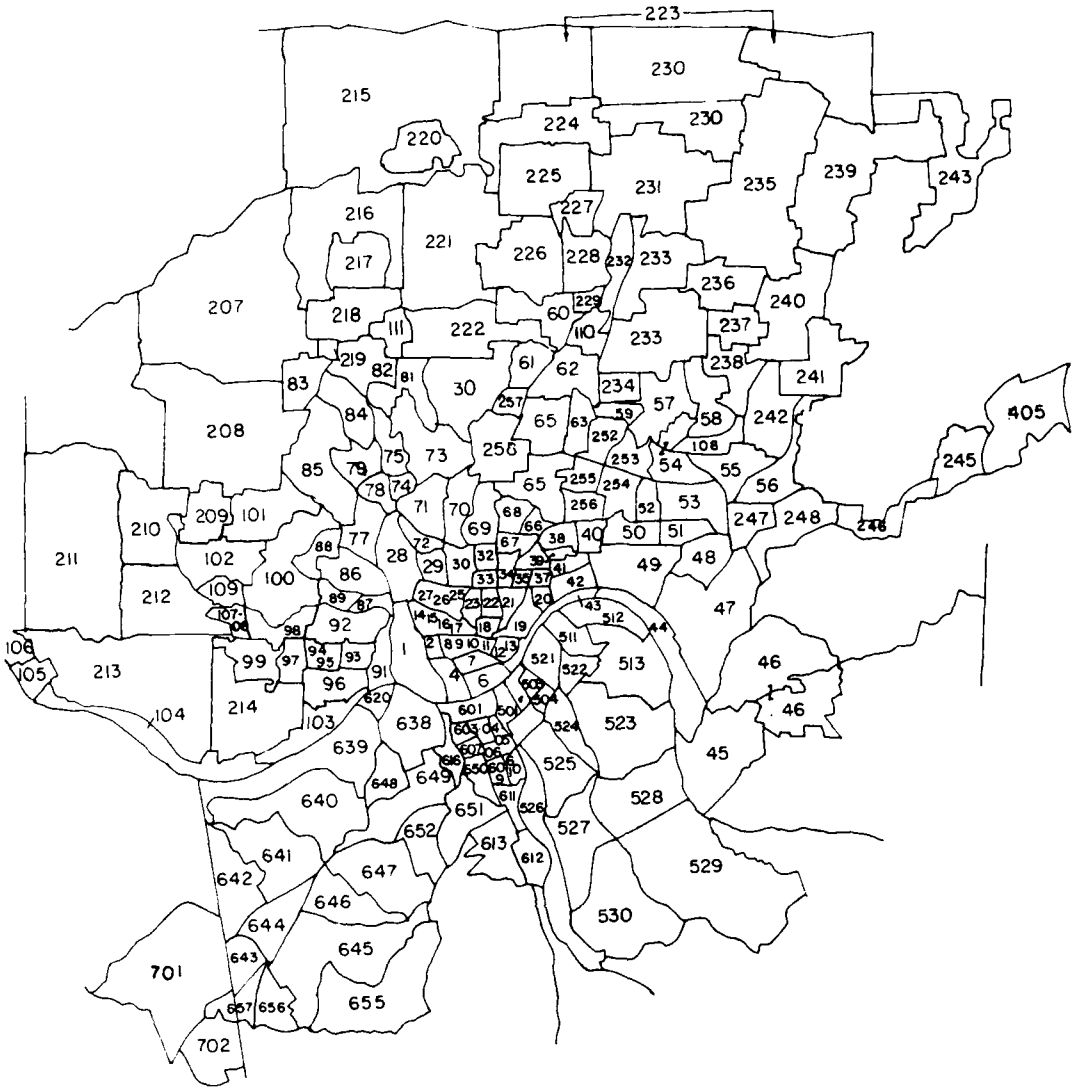


Figure 4 (cont'd).

The distribution of tract population (POP) indicates that 17% of the footprints were located in tracts with 172 persons. The average population per tract across the sampled region is 3778 persons, with a median value of 3488 persons. The populations of the Cincinnati tracts vary from 172 to over 14,060 people per census tract. However, percentiles suggest that the majority of tracts contained fewer than 7705 people (90%).

The total dwelling units in a given tract (DU) varies from 6 to 4897 units, with an average of 1433 dwelling units. The mode of 6 dwelling units per tract occurred in 17% of the sample. The inner quartile about the median ranges from 551 to 2129 total dwelling units per tract. The

average number of one-unit structures (U1) in a tract is 834. The range of dwelling units varies from 1 to 3524 units, with the most common value of one single-unit structure per tract (26%).

The built residential category (ABR) includes the level II urban category of residential (see Table 2). The built nonresidential category (ABNR) includes the urban categories of commercial and services, industrial, transportation, communications and utilities, industrial and commercial complexes, and the mixed urban or builtup land. The open land with buildings category (AOB) includes the other urban or builtup land, and the entire level I category of agricultural land. The open without buildings category (AO) includes the level I categories of rangeland, forest land, wetlands and barren land.

The land distribution in Cincinnati tends to favor built residential (ABR). Comparing medians, one notes that ABR covers 1.3 million ft^2, while built nonresidential (ABNR) accounts for 900,000 ft^2. Open land with buildings (AOB) is an order of magnitude larger than the comparable (AO) area without buildings (AOB = 70,000 ft^2; AO = 7000 ft^2).

General Building Descriptions, including wall dimensions, are the third section in Appendix C. Frequencies are tabulated using the 236 cases where buildings were observed. Variables include the approximate age of the structure (AGE), exposed walls in the footprint (EWIF), average wall height (HT), lot size (LOT1 and LOT2), number of buildings in the footprint (NBUILD), building dimensions (SIDE1 and SIDE2) and the building type (TYPE).

The first variable, AGE, represents the approximate age of the structure using the year 1900 as a base (e.g., 1984 is represented as 84, 1900 as zero, and 1801 as -99). Only 4% of the observed structures were built prior to 1900. The majority of the structures observed were built from 1930 to the present. There was a spread of 133 years in building age, a mean construction date of 1950 and a median construction date of 1959; the most frequently observed construction date was 1970. The upper third of the building age distribution begins in 1970.

The exposed walls in footprint (EWIF) is the perimeter (in feet) of the buildings contained within the footprint. EWIF is recorded for use in calculating the portion of the building wall surfaces observed within a sampled footprint. Of the 236 structures sighted, 67% show EWIF values of

280 ft and below. The histogram indicates that the distribution is skewed to the right (skewness = 1.4), with a mean value of 335 ft and a lower median value of 192 ft. The percentiles indicate that 90% of the observed structures display EWIF values below 999 ft; the inner quartile about the median ranges from 148 to 417 ft.

The average wall height (HT) in feet for a sampled structure is also provided. Over a quarter of the buildings are lower than 18 ft, and the cumulative percents suggest that the majority of observed wall heights are below 30 ft (81%). Using 12 ft per story as an average, we see that 5% of the observations are of one-story structures, 45% two-stories and below, and 88% three-stories and below. The mean value of 28 ft corresponds to an average building size of slightly over two stories. The standard deviation of 17 ft reflects the small variance of buildings found in Cincinnati, relative to the maximum observed height of 160 ft.

Lot size (LOT1 and LOT2) represents the side dimensions (in feet) of the plot of ground surrounding the building being sampled. LOT1 represents the length of the plot and LOT2 represents its respective width. The person on the survey team estimated the lot size by using markers, such as fences and the proximity of adjacent buildings. The average lot dimension was of length 201 ft and of width 243 ft. The median lot size was 100 ft in length by 150 ft in width. The most frequently observed lot dimension was 100 ft. The percentiles show that 67% of the lot dimensions were 200 ft and below. The overall range of lot dimensions was 979 ft in length and 949 ft in width.

NBUILD was a variable added to the data set to represent the total number of buildings within a footprint. Because in Pittsburgh the survey teams encountered a large number of buildings to sample within the footprint area for the UCBD sampling frame (Merry and LaPotin 1986a), we decided to inventory the building located closest to the center of the footprint, with the constraint that 10% of the footprint would be sampled. In addition, no more than three buildings per footprint were to be sampled at each point (an economic constraint). About 26% of the footprints contained either one or three buildings. The average number of buildings found within a footprint was three. Approximately 12% of the sampled footprints contained four or more buildings.

The variables SIDE1 and SIDE2 are, respectively, the length and width dimensions (in feet) of the building. The average building dimension is 123 ft in length by 113 ft in width. The median building dimension is smaller — 60 ft in length by 40 ft in width. The range of dimensions is 989 ft for SIDE1 and 993 ft for SIDE2, while the most frequently occurring dimension is 30 ft for both SIDE1 and SIDE2. Both distributions are skewed to the right (skewness values of 2.5 and 2.8 respectively) suggesting more smaller-sized structures.

The building type classification (TYPE) is used for categorizing the use of the individual structures being sampled. In the frequency distribution, 151 (39%) of the 387 sampled footprints resulted in no structures being observed (Table 3). Of the footprints containing buildings (236), almost half were found to be one-unit residential structures. The other significant building type was commercial buildings (39%). The remaining building types contained from 1 to 6 observations per category.

Actual Spatial Areas of Building Material Types are presented in the fourth part of Appendix C for the five composite building material classifications recommended by the Interagency Task Force*. These areas represent the square footage of building surface walls potentially exposed to acid deposition. The five composite building materials computed are painted materials (APAINT), mortar/masonry (AMORT), stone materials (ASTONE), galvanized metal (AGALV) and all other materials (AOTHER). From the original building worksheet (Appendix A), the 21 material types were grouped into the above five categories (Table 5).

For the area of painted materials (APAINT), 8% of the sampled structures had no painted wall surface area. The 236 sampled structures showed a mean painted wall exposure of 3821 ft^2 and a median painted exposure of 1900 ft^2. The standard deviation of 6301 ft^2 is not surprising, given the range in exposures among individual structures of 67,736 ft^2. The distribution is extremely skewed to the right (skewness = 5.4) and is far more peaked (kurtosis = 46.2) than a normal distribution with similar mean and standard error; 90% of the painted exposure per structure was found to be below the 9960 ft^2 level.

Areas of exposed mortar-masonry material (AMORT) were observed on 166 structures, indicating that 30% of the footprints with buildings had no

* Personal communication with F. Lipfert, Brookhaven National Laboratory, 1984.

Table 5. The 21 material types grouped into five material classes.

APAINT	
	Painted wood (excl. stained)
	Painted steel
	Painted aluminum
	Painted masonry
	Painted concrete
	Painted stucco
	Painted other material
	Painted other material (cannot identify)
AMORT	
	Bare brick
	Bare block
	Bare field stone
AGALV	
	Bare galvanized steel
ASTONE	
	Bare marble
	Bare limestone
	Bare granite
AOTHER	
	Bare wood (incl. stained)
	Bare concrete
	Bare glass
	Bare vinyl
	Bare other material
	Bare other material (cannot identify)

mortar-masonry exposure. The mean mortar-masonry surface area (4502 ft^2) is higher than the median exposure (1770 ft^2), reflecting the skew of the distribution to the right (skewness = 4). The range of mortar-masonry surface area is 69,930 ft^2; however, the percentiles suggest that 75% of the sampled structures exhibited mortar-masonry exposures of 3501 ft^2 and below. Only 10% of the structures had exposures greater than 11,339 ft^2.

Most structures in the Cincinnati sample exhibited little or no bare stone exposure (ASTONE). Cumulative frequencies indicate that 85% of the footprints with buildings have no exposed bare stone surfaces. Percentiles indicate that 90% of the sampled buildings displayed 355 ft^2 or less of bare stone materials; the median and mode values were 0. The maximum exposed surface area was 24,273 ft^2.

A small number of structures (2%) had bare galvanized steel exposure (AGALV). Of the 236 footprints with buildings, 6 structures were composed of some portion of bare galvanized steel. Of the sampled footprints with buildings, 98% have no galvanized steel exposure. The summary statistics show a median and mode of 0, with a mean exposure of 47 ft^2; the maximum exposed galvanized steel surface area was 7541 ft^2.

The fifth composite material class is the remaining materials category (AOTHER) that includes all other materials not classified into the above categories. The surface areas of the AOTHER category are relatively continuous and nonclustering, with a uniform frequency distribution. The percentile values reflect the uniformity of the distribution for surface wall areas of 566 ft^2 and below at the 75th percentile. The 90th percentile rises sharply to a maximum exposure for an individual building of 2332 ft^2 and above.

The fifth section in Appendix C is the Roof and Roof-Mounted Apparatus Items and Material Types. It contains the variables of exposed chimney area (CAREA), chimney material (CMAT), exposed roof area (ESAREA), roof material (ERMAT), roof slope (SLOPE) number of roof-mounted apparatus items or area (ITEM1, ITEM2, FLAREA) for the 236 observed buildings, and the roof apparatus material (RMAT, SKYM, FLMAT).

Nearly half of the structures had no chimney (CAREA = 0). The mean surface area of an observed chimney is 58 ft^2 with a standard deviation of 184 ft^2; 67% of chimney surface areas are 36 ft^2 and below. Values greater than 36 ft^2 rise uniformly toward a surface area of 800 ft^2; there were two 1800-ft^2 chimneys. The majority of chimneys (CMAT) were brick (42%). Less than 10% of the chimneys were painted or made of some other type of material.

The exposed surface area of the roof (ESAREA) shows a wide range of values from 60 to 488,400 ft^2. The mean surface area is 24,910 ft^2, with the most frequently occurring roof area (ESAREA) being 1200 ft^2, far below the average value. The standard deviation is twice the mean at 55,589 ft^2. The percentile values indicate that 67% of the roof areas are less than 7063 ft^2. The exposure rises sharply, however, over the upper 33% of the distribution.

The roof material (ERMAT) was predominantly asphalt shingle (53%). Roofs of other material types (30%) were also prevalent in Cincinnati.

Over two-thirds of the roofs were sloped, rather than flat, as illustrated by the horizontal bar chart for the variable SLOPE.

There were 160 occurrences of vents, flues and stacks in the Cincinnati sample (ITEM1). These items (RMAT) were principally bare galvanized (31%), painted material (15%) and other material types (13%).

Only one skylight was observed in Cincinnati (ITEM2). The framing material of the skylight was made of bare galvanized metal (SKYM).

There were 70 occurrences of flashing material (FLMAT) recorded. Bare galvanized (18%) was the predominant material type. The flashing area, (FLAREA) ranged from 1 ft^2 to over 999 ft^2. The average area was 23 ft^2, with a median and mode value of 0, reflecting the absence of flashing materials within the sampled region.

The last part of Appendix C presents the variables of Rain Gutters, Downspouts and Fences for the 236 sampled structures. Rain gutters (RGMAT), and downspouts (DSPOUT) were found on 171 structures. Most rain gutters and downspouts were painted. The average length of a rain gutter (RGLENGTH) was 127 ft; for a downspout (DSLENG) the average length was 64 ft. A standard deviation of 173 ft was observed for the rain gutter length; the standard deviation was smaller for the downspouts, 112 ft.

There were 68 fences (FENCE) observed within the sampled footprints. Both fence length and height were recorded in the field, but were multiplied together to obtain the fence area variable (FAREA). The material type was principally bare galvanized chain link (18%). The average fence area was 197 ft^2, with a standard deviation of 359 ft^2.

CONCLUSIONS

A building materials sampling program for the Cincinnati, Ohio, area was conducted during January and February 1985. The stratified, systematic, unaligned random sampling procedure was applied to generate sample points across the six sampling frame areas. Using this procedure, a total of 579 points with a minimum of 93 sample footprints per frame were surveyed. A diverse data set was taken on building size and surface material, roof characteristics and roof apparatus, chimneys, gutters, downspouts and fences. The Cincinnati data are summarized according to overall material distribution by structure.

Table 6. Summary statistics of the five composite material classes.

Composite material class	Mean exposure (ft^2)	Median exposure (ft^2)	Inner quartile (ft^2)	Range (ft^2)	Structures not exhibiting the material (%)
APAINT	3821	1900	561 to 4567	67736	8
AMORT	4502	1770	0 to 3502	69930	30
AGALV	47	0	0 to 0	7541	98
ASTONE	619	0	0 to 0	24273	85
AOTHER	1362	150	0 to 566	52448	44

As was found with the surveys for New Haven, Connecticut, for Portland, Maine, and for Pittsburgh, Pennsylvania, the appropriateness of the five composite material categories was seriously questioned (Merry and LaPotin 1985b, 1986a and b). In Table 6, a number of summary statistics have been assembled to reinforce this conclusion. The two categories of AGALV and ASTONE are seriously under-sampled, whereas the AOTHER category containing numerous other material types is over-used (56% occurrence frequency). In addition, inner quartiles suggest that APAINT is over-sampled; APAINT contains too many painted categories of materials and is identified on 91% of Cincinnati's sampled structures. We feel that the composite material classifications should be redistributed for future analysis of this data base. In particular, painted materials should be declustered, and galvanized and bare stone exposure should be contained within the AOTHER category, reflecting their lack of exposure in Cincinnati and in the previous three surveys of New Haven, Portland and Pittsburgh. Other categories should be constructed from the AOTHER materials. These measures would emphasize specific materials whose exposure is being masked in the present composite material classes.

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APPENDIX A: DATA

Listing of UTM coordinates for each sample point

	UTM East	UTM North	CLNS	LU
01.	712660.	4333600.	1	14
02.	712020.	4332970.	1	13
03.	712990.	4332791.	1	14
04.	712560.	4332761.	1	14
05.	712630.	4332679.	1	14
06.	713110.	4332640.	1	14
07.	712691.	4332559.	1	13
08.	712459.	4332441.	1	14
09.	712739.	4332440.	1	14
10.	712920.	4332440.	1	13
11.	713141.	4332351.	1	12
12.	713261.	4332310.	1	14
13.	712830.	4332200.	1	12
14.	712750.	4332160.	1	14
15.	713020.	4332141.	1	14
16.	712430.	4332061.	1	14
17.	713210.	4332000.	1	12
18.	713379.	4331920.	1	14
19.	712740.	4331881.	1	12
20.	712871.	4331840.	1	12
21.	712520.	4331800.	1	14
22.	712771.	4331780.	1	14
23.	713330.	4331759.	1	14
24.	712759.	4331700.	1	14
25.	712390.	4331630.	1	14
26.	713070.	4331561.	1	14
27.	712480.	4331550.	1	13
28.	712690.	4331500.	1	14
29.	712870.	4331471.	1	12
30.	713099.	4331390.	1	12
31.	713381.	4331340.	1	14
32.	713330.	4331210.	1	12
33.	713050.	4331199.	1	12
34.	712699.	4331141.	1	14
35.	712480.	4331129.	1	13
36.	712950.	4331110.	1	12
37.	712880.	4331061.	1	12
38.	713080.	4331020.	1	12
39.	712619.	4330971.	1	13
40.	713370.	4330940.	1	12
41.	713610.	4330919.	1	12
42.	713710.	4330890.	1	12
43.	712360.	4330880.	1	14
44.	713540.	4330860.	1	12
45.	713220.	4330800.	1	14
46.	713690.	4330779.	1	14
47.	713289.	4330760.	1	14
48.	712380.	4330751.	1	14
49.	712540.	4330729.	1	14
50.	714090.	4330721.	1	14
51.	712920.	4330701.	1	14
52.	713659.	4330511.	1	13
53.	713719.	4330490.	1	13
54.	712840.	4330470.	1	13
55.	713350.	4330470.	1	13
56.	713930.	4330450.	1	13
57.	713010.	4330430.	1	13
58.	713661.	4330319.	1	13
59.	713760.	4330259.	1	13
60.	714130.	4330190.	1	13
61.	713600.	4330170.	1	13
62.	713850.	4330090.	1	13
63.	714139.	4330010.	1	13
64.	713990.	4329999.	1	13
65.	714160.	4329940.	1	13
66.	713970.	4329870.	1	13
67.	714320.	4331141.	4	12
68.	713930.	4331110.	4	14
69.	714500.	4331079.	4	12
70.	714050.	4330999.	4	14
71.	714300.	4330961.	4	12
72.	714300.	4330789.	4	14
73.	714460.	4330649.	4	14
74.	714650.	4330650.	4	12
75.	714280.	4330621.	4	14
76.	714541.	4330601.	4	12
77.	714579.	4330290.	4	14
78.	714321.	4330241.	4	14
79.	714529.	4330090.	4	13
80.	714609.	4330040.	4	13
81.	714380.	4329869.	4	13
82.	716179.	4330898.	6	12
83.	716120.	4330759.	6	12
84.	715739.	4330710.	6	14
85.	715130.	4330670.	6	12
86.	714940.	4330659.	6	12
87.	715760.	4330639.	6	14
88.	715160.	4330609.	6	12
89.	714990.	4330589.	6	12
90.	715489.	4330579.	6	14
91.	714801.	4330460.	6	14
92.	715670.	4330461.	6	12
93.	715901.	4330419.	6	12
94.	715570.	4330400.	6	12
95.	715341.	4330370.	6	12
96.	714820.	4330341.	6	14
97.	714690.	4330339.	6	14
98.	715100.	4330181.	6	12
99.	714670.	4330030.	6	13
01.	715111.	4331099.	7	12
02.	713810.	4332171.	15	12
03.	716220.	4331999.	19	12
04.	715280.	4332419.	23	12
05.	712491.	4336019.	28	15
06.	712730.	4334929.	28	15
07.	713230.	4333660.	28	11
08.	712619.	4333260.	28	14
09.	714690.	4334951.	30	12
10.	715090.	4334950.	30	11
11.	714790.	4334581.	30	12
12.	717290.	4334049.	37	11
13.	717590.	4333470.	37	11
14.	717529.	4335359.	38	14
15.	722250.	4330641.	44	17
16.	722630.	4330060.	44	17
17.	724700.	4334460.	47	21
18.	724740.	4333141.	47	21
19.	723750.	4332550.	47	17
20.	722510.	4330980.	47	14
21.	721419.	4337650.	54	14
22.	723021.	4338050.	55	12
23.	724849.	4337549.	55	11
24.	718061.	4341690.	61	12
25.	717520.	4339941.	64	13
26.	717180.	4339580.	64	14
27.	717960.	4338449.	64	13
28.	716890.	4335909.	68	12
29.	711570.	4335510.	77	12
30.	711731.	4337280.	78	17
31.	711931.	4338999.	91	13
32.	737270.	4333500.	109	16
33.	718641.	4352199.	223	12
34.	719810.	4352080.	223	14
35.	719730.	4345191.	226	12
36.	722440.	4352350.	230	14
37.	722780.	4352320.	230	12
38.	724781.	4352320.	230	21
39.	722260.	4352100.	230	14

	UTM East	UTM North	CENS	LU
40.	726910.	4351650.	230	13
41.	721489.	4350910.	236	13
42.	723240.	4350540.	230	11
43.	721959.	4349620.	230	13
44.	724820.	4349021.	230	11
45.	724390.	4348600.	230	11
46.	722540.	4348040.	231	12
47.	722270.	4348470.	231	15
48.	723061.	4348019.	231	11
49.	721230.	4346630.	231	21
50.	722760.	4346300.	231	11
51.	720860.	4345829.	232	13
52.	722150.	4345520.	232	11
53.	723121.	4344950.	232	11
54.	722140.	4344330.	232	12
55.	726540.	4346670.	235	11
56.	726010.	4346660.	235	13
57.	724931.	4346610.	235	21
58.	723870.	4345980.	235	11
59.	726830.	4345890.	235	11
60.	726260.	4345850.	235	12
61.	726280.	4344740.	235	14
62.	724070.	4344439.	235	11
63.	724440.	4335349.	247	14
64.	719780.	4339310.	252	11
65.	720460.	4339230.	252	11
66.	726559.	4336510.	254	11
67.	719170.	4337631.	255	11
68.	719620.	4336070.	256	11
69.	715870.	4339390.	258	14
70.	715510.	4326621.	604	12
71.	716230.	4326510.	611	12
72.	714250.	4327490.	616	12
73.	715440.	4327710.	650	12
74.	715180.	4326869.	650	11
75.	706511.	4330889.	104	11
76.	701871.	4330139.	104	13
77.	703400.	4329320.	104	13
78.	705060.	4327909.	104	13
79.	706811.	4327550.	104	13
80.	707560.	4322721.	644	11
81.	707941.	4322180.	644	11
82.	707080.	4322130.	644	11
83.	706741.	4321860.	644	11
84.	707940.	4321739.	644	11
85.	706521.	4319670.	702	11
86.	706080.	4319529.	702	12
87.	706390.	4319239.	702	11
88.	706150.	4318781.	702	11
89.	705960.	4318710.	702	11
90.	706139.	4318470.	702	11
91.	704940.	4318320.	702	11
92.	706190.	4317460.	702	15
93.	706260.	4317429.	702	15
01.	725540.	4331166.	46	21
02.	722850.	4331080.	47	14
03.	719900.	4334540.	49	11
04.	721650.	4334500.	49	11
05.	722931.	4336110.	53	17
06.	718800.	4343690.	60	11
07.	716940.	4343480.	60	12
08.	715690.	4336121.	69	11
09.	714660.	4337240.	70	11
10.	714180.	4336269.	71	11
11.	713320.	4337971.	73	21
12.	711819.	4336389.	79	11
13.	716669.	4341529.	80	12
14.	715140.	4340810.	80	11
15.	714340.	4340149.	80	11
16.	709000.	4341930.	83	11
17.	709569.	4340479.	83	11
18.	711260.	4334410.	86	11
19.	711000.	4332620.	92	12
20.	709940.	4332300.	92	11
21.	708030.	4332990.	96	11
22.	708930.	4335869.	100	11
23.	710930.	4329910.	103	11
24.	709760.	4329521.	103	11
25.	723631.	4338499.	108	11
26.	711611.	4346539.	217	12
27.	714750.	4350079.	226	11

	UTM East	UTM North	CENS	LU
28.	713570.	4346720.	226	11
29.	719610.	4347261.	227	11
30.	722631.	4345259.	232	11
31.	721980.	4344060.	232	11
32.	719750.	4342720.	232	11
33.	726641.	4341700.	240	11
34.	727900.	4336090.	246	12
35.	735190.	4340309.	405	11
36.	734140.	4339351.	405	11
37.	733739.	4337330.	405	17
38.	717260.	4336560.	503	12
39.	717081.	4330350.	503	11
40.	717140.	4329310.	505	12
41.	716681.	4328691.	505	11
42.	715891.	4328670.	605	11
43.	716143.	4328301.	606	11
44.	716630.	4326240.	606	11
45.	715370.	4328100.	607	12
46.	715929.	4327641.	609	11
47.	716100.	4327140.	609	11
48.	713230.	4329630.	638	11
49.	713360.	4329190.	638	11
50.	713660.	4328670.	638	11
51.	713161.	4326060.	638	11
52.	711460.	4329710.	639	11
53.	711540.	4328861.	639	11
54.	712770.	4328000.	639	13
55.	712630.	4327590.	639	11
56.	708000.	4326520.	639	11
57.	708571.	4326489.	640	11
58.	708651.	4325769.	640	11
59.	709770.	4325660.	640	11
60.	709331.	4325640.	640	11
61.	710021.	4325091.	640	11
62.	707120.	4321729.	643	12
63.	707190.	4321380.	643	12
64.	707370.	4320970.	643	11
65.	706750.	4320499.	643	11
66.	709900.	4324061.	646	11
67.	710360.	4323659.	646	11
68.	710530.	4323220.	646	11
69.	711199.	4323121.	646	11
70.	710030.	4322661.	646	11
71.	711080.	4322380.	646	11
72.	711220.	4325091.	647	11
73.	711860.	4325010.	647	14
74.	712340.	4324950.	647	17
75.	711970.	4324650.	647	17
76.	710779.	4324391.	647	11
77.	710250.	4324311.	647	11
78.	710960.	4324119.	647	11
79.	711520.	4324029.	647	11
80.	711930.	4323469.	647	11
81.	714571.	4325560.	651	11
82.	705399.	4322399.	701	12
83.	704070.	4322339.	701	12
84.	706020.	4322170.	701	12
85.	704560.	4321579.	701	12
86.	706350.	4320980.	701	11
87.	702790.	4320641.	701	11
88.	706651.	4320451.	701	11
89.	702870.	4320120.	701	14
90.	706400.	4320070.	701	11
91.	704359.	4320040.	701	14
92.	704620.	4319780.	701	11
93.	703351.	4319681.	701	12
94.	705700.	4319660.	701	11
95.	704000.	4319360.	701	11
96.	704741.	4319110.	701	11
97.	704090.	4318690.	701	12
01.	726370.	4330140.	46	12
02.	707311.	4331830.	99	11
03.	699030.	4332431.	106	11
04.	713480.	4343039.	111	11
05.	699110.	4339620.	204	11
06.	694360.	4336069.	204	12
07.	697840.	4335710.	204	11
08.	707450.	4330420.	208	11
09.	706760.	4337969.	208	11
10.	704569.	4337780.	210	11
11.	704069.	4336329.	210	11

	UTM East	UTM North	CENS	LU
12.	7044 0.	4336130.	210	11
13.	706610.	4339160.	211	12
14.	699930.	4336550.	211	17
15.	701991.	4335891.	211	12
16.	702530.	4335479.	211	11
17.	703420.	4334970.	212	11
18.	704190.	4333380.	212	17
19.	700570.	4332660.	212	11
20.	703720.	4332460.	213	11
21.	704339.	4331689.	213	11
22.	703870.	4331191.	213	11
23.	716579.	4342351.	219	11
24.	715370.	4345910.	221	11
25.	714510.	4344590.	221	11
26.	719950.	4352429.	223	12
27.	719229.	4352201.	223	14
28.	717640.	4349680.	224	12
29.	717651.	4349021.	225	17
30.	716930.	4347590.	225	11
31.	717160.	4345621.	226	11
32.	718200.	4345280.	226	11
33.	717970.	4343929.	226	11
34.	724040.	4351259.	230	13
35.	721570.	4350390.	230	13
36.	723719.	4349820.	230	11
37.	724140.	4346571.	230	11
38.	722250.	4342640.	233	11
39.	723660.	4341390.	233	11
40.	721840.	4340640.	233	11
41.	727880.	4348181.	239	11
42.	729520.	4347261.	239	11
43.	727210.	4347230.	239	11
44.	726570.	4343989.	240	11
45.	727151.	4342291.	241	12
46.	728120.	4340620.	241	11
47.	726860.	4340380.	241	11
48.	725699.	4339120.	242	11
49.	725780.	4338241.	242	11
50.	731261.	4352309.	243	12
51.	731400.	4345690.	243	11
52.	732040.	4337879.	245	11
53.	728430.	4364670.	301	11
54.	732370.	4362150.	303	21
55.	730530.	4361020.	304	12
56.	740541.	4370000.	314	11
57.	732960.	4355350.	320	21
58.	735810.	4354870.	320	11
59.	737020.	4341229.	407	12
60.	738360.	4340621.	407	11
61.	737331.	4340479.	407	11
62.	740981.	4339950.	407	11
63.	734539.	4326940.	412	11
64.	734269.	4332930.	414	11
65.	732650.	4327999.	414	12
66.	720110.	4330450.	513	11
67.	720930.	4329900.	513	11
68.	718460.	4330800.	522	11
69.	718131.	4330210.	522	11
70.	719700.	4329071.	523	11
71.	720581.	4328239.	523	11
72.	720380.	4327941.	523	11
73.	717499.	4329150.	524	12
74.	718490.	4328671.	524	11
75.	719070.	4327411.	524	11
76.	717540.	4327890.	525	11
77.	718090.	4327380.	525	11
78.	720320.	4325859.	528	11
79.	71924C.	4325659.	528	11
80.	720550.	4324840.	529	11
81.	720830.	4323829.	529	11
82.	722379.	4322280.	529	11
83.	716500.	4324900.	613	11
84.	715511.	4324311.	613	12
85.	708650.	4325180.	641	11
86.	707320.	4325170.	641	11
87.	712471.	4325880.	648	11
88.	713580.	4325749.	652	11
89.	713250.	4324810.	652	11
90.	713751.	4323610.	652	11
91.	713100.	4321460.	655	11
92.	709980.	4320380.	655	11
93.	710620.	4318080.	655	11
95.	707860.	4320630.	656	11
96.	681391.	4326660.	865	11
97.	681430.	4325191.	865	12
98.	680030.	4324410.	865	11
01.	722451.	4326680.	45	11
02.	692430.	4351020.	201	21
03.	690980.	4339531.	202	21
04.	697460.	4335530.	204	21
05.	701120.	4341210.	206	17
06.	728399.	4344921.	244	12
07.	727771.	4339069.	244	11
08.	726590.	4332350.	249	11
09.	685250.	4328509.	803	21
10.	687360.	4332609.	804	14
11.	727700.	4384720.	331	21
12.	737041.	4361780.	305	11
13.	730609.	4379680.	306	11
14.	729160.	4376360.	307	11
15.	732740.	4374301.	307	11
16.	733690.	4374170.	307	11
17.	741200.	4367569.	313	12
18.	732691.	4367991.	317	21
19.	730920.	4363589.	319	21
20.	734370.	4354220.	320	11
21.	736150.	4353121.	320	11
22.	734790.	4364470.	321	21
23.	741840.	4359121.	322	11
24.	744469.	4355941.	322	11
25.	741250.	4355050.	322	11
26.	744890.	4352899.	322	11
27.	739839.	4351501.	322	22
28.	750070.	4359720.	323	11
29.	741510.	4346341.	402	11
30.	744490.	4345209.	402	11
31.	747610.	4344719.	402	11
32.	741910.	4343209.	402	11
33.	738760.	4348940.	403	11
34.	735560.	4346130.	404	11
35.	735680.	4345151.	404	11
36.	738060.	4341730.	404	11
37.	735790.	4341419.	404	11
38.	739830.	4339759.	406	11
39.	746960.	4340120.	408	11
40.	747170.	4334291.	408	11
41.	744050.	4333961.	408	12
42.	740459.	4325770.	411	11
43.	739829.	4324579.	411	11
44.	736260.	4337729.	413	14
45.	736549.	4332300.	413	11
46.	737220.	4331830.	413	11
47.	737260.	4330450.	413	11
48.	735330.	4328200.	413	11
49.	733320.	4326121.	415	12
50.	736690.	4325471.	415	17
51.	738191.	4325129.	415	11
52.	733919.	4320540.	415	14
53.	738090.	4319210.	415	11
54.	734209.	4318880.	415	14
55.	740150.	4318150.	416	11
56.	735470.	4317919.	416	11
57.	735959.	4314600.	416	11
58.	736460.	4313780.	416	11
59.	744200.	4321481.	417	11
60.	745771.	4314209.	417	11
61.	738990.	4313280.	417	11
62.	743420.	4311249.	417	11
63.	739841.	4308539.	417	11
64.	751620.	4316671.	418	12
65.	716670.	4326080.	526	14
66.	719520.	4322581.	530	11
67.	719770.	4322369.	530	11
68.	723270.	4317510.	531	11
69.	712960.	4314681.	636	11
70.	713131.	4312950.	636	11
71.	711130.	4310089.	636	11
72.	714610.	4309931.	636	12
73.	713390.	4309610.	636	11
74.	710980.	4308020.	636	11
75.	707250.	4323050.	642	21
76.	708721.	4321980.	645	13

	UTM East	UTM North	CLNS	LU
77.	708720.	4320370.	645	11
78.	716090.	4322430.	653	11
79.	715870.	4321760.	653	11
80.	716760.	4320940.	653	11
81.	716650.	4318779.	653	11
82.	715950.	4316310.	653	11
83.	716530.	4320620.	654	21
84.	716050.	4316390.	656	11
85.	716730.	4315710.	658	11
86.	714570.	4315550.	658	11
87.	716021.	4314940.	656	11
88.	717650.	4313980.	658	11
89.	704740.	4323619.	703	15
90.	705871.	4323590.	703	11
91.	703370.	4319640.	703	12
92.	704440.	4317790.	703	11
01.	738480.	4379321.	308	21
02.	737270.	4376861.	308	21
03.	740860.	4376040.	308	21
04.	739450.	4375249.	308	21
05.	744400.	4374380.	308	21
06.	741640.	4384859.	309	21
07.	738270.	4384670.	309	21
08.	743381.	4382969.	309	21
09.	743920.	4381220.	309	21
10.	749460.	4384500.	310	11
11.	754130.	4384310.	310	21
12.	754600.	4380530.	310	21
13.	746830.	4375420.	310	21
14.	746519.	4375159.	310	11
15.	755570.	4374449.	311	21
16.	753760.	4371080.	311	21
17.	754259.	4367760.	311	21
18.	751360.	4366170.	311	21
19.	744899.	4370050.	312	21
20.	747190.	4369319.	312	21
21.	743140.	4367019.	312	21
22.	746691.	4366350.	312	21
23.	742050.	4365380.	312	21
24.	737460.	4370110.	316	21
25.	731041.	4369491.	316	21
26.	734410.	4369490.	316	21
27.	733069.	4366230.	316	21
28.	732359.	4365390.	316	21
29.	755190.	4359130.	324	21
30.	754220.	4358351.	324	21
31.	751989.	4357920.	324	21
32.	748380.	4353999.	324	21
33.	755860.	4353211.	324	21
34.	751141.	4351980.	324	21
35.	755920.	4350371.	324	21
36.	755020.	4339089.	401	21
37.	754670.	4334300.	401	21
38.	754030.	4327190.	409	21
39.	753130.	4324499.	409	21
40.	747270.	4314190.	419	21
41.	753470.	4313591.	419	21
42.	750860.	4306059.	420	21

	UTM East	UTM North	CLNS	LU
43.	749020.	4305660.	420	21
44.	753670.	4302799.	420	21
45.	744800.	4301790.	420	21
46.	732680.	4315500.	520	17
47.	731430.	4314630.	520	21
48.	727560.	4307220.	520	17
49.	726821.	4307140.	520	17
50.	723331.	4305979.	520	21
51.	731430.	4305831.	520	11
52.	736779.	4305340.	520	21
53.	734260.	4305260.	520	21
54.	724611.	4305231.	520	11
55.	715049.	4309949.	637	11
56.	721250.	4309111.	637	11
57.	717410.	4306919.	637	21
58.	721130.	4306321.	637	11
59.	714189.	4305860.	637	21
60.	717239.	4304940.	637	11
61.	720920.	4304940.	637	11
62.	719730.	4304840.	637	21
63.	713770.	4302700.	637	11
64.	713770.	4303639.	637	11
65.	711890.	4304411.	637	21
66.	716110.	4298689.	637	11
67.	717860.	4318219.	659	21
68.	718201.	4318130.	659	21
69.	719790.	4314621.	659	11
70.	718459.	4313529.	659	11
71.	717530.	4312180.	659	21
72.	692980.	4351451.	203	21
73.	697910.	4351310.	203	21
74.	693511.	4350140.	203	21
75.	699630.	4349969.	203	21
76.	703990.	4311190.	706	21
77.	701510.	4307220.	706	21
78.	700150.	4306960.	706	21
79.	701240.	4301390.	706	21
80.	699510.	4300210.	706	11
81.	671660.	4342219.	801	21
82.	667449.	4341940.	801	21
83.	677959.	4341179.	801	21
84.	684820.	4341160.	801	11
85.	680690.	4339861.	801	21
86.	674980.	4349591.	802	12
87.	680540.	4347560.	802	21
88.	678250.	4345510.	802	21
89.	684020.	4345430.	802	11
90.	682480.	4344960.	802	21
91.	677881.	4325281.	806	21
92.	676910.	4323969.	806	21
93.	672139.	4322820.	806	11
94.	676290.	4321880.	806	21
95.	667270.	4320939.	806	21
96.	665019.	4335591.	807	21
97.	672580.	4335000.	807	21
98.	676839.	4333790.	807	21
99.	677459.	4332750.	807	22
100.	664530.	4332370.	807	21

ROOFS

44 ___ Material: tar,[1] asphalt shingle,[2] wood,[3] painted metal,[4] bare galvanized,[5] tile,[6] slate,[7] copper,[8] other[9] (_____), cannot identify[10]

45 ___ Sloped[1] or flat[2]

46-51 ___ Surface area (sq ft)

ROOF-MOUNTED APPARATUS

52 ___ Vents, flues, and stacks: painted,[1] bare galvanized,[2] bare aluminum,[3] other[4] (_____), cannot identify[9]

53-54 ___ Number of items

55 ___ Skylights (framing): painted,[1] bare galvanized,[2] bare aluminum,[3] other[4] (_____), cannot identify[9]

56-57 ___ Number of skylights

58 ___ Flashing: painted,[1] bare galvanized,[2] bare aluminum,[3] other[4] (_____), cannot identify[9]

59-61 ___ Area (sq ft)

CHIMNEYS

62 ___ Material: painted,[1] brick,[2] stone,[3] other[4] (_____), cannot identify[9]

63-66 ___ Exposed surface area (sq ft)

RAIN GUTTERS

67 ___ Material: painted,[1] bare galvanized,[2] vinyl,[3] copper,[4] other[5] (_____), cannot identify[9]

68-70 ___ Length (ft)

DOWNSPOUTS

71 ___ Material: painted,[1] bare galvanized,[2] vinyl,[3] copper,[4] other[5] (_____), cannot identify[9]

72-74 ___ Length (ft)

FENCES

75 ___ Material: bare galvanized chain link,[1] bare galvanized stock,[2] painted,[3] brick,[4] concrete block,[5] field stone,[6] bare wood,[7] other[8] (_____), cannot identify[9]

76-78 ___ Length (ft)

79-80 ___ Height (ft)

BUILDING INVENTORY WORKSHEET

1-4 _____ Tract/MCD

5 _____ Sampling frame

6-8 _____ Sample point number

9-10 _____ USGS land cover unit

11-12 _____ Building type:

Residential
- 1 unit[1]
- 2 units[2]
- 3-4 units[3]
- 5-9 units[4]
- 10-19 units[5]
- 20-49 units[6]
- > 50 units[7]

- Office[8]
- Commercial[9]
- Industrial[10]
- Educational[11]
- Religious[12]
- Health[13]
- Farm[14]
- Other (_____)[15]
- Cannot identify[16]

31 AUG 84

Sketch of Building

___ WINDOWS ___ = ___ :

___ WINDOWS ● ___ = ___ :

___ WINDOWS ● ___ = ___ :

___ WINDOWS ● ___ = ___ :

ESTIMATED QUANTITIES OF BUILDING MATERIALS

FIRST STORY **ALL STORIES ABOVE 1st**

SIDE 1:

SIDE 2:

SIDE 3:

SIDE 4:

13-15	_____	Age of building
16-18	_____	Height (ft)
19-21	_____	Side 1 (ft)
22-24	_____	Side 2 (ft)
25-27	_____	Lot size, side 1 (ft)
28-30	_____	Lot size, side 2 (ft)
31-33	_____	Exposed walls in footprint (ft)

Photo ID _____

Street address _____

SPECIAL NOTES/SKETCH:

	Wall area (%)		
	Foundation	*1st story*	*All stories above 1st*
Painted walls			
1. Wood (excl. stained)	_____	_____	_____
2. Steel	_____	_____	_____
3. Aluminum	_____	_____	_____
4. Masonry	_____	_____	_____
5. Concrete	_____	_____	_____
6. Stucco	_____	_____	_____
7. Other (_____)	_____	_____	_____
8. Cannot identify	_____	_____	_____
Bare walls			
9. Wood (incl. stained)	_____	_____	_____
10. Galvanized steel	_____	_____	_____
11. Concrete	_____	_____	_____
12. Brick	_____	_____	_____
13. Block	_____	_____	_____
14. Field stone	_____	_____	_____
15. Marble	_____	_____	_____
16. Limestone	_____	_____	_____
17. Granite	_____	_____	_____
18. Glass	_____	_____	_____
19. Vinyl	_____	_____	_____
20. Other (_____)	_____	_____	_____
21. Cannot identify	_____	_____	_____
Total	100	100	100

Procedures used to check the data

The data were checked several ways to ensure that the data base was correct. A major check of the material type percentages and the EWIF value was done before printing a frequency run of the entire data set.

The percentage check done was to sum the percentage of material types for the three stories of the building. We needed to ensure that the sum of all material types was 100%. Also, during the same computer run, we checked to see that every building had a foundation. (In some cases, the field team had not recorded a foundation.) For these cases, the photo with each building was examined to determine the material type of the foundation. We assumed 12 ft for the first story component of the building. In addition, during the same computer run, we would print out cases where the building height was greater than 14 ft (assuming 2 ft for the foundation and 12 ft for the first story) and there were no percentages recorded for the second and above stories.

The EWIF value was also checked against the lot size and the building side dimensions. A printout of these values was obtained for every building. We assumed that the building sides were the square root of the exposed roof area and would check to make sure that the EWIF was not larger than the building sides. There was also a check to ensure that the building was not larger than the lot size dimensions.

Several hand calculations were done for the building surface areas and compared against the computer-calculated surface areas. These values had to be consistent for different types of materials for a given building.

The frequency runs were checked for a number of items. The number of downspouts had to be the same as the number of rain gutters.

The empty footprints were noted for each sampling frame and verified against the number of buildings expected for each sampling frame.

The tally of land use and census tract numbers also had to be correct for each sampling frame.

The number of roof areas had to equal the number of buildings.

The number of cases had to be the same for a given accessory. For example, the number of material types and the surface area values had to be the same for the variables of roofs, fences, downspouts, rain gutters and roof-mounted apparatus. Although not every building had all these compon-

ents, if the value was recorded, then each material type had to have a corresponding surface area.

Strange or unexpected numbers for all the variables were always doublechecked against the building worksheets. For example, the EWIF values were always fairly even in value or divisible by 5. Any unusual numbers or large numbers were doublechecked, not only for the EWIF, but for the other variables as well.

APPENDIX B: PROGRAM LISTING FOR DETERMINING FOOTPRINT SIZE FOR EACH SAMPLING FRAME

```
program FootSize (input, output);
{Footsize is a simple program for calculating footprint size for other}
{sampling frames based on some assumptions placed in the UCBD. The}
{following assumption pertain to the UCBD :}
{1. The sample size will be 107, allowing for empty footprints in 35% of}
{the sampled locations.}
{2. The alpha or proportionality coefficient, used to scale the remaining}
{sampling frames will be set to ensure that 30% of the spacial area }
{remains open in the UCBD}

 const
  size = 107;                    {sample size in the UCBD}
  frames = 6;                    {# of sampling frames}
  alpha = 0.026051;              {proportionality coefficient  derived}
                                 {from the 30% open area in the UCBD}

{density coefficients by SFrame location...change these for each city}

  dUCBD = 1.47e-5;
  dULIC = 5.6e-5;
  dUMFR = 6.9e-5;
  dUSFR = 0.447e-5;
  dNSUB = 2.7e-5;
  dNRUR = 0.1078e-5;

{**************************************************}

 var
  footFt, footM : integer;       {footprint size in both Feet and Meters}
  Alabel : str255;               {A labeler for the sampling frames}
  i : integer;                   {some counter variable OK?}

 function density (frame : integer) : real;
{A simple function to return the density values to the main loop, it also}
{sets a labeler to be used in the final output table.}
```

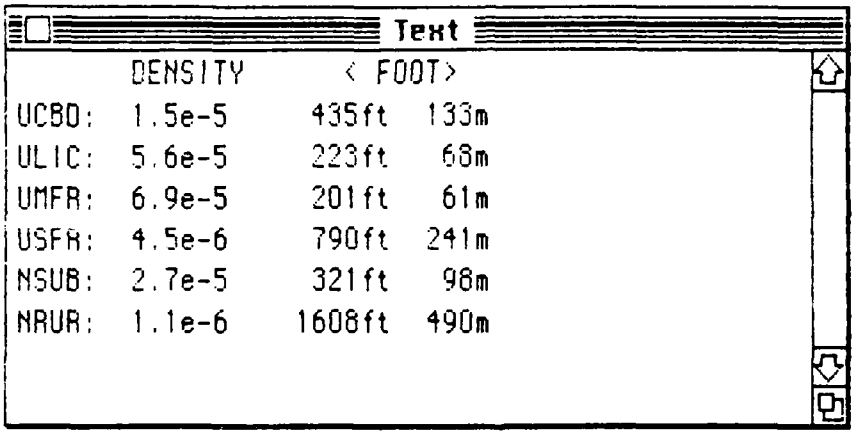
```
    begin
     case frame of
      1 :
       begin
        density := dUCBD;
        Alabel := 'UCBD: ';
       end;
      2 :
     begin
      density := dULIC;
      Alabel := 'ULIC: ';
     end;
    3 :
     begin
      density := dUMFR;
      Alabel := 'UMFR: ';
     end;
    4 :
     begin
      density := dUSFR;
      Alabel := 'USFR: ';
     end;
    5 :
     begin
      density := dNSUB;
      Alabel := 'NSUB: ';
     end;
    6 :
     begin
      density := dNRUR;
      Alabel := 'NRUR: ';
     end;
    otherwise
   end; {Case frame of}
  end;{Adensity}

  begin {main}
  {Label the simple table and calculate the footprint sizes, first in feet}
  {and then in meters.  Print back out the label,density, and footprint}
  {sizes on the current textport window}
```

```
writeln('      DENSITY      < FOOT>');
showText;

for i := i to frames do
 begin
  if density(i) > 0 then  {check first to see if density > 0}
   begin
    footFt := round(sqrt(alpha * size / density(i)));
    footM := round(sqrt((alpha * size / density(i)) / 10.76));
    writeln(Alabel, density(i) : 5, footFt : 5, 'ft', footM : 5, 'm');

   end
  else
   writeln(Alabel, ' undef      undef  undef ');
 end;
end.
```



APPENDIX C. RESULTS OF THE FREQUENCY ANALYSIS

Description of the variables

Variable name	Brief description	Detailed description
LU	Land use	U.S. Geological Survey land use classification, where: 11 = residential, 12 = commercial and services, 13 = industrial, 14 = transportation, communications and utilities, 15 = industrial and commercial complexes, 16 = mixed urban or builtup land, 17 = other urban and or builtup land, 21 = cropland and pasture, 22 = orchards, groves, vineyards, nurseries and ornamental agricultural areas, 23 = confined feeding operations, 24 = other agricultural land, 31 = herbaceous rangeland, 32 = shrub and brush rangeland, 33 = mixed rangeland, 41 = deciduous forestland, 42 = evergreen forestland, 43 = mixed forestland, 51 = streams and canals, 52 = lakes, 53 = reservoirs, 54 = bays and estuaries, 61 = forested wetland, 62 = nonforested wetland, 71 = dry salt flats, 72 = beaches, 73 = sandy areas other than beaches, 74 = bare exposed rock, 75 = strip mines, quarries and gravel pits, 76 = transitional areas, 77 = mixed barren land.
SFRAME	Sampling frame	Sampling frame, see Figure 2, where: 1 = UCBD 2 = ULIC 3 = UMFR 4 = USFR 5 = NSUB 6 = NRUR
SPOINT	Sample point number	Sampling point number within sampling frame.
TRACT	Census tract	Census tract number, see Figure 4.
POP	Tract population	Total population in census tract.
DU	Total dwelling units in tract	Total number of housing units in census tract.
U1	One-unit structures in tract	Number of dwelling units in one-unit structures in census tract.
ABR	Area of built residential	Land area of census tract in built residential (millions of ft^2).
ABNR	Area of built nonresidential	Land area of census tract in built nonresidential (millions of ft^2).
AOB	Area of open land with buildings	Land area of census tract in open land with buildings (millions of ft^2).

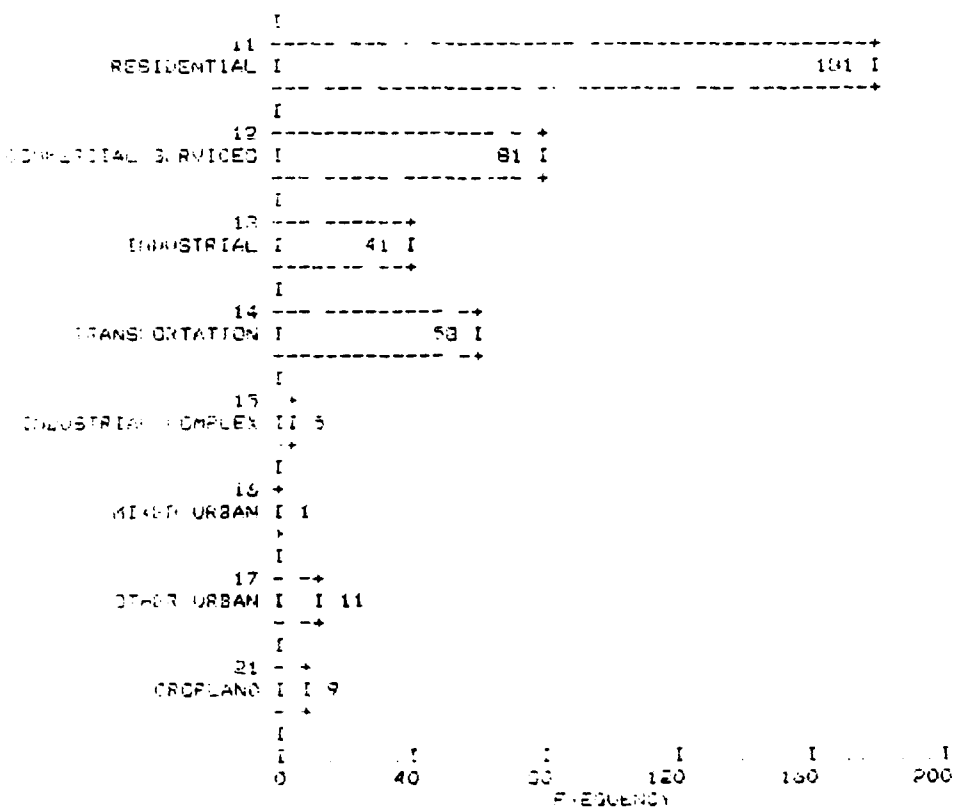
AO	Area of open land without buildings	Land area of census tract in open land with buildings (millions of ft^2).
AGE	Approx. age of structure	Approximate age of the building. 1900 is the base year (year 0). To obtain age, add the value to 1900. Ages less than 1900 are coded as negative values.
EWIF	Exposed wall in footprint	Exposed walls within a given footprint (ft).
HT	Average wall height	Average building height (ft).
LOT1	Lot size, side one	Lot size of one side associated with sampling point (ft).
LOT2	Lot size, side two	Lot size of the other side associated with sampling point (ft).
NBUILD	Number of buildings in footprint	The total number of buildings within the footprint.
SIDE1	Side one of building	Dimensions of one side of the building (ft).
SIDE2	Side two of building	Dimensions of the other side of the building (ft).
TYPE	Structure type-usage	Value label assigned to structure, where: 0 = no building, 1 = 1 housing unit, 2 = 2 housing units, 3 = 3 to 4 housing units, 4 = 5 to 9 housing units, 5 = 10 to 19 housing units, 6 = 20 to 49 housing units, 7 = 50 or more housing units, 8 = office buildings, 9 = commercial buildings, 10 = industrial buildings, 11 = educational building, 12 = religious building, 13 = health related buildings, 14 = farm, 15 = other buildings, 16 = cannot identify building.
APAINT	Area of painted surface	The total surface area of the building containing painted materials (ft^2).
AMORT	Area of mortar-masonry surface	The total surface area of the building containing mortar and masonry materials (ft^2).
ASTONE	Area of stone surface	The total surface area of the building containing stone materials (ft^2).
AGALV	Area of galvanized surface	The total surface area of the building containing galvanized material (ft^2).
AOTHER	Area of other materials	The total surface area of the building containing all other materials (ft^2).
CAREA	Exposed chimney area	Exposed surface area of chimney above roof (ft^2).
CMAT	Chimney material	Chimney material type, where: 0 = no chimney observed, 1 = painted, 2 = brick, 3 = stone, 4 = other chimney material, and 9 = cannot identify chimney material.

ESAREA	Area of exposed roof	Exposed roof area of building (ft^2).
ERMAT	Roof material type	Exposed roof material, where: 0 = no roof observed, 1 = tar, 2 = asphalt shingle, 3 = wood, 4 = painted metal, 5 = bare galvanized, 6 = tile, 7 = slate, 8 = copper, 9 = other roof material, and 10 = cannot identify roof material.
SLOPE	Roof slope	Roof configuration: 0 = no roof observed, 1 = sloped, 2 = flat.
ITEM1	No. of vents, flues, stacks	Number of items of roof-mounted apparatus.
RMAT	Roof apparatus material	Material type of roof-mounted apparatus, where: 0 = no roof apparatus material, 1 = painted, 2 = bare galvanized, 3 = bare alumimun, 4 = other roof-mounted apparatus material, and 9 = cannot identify roof-mounted apparatus material.
ITEM2	Skylights	Number of skylights.
SKYM	Skylight material	Framing material type of skylights where: 0 = no framing material of skylights observed, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other material types, and 9 = cannot identify material type.
FLMAT	Flashing material	Flashing material type, where: 0 = no flashing material observed, 1 = painted, 2 = bare galvanized, 3 = bare aluminum, 4 = other flashing material, and 9 = cannot identify flashing material.
FLAREA	Flashing area	Flashing surface area (ft^2).
RGMAT	Rain gutter material	Rain gutter material type, where: 0 = no rain gutters observed, 1 = painted, 2 = bare galvanized, 3 = vinyl, 4 = copper, 5 = other rain gutter material, and 9 = cannot identify rain gutter material.
RGLENGTH	Rain gutter length	Total length of rain gutters (ft).
DSPOUT	Material of downspout	Material type of downspouts, where: 0 = no downspout observed, 1 = painted, 2 = bare galvanized, 3 = vinyl, 4 = copper, 5 = other downspout material, and 9 = cannot identify downspout material.
DSLENG	Downspout length	Length of downspout (ft).
FENCE	Fence type	Material type of fences, where: 0 = no fences observed, 1 = bare galvanized chain link, 2 = bare galvanized stock, 3 = painted fence, 4 = brick, 5 = concrete block, 6 = field stone, 7 = bare wood, 8 = other fence material, and 9 = cannot identify fence material.
FAREA	Fence area	Area of fence (ft^3).

Major classification variables

LAND USE DESIGNATION

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
RESIDENTIAL	11	181	46.8	46.8	46.8
COMMERCIAL SERVICES	12	81	20.9	20.9	67.7
INDUSTRIAL	13	41	10.6	10.6	78.3
TRANSPORTATION	14	58	15.0	15.0	93.3
INDUSTRIAL COMPLEX	15	5	1.3	1.3	94.6
MIXED URBAN	16	1	.3	.3	94.8
OTHER URBAN	17	11	2.8	2.8	97.7
CROPLAND	21	9	2.3	2.3	100.0
	TOTAL	387	100.0	100.0	



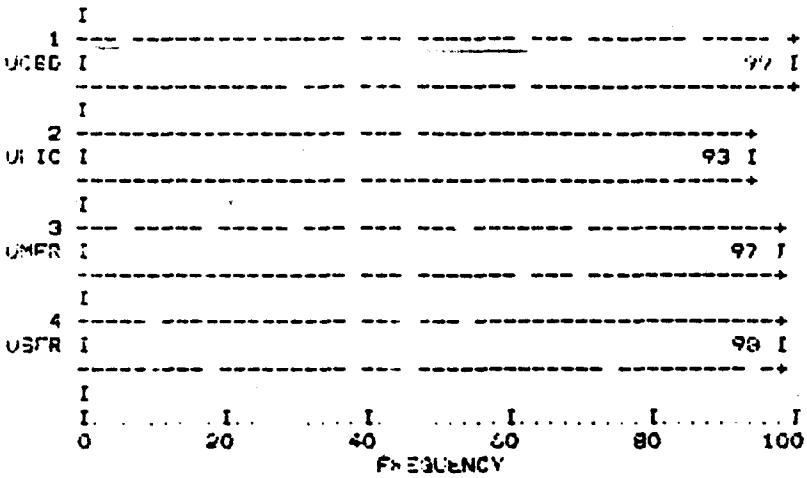
MEAN	12.339	STD ERR	.099	MEDIAN	12.000
MODE	11.000	STD DEV	1.955	VARIANCE	3.820
KURTOSIS	7.309	S E SKEW	1.995	SKEWNESS	2.423
S E KURT	.124	RANGE	10.000	MINIMUM	11.000
MAXIMUM	21.000	SUM	4775.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	11.000	25.00	11.000	33.30	11.000
50.00	12.000	66.70	12.000	75.00	13.000
90.00	14.000				

VALID CASES 387 MISSING CASES 0

SAMPLING FRAME

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
USED	1	99	25.6	25.6	25.6
[illegible]	2	93	24.0	24.0	49.6
[illegible]	3	97	25.1	25.1	74.7
[illegible]	4	98	25.3	25.3	100.0
	TOTAL	387	100.0	100.0	



MEAN	2.501	STD ERR	.057	MEDIAN	3.000
MODE	1.000	STD DEV	1.128	VARIANCE	1.271
KURTOSIS	-1.381	S E KURT	1.995	SKEWNESS	-.009
S E SKEW	.124	RANGE	3.000	MINIMUM	1.000
MAXIMUM	4.000	SUM	968.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
50.00	3.000	66.70	3.000	75.00	4.000
90.00	4.000				

VALID CASES 387 MISSING CASES 0

SPOINT SAMPLE POINT NUMBER

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
1	4	1	1	34	4	1	33	67	4	1	69
2	4	1	2	35	4	1	36	68	4	1	70
3	4	1	3	36	4	1	37	69	4	1	71
4	4	1	4	37	4	1	38	70	4	1	72
5	4	1	5	38	4	1	39	71	4	1	73
6	4	1	6	39	4	1	40	72	4	1	74
7	4	1	7	40	4	1	41	73	4	1	75
8	4	1	8	41	4	1	42	74	4	1	76
9	4	1	9	42	4	1	43	75	4	1	78
10	4	1	10	43	4	1	44	76	4	1	79
11	4	1	11	44	4	1	45	77	4	1	80
12	4	1	12	45	4	1	47	78	4	1	81
13	4	1	13	46	4	1	48	79	4	1	82
14	4	1	14	47	4	1	49	80	4	1	83
15	4	1	16	48	4	1	50	81	4	1	84
16	4	1	17	49	4	1	51	82	4	1	85
17	4	1	18	50	4	1	52	83	4	1	86

19	4	1	19	51	4	1	53	84	4	1	87
20	4	1	20	52	4	1	54	85	4	1	88
21	4	1	21	53	4	1	55	86	4	1	89
22	4	1	22	54	4	1	56	87	4	1	90
23	4	1	23	55	4	1	57	88	4	1	91
24	4	1	24	56	4	1	58	89	4	1	92
25	4	1	25	57	4	1	59	90	4	1	93
26	4	1	26	58	4	1	60	91	4	1	94
27	4	1	27	59	4	1	61	92	4	1	95
28	4	1	28	60	4	1	62	93	4	1	96
29	4	1	29	61	4	1	63	94	3	1	97
30	4	1	30	62	4	1	64	95	3	1	98
31	4	1	31	63	4	1	65	96	3	1	98
32	4	1	32	64	4	1	66	97	3	1	99
33	4	1	33	65	4	1	67	98	2	1	100
34	4	1	34	66	4	1	68	99	1	0	100

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY .40 OCCURRENCES
3	0	*********
20	5	**********
10	10	**********
20	15	**********
20	20	**********
20	25	**********
20	30	**********
20	35	**********
20	40	**********
20	45	**********
20	50	**********
20	55	**********
20	60	**********
20	65	**********
20	70	**********
20	75	**********
20	80	**********
20	85	**********
20	90	**********
16	95	**********
3	100	********

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          I    +    I    +    I    +    I    +    I    +    I
          0         4         8         12        16        20
                  HISTOGRAM FREQUENCY
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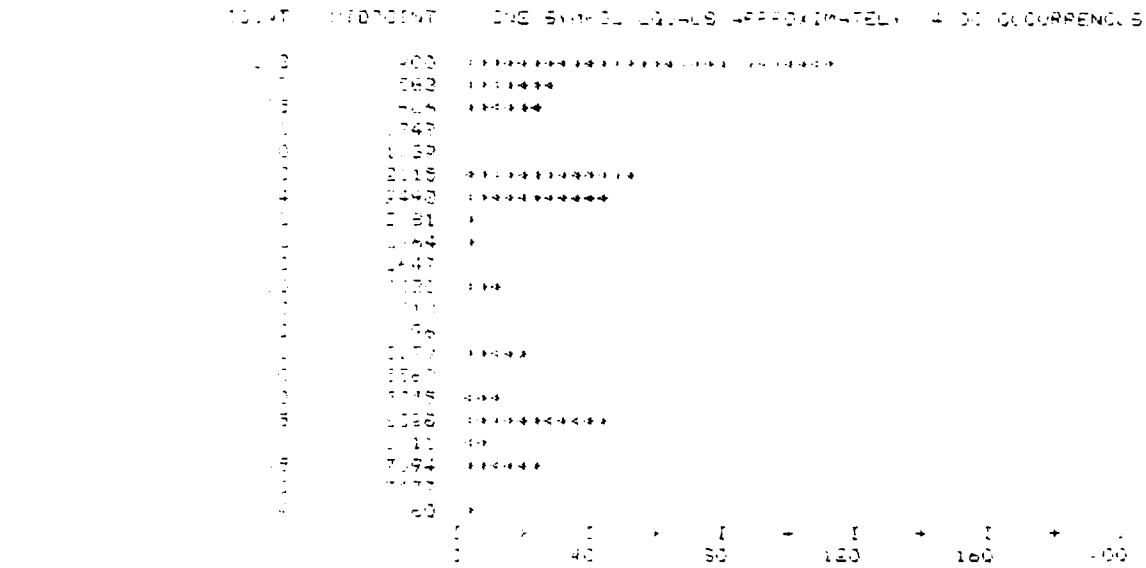
MEAN	48.902	STD ERR	1.424	MEDIAN	49.000
MODE	1.000	STD DEV	28.010	VARIANCE	784.550
KURTOSIS	-1.193	S E KURT	1.995	SKEWNESS	.006
S D SKEW	.124	RANGE	98.000	MINIMUM	1.000
MAXIMUM	99.000	SUM	18925.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	10.000	25.00	25.000	33.30	33.000
50.00	49.000	66.70	65.000	75.00	73.000
90.00	88.000				

VALID CASES	387	MISSING CASES	0

CENSUS TRACT

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	66	17	17	2042	3	1	43	3011	1	0	67
[illegible]	15	4	21	2062	2	1	44	3030	1	0	67
[illegible]	18	5	26	2102	1	0	44	3040	1	0	68
[illegible]	1	0	26	2103	2	1	45	3140	1	0	68
1[illegible]	1	0	26	2110	4	1	46	3201	2	1	69
1[illegible]	1	0	26	2121	2	1	46	4050	3	1	69
1[illegible]	1	0	27	2122	1	0	47	4070	4	1	70
[illegible]	4	1	28	2130	1	0	47	4120	1	0	71
[illegible]	3	1	28	2131	1	0	47	4140	2	1	71
[illegible]	2	1	29	2132	1	0	47	5030	2	1	72
[illegible]	1	0	29	2170	1	0	48	5050	2	1	72
[illegible]	2	1	30	2190	1	0	48	5130	2	1	73
[illegible]	1	0	30	2200	2	1	48	5220	2	1	73
[illegible]	1	0	30	2211	1	0	49	5230	3	1	74
[illegible]	5	1	32	2212	1	0	49	5240	3	1	75
[illegible]	2	1	32	2231	4	1	50	5250	2	1	75
[illegible]	1	0	32	2240	1	0	50	5280	2	1	76
[illegible]	1	0	33	2250	2	1	51	5290	3	1	76
[illegible]	2	1	33	2260	3	1	51	6040	1	0	77
[illegible]	2	1	34	2270	1	0	52	6050	1	0	77
[illegible]	1	0	34	2280	1	0	52	6060	2	1	78
640	3	1	35	2300	4	1	53	6070	1	0	78
681	1	0	35	2301	7	2	55	6090	2	1	78
690	1	0	35	2302	3	1	56	6110	1	0	79
700	1	0	35	2310	5	1	57	6130	2	1	79
710	1	0	36	2320	1	0	57	6160	1	0	79
[illegible]	1	0	36	2321	4	1	58	6380	4	1	80
[illegible]	1	0	36	2322	2	1	59	6390	5	1	82
[illegible]	1	0	36	2330	3	1	59	6400	5	1	83
[illegible]	1	0	37	2350	8	2	61	6410	2	1	83
[illegible]	3	1	37	2390	3	1	62	6430	4	1	84
[illegible]	2	1	38	2400	1	0	63	6440	5	1	86
[illegible]	1	0	38	2401	1	0	63	6460	6	2	87
[illegible]	1	0	39	2410	3	1	64	6170	9	2	90
[illegible]	2	1	39	2420	2	1	64	6400	1	0	90
[illegible]	1	0	39	2430	2	1	65	6500	2	1	90
[illegible]	1	0	40	2450	1	0	65	6510	1	0	91
1021	1	0	40	2460	1	0	65	6520	3	1	91
1030	2	1	40	2470	1	0	65	6530	3	1	92
1040	5	1	42	2520	2	1	66	6560	1	0	93
1061	1	0	42	2540	1	0	66	7010	16	4	97
1082	1	0	42	2550	1	0	66	7020	9	2	99
1090	1	0	42	2560	1	0	67	8050	4	1	100
1110	1	0	43	2580	1	0	67				



[illegible]	[illegible]	[illegible]	[illegible]	MEDIAN	2240.000
[illegible]	[illegible]	[illegible]	[illegible]	VARIANCE	665300B.18
[illegible]	[illegible]	[illegible]	[illegible]	SKEWNESS	576
[illegible]	[illegible]	[illegible]	[illegible]	MINIMUM	10.000
[illegible]	[illegible]	[illegible]	[illegible]		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
[illegible]	1.000	25.00	960.000	50.00	900.000
90.00	4750.000	95.00	6175.000	75.00	3250.000
99.00	13540.000				

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	127	MISSING VALUES	0

Census tract information

POP TRACT POPULATION

[illegible]	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	19	17	17	3123.00	1	0	44	5145.00	2	1	92
[illegible]	13	5	22	3162.00	1	0	44	5235.00	2	1	94
[illegible]	1	0	22	3244.00	3	1	45	5259.00	1	0	95
[illegible]	15	4	26	3293.00	5	1	46	5302.00	1	0	95
[illegible]	1	0	26	3387.00	5	1	47	5303.00	4	1	96
[illegible]	1	0	26	3394.00	1	0	48	5342.00	3	1	97
[illegible]	5	1	28	3399.00	2	1	48	5378.00	1	0	97
[illegible]	1	0	28	3400.00	4	1	49	5389.00	1	0	97
[illegible]	1	0	28	3429.00	1	0	49	5396.00	1	0	97
[illegible]	1	0	28	3488.00	3	1	50	5439.00	2	1	98
[illegible]	1	0	29	3502.00	8	2	52	5525.00	3	1	99
[illegible]	2	1	29	3668.00	2	1	53	5560.00	1	0	99
[illegible]	2	1	30	3713.00	2	1	53	5747.00	3	1	99
[illegible]	1	0	31	3737.00	1	0	53	5872.00	1	0	99
[illegible]	1	0	31	3809.00	2	1	54	5988.00	1	0	99
[illegible]	2	1	32	3827.00	11	3	57	6072.00	2	1	99
[illegible]	2	1	32	3967.00	1	0	57	6116.00	3	1	100
[illegible]	1	0	32	3999.00	1	0	57	6218.00	1	0	100
[illegible]	1	0	33	4117.00	4	1	58	6372.00	1	0	100
[illegible]	1	0	33	4172.00	1	0	58	6424.00	3	1	101
[illegible]	1	0	33	4191.00	2	1	59	6472.00	1	0	101
[illegible]	4	1	34	4292.00	1	0	59	6656.00	2	1	102
[illegible]	1	0	34	4296.00	1	0	59	6714.00	16	4	106

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COUNT   MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY  4.00 OCCURRENCES

 [illegible]   200   ****************************
 [illegible]   583   *******
 [illegible]   966   ******
 [illegible]  1349
      0       1732
 [illegible]  2115   *************
 [illegible]  2498   ***********
 [illegible]  2881   *
 [illegible]  3264   *
 [illegible]  3647
 [illegible]  4030   ***
 [illegible]  4413
      0       4796
 [illegible]  5179   *****
      0       5562
 [illegible]  5945   ***
 [illegible]  6328   ***********
 [illegible]  6711   **
 [illegible]  7094   ******
      0       7477
 [illegible]  7860   *
                     I.....+....I....+....I....+....I....+....I....+....I
                     0         40        80        120       160       200
                                  HISTOGRAM FREQUENCY

MEAN        2608.527     STD ERR      131.504     MEDIAN     2240.000
MODE          10.000     STD DEV     2587.063     VARIANCE 6693008.18
KURTOSIS      -1.191     S E KURT       1.991     SKEWNESS       .576
S E SKEW        .124     RANGE       8040.000     MINIMUM      10.000
MAXIMUM     8050.000     SUM      [illegible]

PERCENTILE     VALUE     PERCENTILE     VALUE     PERCENTILE     VALUE

  10.00       10.000       25.00       60.000       33.30      600.000
  50.00     2240.000       66.70     2373.920       75.00     5250.000
  90.00     6300.000

VALID CASES      387     MISSING CASES      0
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Census tract information

POP TRACT POPULATION

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
172.00	66	17	17	3123.00	1	0	44	5145.00	2	1	72
306.00	18	5	22	3162.00	1	0	44	5235.00	2	1	72
736.00	1	0	22	3244.00	3	1	45	5259.00	1	0	73
784.00	15	4	26	3293.00	5	1	46	5302.00	1	0	73
1039.00	1	0	26	3387.00	5	1	47	5303.00	4	1	74
1118.00	1	0	26	3394.00	1	0	48	5342.00	3	1	75
1234.00	5	1	28	3399.00	2	1	48	5348.00	1	0	75
1267.00	1	0	28	3400.00	4	1	49	5369.00	1	0	75
1276.00	1	0	28	3429.00	1	0	49	5396.00	1	0	75
1466.00	1	0	28	3488.00	3	1	50	5439.00	2	1	76
1679.00	1	0	29	3552.00	8	2	52	5525.00	3	1	77
1748.00	2	1	29	3668.00	2	1	53	5590.00	1	0	77
1796.00	7	1	30	3710.00	1	0	53	5747.00	3	1	78
1834.00	1	0	30	3727.00	1	0	53	5872.00	1	0	78
1934.00	1	0	30	3809.00	2	1	54	5888.00	1	0	78
1954.00	5	1	32	3827.00	11	3	57	6072.00	2	1	79
1986.00	2	1	32	3967.00	1	0	57	6116.00	3	1	80
2032.00	1	0	32	3999.00	1	0	57	6218.00	1	0	80
2074.00	1	0	33	4117.00	4	1	58	6372.00	1	0	80
2078.00	1	0	33	4122.00	1	0	58	6424.00	3	1	81
2157.00	1	0	33	4171.00	2	1	59	6472.00	1	0	81
2214.00	4	1	34	4292.00	1	0	59	6656.00	2	1	82
2219.00	1	0	34	4276.00	1	0	59	6714.00	16	4	86

[illegible]	2	1	35	4315 00	1	0	60	[illegible]796 00	7	2	93
[illegible]	1	0	35	4323 00	1	[illegible]	60	7147 00	1	0	93
[illegible]	1	0	35	4370 00	1	[illegible]	60	7206 00	3	1	[illegible]
[illegible]	1	0	36	4417 00	2	[illegible]	61	7264 00	1	0	[illegible]
[illegible]	2	1	36	4500 00	2	[illegible]	61	[illegible] 00	3	1	[illegible]
[illegible]	2	1	37	4508 00	1	[illegible]	61	7711 00	3	1	[illegible]
[illegible]	2	1	37	4565 00	2	[illegible]	62	[illegible]759 00	1	0	[illegible]
[illegible]	1	0	37	4570 00	6	2	64	[illegible] 00	1	0	[illegible]
[illegible]	1	0	38	[illegible] 00	3	[illegible]	64	[illegible] 00	4	1	[illegible]
[illegible]	1	0	38	[illegible] 00	1	[illegible]	65	[illegible] 00	3	1	[illegible]
[illegible]	1	0	38	4659 00	1	0	65	[illegible] 00	3	1	[illegible]
[illegible]	2	1	39	4774 00	2	[illegible]	65	[illegible]401 00	4	1	[illegible]
[illegible]	[illegible]	1	40	4813 00	1	[illegible]	66	[illegible] 00	2	1	[illegible]
[illegible]	2	1	40	4868 00	2	[illegible]	66	[illegible] 00	[illegible]	1	[illegible]
[illegible]	2	1	41	4886 00	2	[illegible]	67	[illegible] 00	0	2	[illegible]
[illegible]	[illegible]	0	41	4925 00	1	[illegible]	67	[illegible] 00	0	1	[illegible]
[illegible]	1	0	41	4954 00	1	0	67	[illegible] 00	0	1	[illegible]
[illegible]	2	1	42	4982 00	2	[illegible]	68	[illegible] 00	2	1	[illegible]
[illegible]	5	1	43	5027 00	5	[illegible]	69				
[illegible]	1	0	43	5044 00	[illegible]	2	71				

```
COUNT   MIDPOINT   ONE SYMBOL EQUALS APPROXIMATELY   2.00 OCCURRENCES

 [illegible]   496   ************************************************************
 [illegible]  1158   *****
 [illegible]  1820   *********
 [illegible]  2482   ************
 [illegible]  3144   **********************
 [illegible]  3806   ******************
 [illegible]  4468   **************
 [illegible]  5130   **********************
 [illegible]  5792   *******
 [illegible]  6454   ************
 [illegible]  7116   *******
 [illegible]  7778   ****
 [illegible]  8440   *
 [illegible]  9102   *******
 [illegible]  9764   *******
 [illegible] 10426   *
 [illegible] 11088
 [illegible] 11750
 [illegible] 12412   *
 [illegible] 13074
 [illegible] 13736   *
                     I....+....I....+....I....+....I....+....I....+....I
                     0        20        40        60        80       100
                                 HISTOGRAM FREQUENCY
```

MEAN	[illegible]	STD ERR	149 [illegible]	MEDIAN	[illegible]458 000
[illegible]	[illegible] 000	STD DEV	[illegible]	VARIANCE	8668596 77
KURTOSIS	[illegible]28	S E KURT	1 [illegible]	SKEWNESS	[illegible]
S E SKEW	[illegible]24	RANGE	13[illegible] 000	MINIMUM	172 000
MAXIMUM	[illegible] 000	SUM	[illegible]		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
[illegible]	[illegible] 000	25 00	[illegible] 000	33 30	2214 000
[illegible]	[illegible] 000	[illegible] 70	4900 [illegible]	75 00	5309 000
[illegible]	[illegible] 400				

VALID CASES 327 MISSING CASES 0

TOTAL DWELLING UNITS IN TRACT

	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	23	17	17	1217.00	1	1	43	1962.00	9	2	[illegible]
[illegible]	13	5	22	1276.00	4	1	44	1978.00	1	0	[illegible]
[illegible]	1	0	22	1281.00	3	1	45	1989.00	4	1	[illegible]
[illegible]	1	0	22	1282.00	2	1	47	1991.00	1	0	[illegible]
[illegible]	1	0	22	1301.00	1	1	47	1996.00	1	0	[illegible]
[illegible]	1	0	23	1307.00	1	1	47	2007.00	2	1	[illegible]
[illegible]	15	4	27	1311.00	2	1	48	2008.00	5	1	[illegible]
[illegible]	1	0	27	1356.00	1	0	48	2122.00	2	1	[illegible]
[illegible]	3	1	27	1362.00	5	1	49	2129.00	1	0	[illegible]
[illegible]	5	1	29	1374.00	5	1	50	2131.00	6	2	[illegible]
[illegible]	1	0	29	1381.00	2	1	51	2142.00	2	1	[illegible]
[illegible]	1	0	29	1405.00	5	1	52	2181.00	1	0	[illegible]
[illegible]	2	1	30	1410.00	1	0	52	2189.00	3	1	[illegible]
[illegible]	5	1	31	1428.00	1	0	53	2196.00	1	0	[illegible]
[illegible]	2	1	32	1434.00	1	0	53	2256.00	2	1	[illegible]
[illegible]	1	0	32	1437.00	4	1	54	2261.00	1	0	[illegible]
[illegible]	1	0	32	1439.00	2	1	55	2274.00	2	1	[illegible]
[illegible]	1	0	33	1502.00	2	1	55	2319.00	1	0	[illegible]
[illegible]	1	0	33	1518.00	2	1	56	2414.00	16	4	[illegible]
[illegible]	4	1	34	1526.00	2	1	56	2458.00	1	0	[illegible]
[illegible]	1	0	34	1535.00	1	0	56	2490.00	1	0	[illegible]
[illegible]	2	1	34	1560.00	1	0	57	2526.00	3	1	[illegible]
[illegible]	1	0	35	1574.00	1	0	57	2568.00	4	1	[illegible]
[illegible]	1	0	36	1578.00	1	0	57	2578.00	1	0	[illegible]
[illegible]	1	0	36	1618.00	1	0	57	2589.00	1	0	[illegible]
[illegible]	1	0	36	1632.00	1	0	58	2613.00	1	0	[illegible]
[illegible]	1	0	36	1638.00	4	1	59	2704.00	2	1	[illegible]
[illegible]	2	1	36	1672.00	2	1	59	2764.00	3	1	[illegible]
[illegible]	2	1	37	1716.00	1	0	59	2788.00	2	1	[illegible]
[illegible]	2	1	37	1750.00	1	0	60	2800.00	2	1	[illegible]
[illegible]	1	0	37	1757.00	3	1	60	3112.00	4	1	[illegible]
[illegible]	2	1	38	1769.00	11	3	63	3189.00	2	1	[illegible]
[illegible]	1	0	39	1807.00	2	1	64	3208.00	3	1	[illegible]
[illegible]	3	1	39	1815.00	1	0	64	3305.00	3	1	[illegible]
[illegible]	2	1	40	1851.00	2	1	65	3467.00	8	2	[illegible]
[illegible]	2	1	40	1863.00	2	1	65	3536.00	1	0	[illegible]
[illegible]	2	1	41	1884.00	1	1	66	3596.00	1	0	[illegible]
[illegible]	1	0	41	1895.00	4	1	66	3748.00	5	1	[illegible]
[illegible]	3	1	42	1905.00	1	0	67	3757.00	2	1	[illegible]
[illegible]	2	1	42	1922.00	3	1	67	4041.00	1	0	[illegible]
[illegible]	1	0	43	1936.00	1	0	68	4109.00	2	1	[illegible]
[illegible]	1	0	43	1941.00	3	1	68	4887.00	2	1	[illegible]

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES
[illegible]	122	**********
[illegible]	355	**********
[illegible]	588	**********
[illegible]	821	**********
[illegible]	1054	**********
[illegible]	1287	**********
[illegible]	1520	**********
[illegible]	1753	**********
[illegible]	1986	**********
[illegible]	2219	**********
[illegible]	2452	**********
[illegible]	2685	**********
[illegible]	2918	
[illegible]	3151	******
[illegible]	3384	******
[illegible]	3617	*
[illegible]	3850	***
[illegible]	4083	*
[illegible]	4316	
[illegible]	4549	*
[illegible]	4782	*

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0 15 30 45 60 75

HISTOGRAM FREQUENCY

MEAN	[illegible]	STD ERR	54.035	MEDIAN	1374.000
MODE	6.000	STD DEV	1063.956	VARIANCE	1132028.86
KURTOSIS	-.173	S E KURT	[illegible]	SKEWNESS	.477
S E SKEW	.124	RANGE	4891.000	MINIMUM	6.000
MAXIMUM	[illegible]	SUM	514435.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
[illegible]	6.000	25.00	751.000	33.00	917.000
[illegible]	[illegible]	[illegible]	1914.452	75.00	2129.000
[illegible]	[illegible]				

VALID CASES 357 MISSING CASES 0

[illegible] UNIT STRUCTURES IN TRACT

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	100	[illegible]	26	680.00	1	0	44	1122.00	4	1	70
[illegible]	1	0	26	681.00	11	3	47	1131.00	2	1	71
[illegible]	3	1	27	690.00	1	0	47	1170.00	4	1	72
74.00	1	0	27	704.00	5	1	49	1174.00	1	0	72
[illegible]	1	0	27	708.00	2	1	49	1191.00	2	1	73
[illegible]	1	0	28	709.00	1	0	49	1223.00	9	2	75
[illegible]	4	1	29	716.00	3	1	50	1268.00	3	1	75
[illegible]	1	0	29	723.00	1	0	50	1269.00	2	1	76
[illegible]	1	0	29	735.00	1	0	51	1274.00	1	0	76
[illegible]	2	1	30	737.00	2	1	51	1294.00	2	1	77
[illegible]	1	0	30	738.00	5	1	52	1301.00	1	0	77
[illegible]	1	0	30	770.00	4	1	53	1330.00	9	2	79
[illegible]	2	1	31	774.00	1	0	54	1342.00	1	0	80
[illegible]	3	1	32	783.00	1	0	54	1343.00	2	1	80
[illegible]	1	0	32	822.00	1	0	54	1396.00	2	1	81
[illegible]	1	0	32	823.00	2	1	55	1420.00	1	0	81
[illegible]	1	0	32	830.00	1	0	55	1436.00	2	1	81
[illegible]	5	1	34	836.00	3	1	56	1475.00	1	0	82
[illegible]	2	1	34	851.00	2	1	56	1495.00	16	4	86
[illegible]	3	1	35	853.00	1	0	57	1613.00	1	0	86
[illegible]	1	0	35	857.00	1	0	57	1614.00	2	1	87
427.00	1	0	35	859.00	2	1	57	1620.00	1	0	87
[illegible]	1	0	36	869.00	1	0	58	1653.00	3	1	88
[illegible]	1	0	36	871.00	1	0	58	1709.00	1	0	88
451.00	1	0	36	879.00	1	0	58	1711.00	3	1	89
[illegible]	1	0	36	881.00	4	1	59	1734.00	3	1	89
[illegible]	5	1	38	884.00	1	0	59	1847.00	1	0	90
[illegible]	1	0	38	893.00	2	1	60	1866.00	3	1	90
[illegible]	2	1	39	930.00	2	1	60	2174.00	2	1	91
500.00	2	1	39	935.00	6	2	62	2296.00	4	1	92
[illegible]	1	0	39	951.00	1	0	62	2312.00	3	1	93
[illegible]	1	0	40	962.00	3	1	63	2364.00	1	0	93
[illegible]	1	0	40	968.00	5	1	64	2440.00	3	1	94
[illegible]	5	1	41	993.00	1	0	65	2506.00	3	1	95
[illegible]	1	0	41	1011.00	5	1	66	2535.00	4	1	96
[illegible]	2	1	42	1013.00	2	1	66	2705.00	2	1	96
[illegible]	2	1	42	1022.00	1	0	67	2739.00	3	1	97
[illegible]	2	1	43	1029.00	1	0	67	2784.00	8	2	99
[illegible]	1	0	43	1057.00	1	0	67	2986.00	2	1	99
[illegible]	1	0	43	1078.00	2	1	68	3524.00	2	1	100
[illegible]	1	0	44	1109.00	2	1	68				
[illegible]	1	0	44	1116.00	3	1	69				

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES
5	53	++++++++++++++++++++++++++++++++++++++
[illegible]	161	++++
[illegible]	319	+++++
[illegible]	467	+++++
[illegible]	55	++++++++++++++
[illegible]	823	+++++++++++
[illegible]	1091	++++++++
[illegible]	1209	+++++++++
[illegible]	1427	++++++
[illegible]	1595	++
[illegible]	1763	++
[illegible]	1921	+
[illegible]	2149	+
[illegible]	[illegible]	++
[illegible]	2435	++
[illegible]	2603	+
[illegible]	[illegible]	+
[illegible]	2939	+++
[illegible]	3107	
[illegible]	3275	
2	3443	+

I....+....I....+....I....+....I....+....I....+....I
0 40 80 120 160 200
HISTOGRAM FREQUENCY

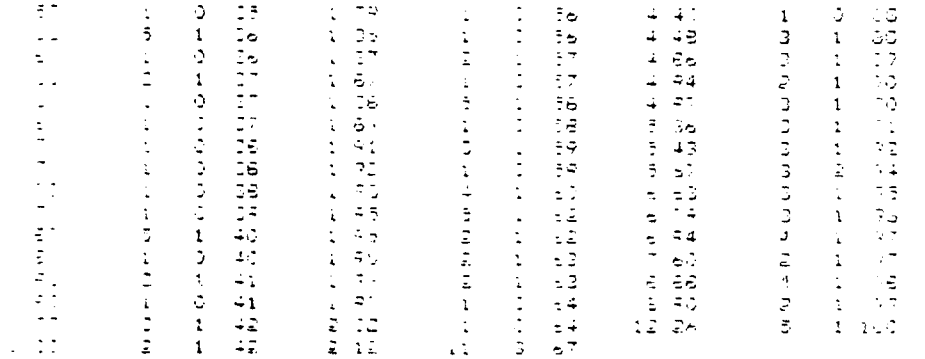
MEAN	[illegible]	STD ERR	40.452	MEDIAN	[illegible]
MODE	1.000	STD DEV	755.752	VARIANCE	571211.540
KURTOSIS	[illegible]	S E KURT	1.447	SKEWNESS	[illegible]
S E SKEW	.124	RANGE	3183.000	MINIMUM	1.000
MAXIMUM	[illegible]	SUM	[illegible]		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	50.00	[illegible]
66.00	1.000	66.70	1037.573	75.00	1246.000
90.00	1616.000				

VALID CASES 357 MISSING CASES 0

[illegible] AREA BUILT RESIDENTIAL

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	19	5	5	1.03	1	0	43	2.15	2	1	[illegible]
[illegible]	15	4	9	1.07	1	0	43	2.30	1	0	[illegible]
[illegible]	[illegible]	17	26	1.09	1	0	43	2.34	1	0	[illegible]
[illegible]	1	0	26	1.09	2	1	44	2.[illegible]	7	2	[illegible]
[illegible]	1	0	26	1.07	2	1	44	2.42	[illegible]	[illegible]	[illegible]
[illegible]	3	1	27	1.13	1	0	44	2.44	[illegible]	1	[illegible]
[illegible]	1	0	27	1.13	2	1	45	2.55	2	1	[illegible]
[illegible]	1	0	28	1.14	3	1	46	2.55	5	2	4
[illegible]	4	1	29	1.15	1	0	46	2.60	1	0	[illegible]
[illegible]	1	0	29	1.18	2	1	47	2.67	1	0	[illegible]4
[illegible]	1	0	29	1.17	1	0	47	2.67	1	0	[illegible]5
[illegible]	1	0	29	1.19	1	0	47	2.75	[illegible]	2	[illegible]
[illegible]	2	1	[illegible]	1.19	2	1	48	2.76	1	0	[illegible]
[illegible]	2	1	30	[illegible]	5	1	49	2.81	3	1	[illegible]
[illegible]	1	0	31	1.29	1	0	49	2.82	1	0	[illegible]
[illegible]	1	0	31	1.30	4	1	50	2.99	1	0	[illegible]
[illegible]	1	0	31	1.36	4	1	51	3.07	7	[illegible]	[illegible]
[illegible]	2	1	32	1.40	1	0	51	3.12	1	0	[illegible]
4	2	1	32	1.41	1	1	52	3.33	3	1	[illegible]
[illegible]	1	0	33	1.43	3	1	53	3.71	4	1	31
[illegible]	2	1	33	1.47	2	1	53	3.74	1	0	31
[illegible]	1	0	33	1.50	1	0	53	3.80	2	1	[illegible]
[illegible]	1	0	34	1.67	1	0	53	3.97	2	1	[illegible]
[illegible]	1	0	34	1.72	1	0	54	4.05	3	1	33
[illegible]	1	0	34	1.73	5	1	55	4.15	15	4	37
[illegible]	2	1	35	1.76	2	1	56	4.17	1	0	37



COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES
0	-1.50	
0	-.75	
148	0.0	**********************************
48	.75	**********
48	1.50	**********
74	2.25	*****************
20	3.00	*****
14	3.75	****
24	4.50	******
11	5.25	***
8	6.00	**
10	6.75	***
3	7.50	*
0	8.25	
4	9.00	**
0	9.75	
0	10.50	
0	11.25	
3	12.00	*
0	12.75	
0	13.50	

I ... + ... I ... + ... I ... + ... I ... + ... I ... + ... I

0 40 80 120 160 200

HISTOGRAM FREQUENCY

MEAN	1.992	STD ERR	.118	MEDIAN	1.299
MODE	.021	STD DEV	2.321	VARIANCE	5.388
KURTOSIS	4.400	S E KURT	.195	SKEWNESS	1.874
S E SKEW	.124	RANGE	12.258	MINIMUM	0.0
MAXIMUM	12.258	SUM	771.062		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	.021	25.00	.021	33.30	.428
50.00	1.299	66.70	2.120	75.00	2.748
90.00	4.968				

VALID CASES 387 MISSING CASES 0

[illegible] FREQ BUILT NON-RESIDENTIAL

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	2	1	1	42	3	[illegible]	20	[illegible]	1	0	[illegible]
[illegible]	1	0	1	43	1	0	21	86	2	1	47
[illegible]	1	0	1	44	6	2	22	90	1	0	47
[illegible]	1	0	1	47	1	0	22	90	1	0	47
[illegible]	1	0	2	[illegible]	2	1	[illegible]	91	1	0	[illegible]
[illegible]	3	1	2	46	1	0	23	91	18	5	[illegible]
[illegible]	[illegible]	1	3	[illegible]	[illegible]	1	25	91	1	0	[illegible]
[illegible]	1	0	4	[illegible]	3	1	25	1 01	4	1	53
[illegible]	1	0	4	[illegible]	2	1	26	1 04	1	0	54
[illegible]	1	0	4	[illegible]	2	1	26	1 06	2	1	54
[illegible]	2	[illegible]	5	[illegible]	1	0	27	1 16	1	0	[illegible]
[illegible]	1	0	5	52	1	0	27	1 17	3	1	[illegible]
[illegible]	2	1	5	[illegible]	1	0	27	1 21	2	1	[illegible]
[illegible]	3	1	[illegible]	[illegible]	1	0	27	1 27	1	0	[illegible]
[illegible]	2	[illegible]	[illegible]	[illegible]	4	1	28	1 27	3	1	57
[illegible]	2	[illegible]	7	54	2	1	29	1 29	1	0	[illegible]
[illegible]	1	[illegible]	[illegible]	[illegible]	3	1	30	1 30	1	0	[illegible]
[illegible]	2	1	8	[illegible]	1	0	30	1 33	5	1	[illegible]
[illegible]	1	0	8	[illegible]	1	[illegible]	30	1 39	1	0	59
[illegible]	[illegible]	1	[illegible]	56	2	1	31	1 58	5	1	60
[illegible]	1	0	[illegible]	[illegible]	1	[illegible]	31	1 68	1	0	60
[illegible]	1	0	9	[illegible]	1	0	31	1 69	2	1	61
[illegible]	1	0	[illegible]	[illegible]	1	[illegible]	32	1 71	3	1	61
[illegible]	1	0	[illegible]	[illegible]	1	0	32	1 72	2	1	62
[illegible]	1	0	[illegible]	[illegible]	2	1	32	1 74	1	0	62
[illegible]	2	1	11	[illegible]	1	1	33	1 80	1	0	63
[illegible]	[illegible]	0	11	[illegible]	5	2	35	1 94	5	1	64
[illegible]	1	0	11	60	1	[illegible]	35	2 00	3	1	65
[illegible]	2	1	12	60	2	[illegible]	36	2 01	9	2	67
[illegible]	2	1	12	[illegible]	1	0	36	2 09	3	1	68
[illegible]	3	[illegible]	13	[illegible]	3	[illegible]	37	2 13	3	1	68
[illegible]	[illegible]	0	14	[illegible]	2	1	37	2 25	1	0	69
[illegible]	1	0	14	69	4	1	38	2 41	3	1	70
[illegible]	2	1	15	[illegible]	1	[illegible]	39	2 74	2	1	70
[illegible]	5	1	16	[illegible]	2	1	39	2 84	15	4	[illegible]
[illegible]	2	1	17	71	15	4	43	2 91	2	1	75
[illegible]	1	0	17	74	1	0	43	3 06	4	1	76
[illegible]	1	0	17	75	3	1	44	3 53	66	17	93
[illegible]	3	1	18	[illegible]	1	0	44	3 93	4	1	94
[illegible]	2	1	19	78	1	0	44	4 41	5	1	95
[illegible]	2	1	19	80	1	0	45	5 33	3	2	97
[illegible]	1	0	19	81	2	1	45	10 56	11	3	100
[illegible]	1	0	20	[illegible]	3	1	46				

```
COUNT   MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY  4.00 OCCURRENCES

    0     -2.00
    0     -1.25
    0      -.50
  139       .25   ***********************************
   98      1.00   *************************
   38      1.75   **********
   22      2.50   ******
    5      3.25   **
   66      4.00   *****************
    0      4.75
    4      5.50   *
    3      6.25   *
    0      7.00
    [illegible]      7.75
    [illegible]      8.50
    [illegible]      9.25   **
    0     10.00
   11     10.75   ***
    0     11.50
    0     12.25
    0     13.00
                  I    +    I    +    I    +    I    +    I    +    I
                  0        40        80       120       160       200
                            HISTOGRAM FREQUENCY
```

[illegible]	1 769	STD ERR	118	MEDIAN	914
[illegible]	3 631	STD DEV	2 318	VARIANCE	5 373
[illegible]	4 950	S E KURT	1 555	SKEWNESS	2 171
[illegible]	134	RANGE	10 584	MINIMUM	0 0
[illegible]	10 584	SUM	197 014		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
[illegible]	172	25 00	462	33 30	597
[illegible]	914	50 70	2 010	75 00	3 078
[illegible]	3 631				

[illegible]	187	MISSING CASES	0

AP3 AREA OPEN WITH BUILDINGS

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
0 0	146	43	43	27	3	1	59	1 22	4	1	79
00	3	1	44	29	1	0	59	1 27	3	1	80
00	1	0	44	31	4	1	60	1 29	1	0	80
00	5	1	45	38	2	1	61	1 39	1	0	80
00	6	2	47	39	1	0	61	1 74	1	0	81
00	1	0	47	43	3	1	62	1 72	1	0	81
00	3	1	48	43	3	1	63	1 79	8	2	83
00	1	0	48	44	1	0	63	1 96	1	0	83
00	5	1	49	44	2	1	64	1 97	3	1	84
00	1	0	50	45	1	0	64	2 13	11	3	87
00	1	0	50	45	2	1	64	2 18	1	0	87
07	2	1	50	47	6	2	66	2 61	3	1	88
00	3	1	51	48	1	0	66	2 63	5	1	89
10	1	0	51	54	1	0	66	2 77	1	0	89
10	1	0	52	54	1	0	67	2 83	5	1	91
00	1	0	52	58	4	1	68	2 88	2	1	91
14	5	1	53	67	1	0	68	3 81	2	1	92
15	2	1	54	69	2	1	68	4 04	4	1	93
16	2	1	54	71	15	4	72	4 84	1	0	93
18	1	0	55	72	9	2	75	5 98	4	1	94
19	1	0	55	76	2	1	75	6 46	16	4	98
20	1	0	55	85	3	1	76	9 83	2	1	99
21	3	1	56	91	2	1	76	10 97	3	1	99
22	4	1	57	1 00	2	1	77	18 85	2	1	100
25	1	0	57	1 14	3	1	78				
26	5	1	58	1 19	1	0	78				

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 8 00 OCCURRENCES
0	-1	
295	0	**********************************
58	1	*******
26	2	***
16	3	**
8	4	*
1	5	
10	6	***
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	

I + I + I + I + I + I
0 80 160 240 320 400
HISTOGRAM FREQUENCY

[illegible]	[illegible]	STD ERR	[illegible]
[illegible]	[illegible]	STD DEV	[illegible]
[illegible]	[illegible]	S E KURT	[illegible]
[illegible]	[illegible]	RANGE	[illegible]
[illegible]	[illegible]	SUM	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] 387 MISSING CASES

[illegible] AREA OPEN WITHOUT BLDGS

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
[illegible]	[illegible]	46	46	48	2	1	51	1 64	3	1	97
[illegible]	1	0	46	49	1	0	51	1 64	2	1	98
[illegible]	3	1	47	52	5	1	53	1 67	4	1	99
[illegible]	1	0	47	54	3	1	53	1 82	2	2	01
[illegible]	1	0	48	53	4	1	54	1 87	5	1	02
[illegible]	2	2	50	56	2	1	55	1 91	1	0	02
[illegible]	1	1	51	59	1	0	55	2 01	2	1	03
[illegible]	1	0	51	60	1	1	55	2 06	2	1	03
[illegible]	2	1	52	62	1	1	56	2 10	4	1	04
[illegible]	1	0	52	63	6	2	57	2 28	11	3	07
[illegible]	3	1	53	64	2	1	58	2 47	3	1	08
[illegible]	2	1	53	67	2	1	58	2 68	1	0	08
[illegible]	1	0	53	69	2	1	59	2 77	5	1	09
[illegible]	1	0	54	80	3	2	70	2 81	5	1	91
[illegible]	2	1	54	90	2	1	70	2 84	1	0	91
[illegible]	1	0	55	91	1	0	70	3 50	8	2	93
[illegible]	1	0	55	94	1	1	71	3 60	1	0	94
[illegible]	3	1	56	95	5	1	72	3 63	2	1	94
[illegible]	1	0	56	98	1	0	72	4 02	3	1	95
[illegible]	2	1	56	1 03	1	0	72	5 29	4	1	96
[illegible]	2	1	57	1 06	1	0	73	5 52	1	0	96
[illegible]	5	1	58	1 09	2	1	73	7 74	1	0	96
[illegible]	2	1	58	1 17	2	1	74	9 96	2	1	97
[illegible]	1	0	58	1 30	3	1	74	10 14	2	1	97
[illegible]	3	1	59	1 34	2	1	75	10 15	3	1	98
[illegible]	1	0	60	1 48	3	1	76	10 63	4	1	99
[illegible]	2	1	60	1 51	2	1	76	22 63	3	1	100

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 8 00 OCCURRENCES
0	-4	
[illegible]	-2	
[illegible]	0	**********
[illegible]	2	********
[illegible]	4	*
[illegible]	6	*
[illegible]	8	
[illegible]	10	*
[illegible]	12	
[illegible]	14	
[illegible]	16	
[illegible]	18	
[illegible]	20	
[illegible]	22	
[illegible]	24	
[illegible]	26	
[illegible]	28	
[illegible]	30	
[illegible]	32	
[illegible]	34	
0	36	

I * I * I * I * I * I
0 80 160 240 320 400

HISTOGRAM FREQUENCY

MEA	[illegible]	STD ERR	175	MEDIAN	007
MODE	0 0	STD DEV	3 406	VARIANCE	11 600
KURTOSIS	55 413	S E KURT	1 965	SKEWNESS	6 680
S E SKEW	134	RANGE	32 600	MINIMUM	0 0
MAXIMUM	32 600	SUM	101 809		

VALID CASES	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
11 00	0 0	25 00	0 1	50 00	0 0
50 00	007	66 70	22	75 00	1 481
41 00	2 506				

MULT D-RES	387	MISSING CASES	0

General building descriptions

[illegible] APPROX AGE OF STRUCTURE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	-50	1	.4	.4	.4
	-30	2	.8	.8	1.3
	-20	2	.8	.8	2.1
	-12	1	.4	.4	2.5
	-10	4	1.7	1.7	4.2
	0	15	6.4	6.4	10.6
	4	1	.4	.4	11.0
	5	1	.4	.4	11.4
	10	5	2.1	2.1	13.6
	15	2	.8	.8	14.4
	20	10	4.2	4.2	18.6
	25	5	2.1	2.1	20.8
	30	13	5.5	5.5	26.3
	31	1	.4	.4	26.7
	35	2	.8	.8	27.5
	40	11	4.7	4.7	32.2
	45	3	1.3	1.3	33.5
	48	1	.4	.4	33.9
	50	27	11.4	11.4	45.3
	55	9	3.8	3.8	49.2
	58	1	.4	.4	49.6
	59	3	1.3	1.3	50.8
	60	16	6.8	6.8	57.6
	63	1	.4	.4	58.1
	65	15	6.4	6.4	64.4
	70	31	13.1	13.1	77.5
	74	1	.4	.4	78.0
	75	23	9.7	9.7	87.7
	77	1	.4	.4	88.1
	78	3	1.3	1.3	89.4
	79	1	.4	.4	89.8
	80	14	5.9	5.9	95.8
	82	7	3.0	3.0	98.7
	83	3	1.3	1.3	100.0
	TOTAL	236	100.0	100.0	

```
 COUNT    MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY 1.00 OCCURRENCES

     1          73  *
     3          66  **
     0          59
     4          52  **
     6          45  ****
     0          38
     4          31  ****
     7          24  *******
     3          17  ***
    14          10  **************
    13           3  *************
     4          -4  ***
    36         -11  ************************************
    20         -18  ********************
    16         -25  ****************
    55         -32  *******************************************************
    29         -39  *****************************
     0         -46
     1         -53  *

                I    +    I    +    I    +    I    +    I    +    I
                1         12        24        36        48        60
                     HISTOGRAM FREQUENCY
```

MEAN	49.602	STD ERR	1.613	MEDIAN	59.000
MODE	70.000	STD DEV	17.544	VARIANCE	775.305
KURTOSIS	.299	S E KURT	.392	SKEWNESS	-.998
S E SKEW	.158	RANGE	133.000	MINIMUM	-50.000
MAXIMUM	83.000	SUM	11706.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	30.000	33.30	45.000
50.00	59.000	66.70	70.000	75.00	70.000
90.00	80.000				

VALID CASES 236 MISSING CASES 1

EWIF EXPOSED WALL IN FOOTPRINT

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
32	1	0	0	172	2	1	42	300	5	2	69
60	1	0	1	176	1	1	42	320	1	0	70
80	1	0	1	180	7	3	45	370	2	1	71
90	1	0	2	182	1	0	46	380	1	0	71
100	2	1	3	186	3	1	47	400	8	3	75
108	1	0	3	188	1	0	47	410	1	0	75
110	5	2	5	190	5	2	50	420	1	0	75
120	16	7	12	192	2	1	50	430	2	1	76
122	1	0	12	196	3	1	52	440	1	0	77
130	5	2	14	200	10	4	56	450	2	1	78
132	4	2	16	202	3	1	57	480	1	0	78
134	1	0	17	206	3	1	58	500	3	1	79
140	15	6	23	208	1	0	59	520	2	1	80
142	1	0	23	210	2	1	60	540	1	0	81
144	3	1	25	220	3	1	61	560	1	0	81
148	5	2	27	223	1	0	61	575	1	0	81
150	5	2	29	240	3	1	63	600	6	3	84
152	5	2	31	244	1	0	63	692	1	0	84
154	1	0	31	250	1	0	64	700	3	1	86
156	4	2	33	260	6	3	66	800	4	2	87
160	16	7	40	280	2	1	67	900	5	2	89
170	2	1	41	284	1	0	67	999	25	11	100

```
  COUNT    MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY  2.00 OCCURRENCES

      2          46   *
     10          93   *****
     82         140   ****************************************
     47         187   ***********************
      9         234   *****
     14         281   *******
      1         328   *
      3         375   **
     13         422   *******
      3         469   **
      5         516   ***
      3         563   **
      6         610   ***
      0         657
      4         704   **
      0         751
      4         798   **
      0         845
      5         892   ***
      0         939
     25         986   *************
                      I    +    I    +    I    +    I    +    I    +    I
                      0         20        40        60        80       100
                              HISTOGRAM FREQUENCY
```

MEAN	335.453	STD ERR	18.879	MEDIAN	192.000
MODE	999.000	STD DEV	290.028	VARIANCE	84116.291
KURTOSIS	.563	S E KURT	1.992	SKEWNESS	1.414
S E SKEW	.158	RANGE	967.000	MINIMUM	32.000
MAXIMUM	999.000	SUM	79167.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	120.000	25.00	148.000	33.30	159.684
50.00	192.000	66.70	280.316	75.00	417.500
90.00	999.000				

VALID CASES	236	MISSING CASES	0

HT AVERAGE WALL HEIGHT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	8	1	.4	.4	.4
	9	1	.4	.4	.8
	10	2	.8	.8	1.7
	12	7	3.0	3.0	4.7
	14	7	3.0	3.0	7.6
	15	15	6.4	6.4	14.0
	16	22	9.3	9.3	23.3
	17	2	.8	.8	24.2
	18	4	1.7	1.7	25.8
	19	1	.4	.4	26.3
	20	39	16.5	16.5	42.8
	22	3	1.3	1.3	44.1
	24	3	1.3	1.3	45.3
	25	39	16.5	16.5	61.9
	26	7	3.0	3.0	64.8
	27	2	.8	.8	65.7
	28	5	2.1	2.1	67.8
	30	32	13.6	13.6	81.4
	32	3	1.3	1.3	82.6
	33	1	.4	.4	83.1
	35	8	3.4	3.4	86.4
	36	3	1.3	1.3	87.7
	40	6	2.5	2.5	90.3
	41	1	.4	.4	90.7

50	5	2.1	2.1	92.8
55	7	3.0	3.0	95.8
70	4	1.7	1.7	97.5
80	2	.8	.8	98.3
100	3	1.3	1.3	99.6
160	1	.4	.4	100.0
TOTAL	236	100.0	100.0	

```
  COUNT    MIDPOINT     ONE SYMBOL EQUALS APPROXIMATELY  2.00 OCCURRENCES

      0          4
     33         12  ****************
     71         20  ************************************
     68         28  ***********************************************
     15         36  ********
      9         44  ****
      5         52  ***
      7         60  ****
      4         68  **
      0         76
      2         84  *
      0         92
      3        100  **
      0        108
      0        116
      0        124
      0        132
      0        140
      0        148
      0        156
      1        164  *
                    I    +    I    +    I    +    I    +    I    +    I
                    0         20        40        60        80       100
                              HISTOGRAM FREQUENCY
```

MEAN	27.619	STD ERR	1.130	MEDIAN	25.000
MODE	20.000	STD DEV	17.363	VARIANCE	301.462
KURTOSIS	17.553	S E KURT	1.992	SKEWNESS	3.447
S E SKEW	.158	RANGE	152.000	MINIMUM	8.000
MAXIMUM	160.000	SUM	6518.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	15.000	25.00	18.000	33.30	20.000
50.00	25.000	66.70	28.000	75.00	30.000
90.00	40.300				

VALID CASES 236 MISSING CASES 0

LOT1 LOT SIZE SIZE ONE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	20	1	.4	.4	.4
	24	1	.4	.4	.8
	25	3	1.3	1.3	2.1
	30	2	.8	.8	3.0
	40	4	1.7	1.7	4.7
	45	10	4.2	4.2	8.9
	50	25	10.6	10.6	19.5
	55	1	.4	.4	19.9
	60	16	6.8	6.8	26.7
	65	1	.4	.4	27.1
	70	11	4.7	4.7	31.8
	75	10	4.2	4.2	36.0
	80	14	5.9	5.9	41.9

	85	1	.4	.4	42.4
	90	6	2.5	2.5	44.9
	100	26	11.0	11.0	55.9
	110	3	1.3	1.3	57.2
	120	5	2.1	2.1	59.3
	140	1	.4	.4	59.7
	150	10	4.2	4.2	64.0
	160	1	.4	.4	64.4
	135	1	.4	.4	64.8
	200	17	7.2	7.2	72.0
	220	1	.4	.4	72.5
	225	1	.4	.4	72.9
	230	1	.4	.4	73.3
	250	4	1.7	1.7	75.0
	270	1	.4	.4	75.4
	300	14	5.9	5.9	81.4
	350	4	1.7	1.7	83.1
	400	10	4.2	4.2	87.3
	420	2	.8	.8	88.1
	450	2	.8	.8	89.0
	500	10	4.2	4.2	93.2
	600	4	1.7	1.7	94.9
	800	3	1.3	1.3	96.2
GREATER THAN 999	999	9	3.8	3.8	100.0
	TOTAL	236	100.0	100.0	

```
  COUNT    MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY  1.50 OCCURRENCES

     53          40   ***********************************
     72          87   ************************************************
     16         134   **********
     19         181   ************
      7         228   *****
      1         275   *
     14         322   *********
      4         369   ***
     12         416   ********
      2         463   *
     10         510   *******
      0         557
      4         604   ***
      0         651
      0         698
      0         745
      3         792   **
      0         839
      0         886
      0         933
      9         980   ******
                      I    +    I    +    I    +    I    +    I    +    I
                      0         15        30        45        60        75
                              HISTOGRAM FREQUENCY
```

MEAN	200.733	STD ERR	14.513	MEDIAN	100.000
MODE	100.000	STD DEV	222.953	VARIANCE	49707.924
KURTOSIS	4.563	S E KURT	1.992	SKEWNESS	2.155
S E SKEW	.158	RANGE	979.000	MINIMUM	20.000
MAXIMUM	999.000	SUM	47373.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	50.000	25.00	60.000	33.30	75.000
50.00	100.000	66.70	200.000	75.00	265.000
90.00	500.000				

VALID CASES	236	MISSING CASES	0

LOT2 LOT SIZE SIDE TWO

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	50	7	3.0	3.0	3.0
	60	4	1.7	1.7	4.7
	70	4	1.7	1.7	6.4
	75	3	1.3	1.3	7.6
	80	14	5.9	5.9	13.6
	90	12	5.1	5.1	18.6
	95	1	.4	.4	19.1
	100	32	13.6	13.6	32.6
	110	1	.4	.4	33.1
	120	15	6.4	6.4	39.4
	125	1	.4	.4	39.8
	130	27	11.4	11.4	51.3
	160	2	.8	.8	52.1
	175	4	1.7	1.7	53.8
	180	2	.8	.8	54.7
	200	29	12.3	12.3	66.9
	208	1	.4	.4	67.4
	223	1	.4	.4	67.8
	250	9	3.8	3.8	71.6
	300	16	6.8	6.8	78.4
	350	5	2.1	2.1	80.5
	400	16	6.8	6.8	87.3
	420	1	.4	.4	87.7
	500	9	3.8	3.8	91.5
	600	5	2.1	2.1	93.6
	800	5	2.1	2.1	95.8
	900	1	.4	.4	96.2
GREATER THAN 999	999	9	3.8	3.8	100.0
	TOTAL	236	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES

COUNT	MIDPOINT	
32	65	**********
62	111	**********
33	157	**********
33	203	**********
9	249	******
16	295	**********
5	341	***
16	387	**********
1	433	*
9	479	******
0	525	
0	571	
5	617	***
0	663	
0	709	
0	755	
5	801	***
0	847	
1	893	*
0	939	
9	985	******

I....+....I....+....I....+....I....+....I....+....I
0 15 30 45 60 75
HISTOGRAM FREQUENCY

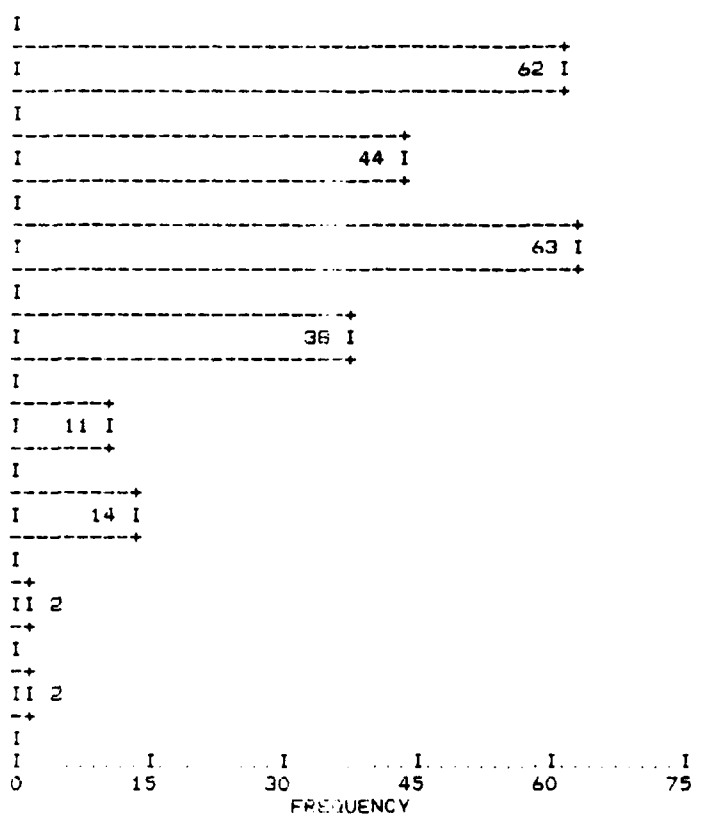
MEAN	242.784	STD ERR	14.343	MEDIAN	150.000
MODE	100.000	STD DEV	220.343	VARIANCE	48551.225
KURTOSIS	4.000	S E KURT	1.992	SKEWNESS	2.059
S E SKEW	.158	RANGE	949.000	MINIMUM	50.000
MAXIMUM	999.000	SUM	57297.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	80.000	25.00	100.000	33.30	119.210
50.00	150.000	66.70	200.632	75.00	300.000
90.00	500.000				

VALID CASES 236 MISSING CASES 0

N3UILD NUM ADDITIONAL BUILD IN FOOT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	1	62	26.3	26.3	26.3
	2	44	18.6	18.6	44.9
	3	63	26.7	26.7	71.6
	4	38	16.1	16.1	87.7
	5	11	4.7	4.7	92.4
	6	14	5.9	5.9	98.3
	7	2	.8	.8	99.2
	8	2	.8	.8	100.0
	TOTAL	236	100.0	100.0	



MEAN	2.797	STD ERR	.102	MEDIAN	3.000
MODE	3.000	STD DEV	1.560	VARIANCE	2.435
KURTOSIS	-.324	S E KURT	1.992	SKEWNESS	.783
S E SKEW	.158	RANGE	7.000	MINIMUM	1.000
MAXIMUM	8.000	SUM	660.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	2.000
50.00	3.000	66.70	3.000	75.00	4.000
90.00	5.000				

VALID CASES 236 MISSING CASES 0

SIDE1 SIDE ONE OF BLDG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	10	1	.4	.4	.4
	12	2	.8	.8	1.3
	15	4	1.7	1.7	3.0
	18	2	.8	.8	3.8
	20	3	1.3	1.3	5.1
	24	2	.8	.8	5.9
	25	1	.4	.4	6.4
	30	28	11.9	11.9	18.2
	35	3	1.3	1.3	19.5
	36	14	5.9	5.9	25.4
	40	20	8.5	8.5	33.9
	42	1	.4	.4	34.3
	45	4	1.7	1.7	36.0
	50	26	11.0	11.0	47.0
	52	2	.8	.8	47.9
	60	13	5.5	5.5	53.4
	65	4	1.7	1.7	55.1
	66	1	.4	.4	55.5
	70	7	3.0	3.0	58.5
	75	8	3.4	3.4	61.9
	80	9	3.8	3.8	65.7
	90	1	.4	.4	66.1
	96	1	.4	.4	66.5
	100	14	5.9	5.9	72.5
	120	2	.8	.8	73.3
	130	2	.8	.8	74.2
	140	1	.4	.4	74.6
	150	5	2.1	2.1	76.7
	175	2	.8	.8	77.5
	180	1	.4	.4	78.0
	200	14	5.9	5.9	83.9
	250	5	2.1	2.1	86.0
	300	12	5.1	5.1	91.1
	400	10	4.2	4.2	95.3
	500	5	2.1	2.1	97.5
	600	2	.8	.8	98.3
	700	2	.8	.8	99.2
	740	1	.4	.4	99.6
	999	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

```
COUNT   MIDPOINT    ONE SYMBOL EQUALS APPROXIMATELY  2.00 OCCURRENCES

  85          75   ******************************************************
  41          70   ********************************
  11         121   **********
   5         165   ****
  14         119   *******
   3         169   ***
  12         215   ******
   1         211
  10         455   *****
   1         487
   5         515   ***
   3         565
   1         611   *
   1         647
   1         697   *
   4         745   *
   3         793
   1         841
   1         889
   1         937
   1         985   *
                   +    .    +    .    +    .    +    .    +    .    +
                   1         20        40        60        80       100
                              HISTOGRAM FREQUENCY
```

MEAN	49.759	STD ERR	8.744	MEDIAN	60.000
MODE	30.000	STD DEV	149.987	VARIANCE	22499.213
KURTOSIS	7.646	S E KURT	1.972	SKEWNESS	2.528
S E SKEW	.158	RANGE	989.000	MINIMUM	10.000
MAXIMUM	999.000	SUM	25548.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	30.000	25.00	35.000	33.30	40.000
50.00	60.000	66.70	100.000	75.00	150.000
90.00	300.000				

VALID CASES	514	MISSING CASES	0

SIDE2 SIDE TWO OF BLDG

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	6	1	.4	.4	.4
	12	1	.4	.4	.8
	20	2	.8	.8	1.7
	24	15	6.4	6.4	8.1
	25	7	3.0	3.0	11.0
	26	12	5.1	5.1	16.1
	27	1	.4	.4	16.5
	28	12	5.1	5.1	21.6
	30	42	17.8	17.8	39.4
	33	1	.4	.4	39.8
	34	1	.4	.4	40.3
	35	1	.4	.4	40.7
	36	6	2.5	2.5	43.2
	38	1	.4	.4	43.6
	40	17	7.2	7.2	50.8
	42	2	.8	.8	51.7
	45	4	1.7	1.7	53.4
	50	12	5.1	5.1	58.5
	55	1	.4	.4	58.9
	60	7	3.0	3.0	61.9
	65	1	.4	.4	62.3
	70	6	2.5	2.5	64.8
	75	1	.4	.4	65.3
	80	6	2.5	2.5	67.8

100	5	3.8	3.8	71.6
120	3	1.3	1.3	72.9
140	1	.4	.4	73.3
150	6	2.5	2.5	75.8
160	1	.4	.4	76.3
200	20	8.5	8.5	84.7
210	1	.4	.4	85.2
250	11	4.7	4.7	89.8
300	9	3.8	3.8	93.6
400	6	2.5	2.5	96.2
500	1	.4	.4	96.6
600	3	1.3	1.3	97.9
660	1	.4	.4	98.3
700	1	.4	.4	98.7
800	2	.8	.8	99.6
999	1	.4	.4	100.0
TOTAL	236	100.0	100.0	

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

```
126        23  **********************************
 34        71  *********
 13       119  ***
  7       167  **
 21       215  *****
 11       263  ***
  9       311  **
  0       359
  6       407  **
  0       455
  1       503
  0       551
  3       599  *
  1       647
  1       695
  0       743
  2       791  *
  0       839
  0       887
  0       935
  1       983
          I    +    I    +    I    +    I    +    I    +    I
          0        40        80       120       160       200
                HISTOGRAM FREQUENCY
```

MEAN	113.229	STD ERR	9.850	MEDIAN	40.000
MODE	30.000	STD DEV	151.311	VARIANCE	22895.054
KURTOSIS	9.639	S E KURT	1.992	SKEWNESS	2.820
S E SKEW	.158	RANGE	993.000	MINIMUM	6.000
MAXIMUM	999.000	SUM	26722.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	25.000	25.00	30.000	33.30	30.000
50.00	40.000	66.70	80.000	75.00	150.000
90.00	300.000				

VALID CASES	236	MISSING CASES	0

TYPE STRUCTURE TYPE- BASE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
1 UNIT STRUCTURE	1	115	48.7	48.7	48.7
2 UNITS	2	4	1.7	1.7	50.4
3 TO 4 UNITS	3	5	2.1	2.1	52.5
5 TO 9 UNITS	4	2	.8	.8	53.4
10 TO 19 UNITS	5	3	1.3	1.3	54.7
20 TO 49 UNITS	6	1	.4	.4	55.1
OFFICE BUILDING	8	1	.4	.4	55.5
COMMERCIAL BUILD	9	92	39.0	39.0	94.5
INDUSTRIAL	10	2	.8	.8	95.3
EDUCATIONAL	11	6	2.5	2.5	97.9
RELIGIOUS	12	3	1.3	1.3	99.2
HEALTH BUILDING	13	1	.4	.4	99.6
OTHER	17	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

COUNT VALUE ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

```
  115      1.00  ****************************  ****
    4      2.00  *
    5      3.00  *
    2      4.00  *
    3      5.00  *
    1      6.00
    0      7.00
    1      8.00
   92      9.00  ***********************
    2     11.00  *
    6     11.00  **
    3     12.00  *
    1     13.00
    0     14.00
    1     15.00
          I         I         I         I         I         I
          0        40        80       120       160       200
                HISTOGRAM FREQUENCY
```

MEAN	4.886	STD ERR	.267	MEDIAN	2.000
MODE	1.000	STD DEV	4.102	VARIANCE	16.825
KURTOSIS	-1.724	S E KURT	1.992	SKEWNESS	.239
S E SKEW	.158	RANGE	14.000	MINIMUM	1.000
MAXIMUM	15.000	SUM	1153.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	1.000
50.00	2.000	66.70	9.000	75.00	9.000
90.00	9.000				

VALID CASES 236 MISSING CASES 0

Spatial areas of building material types

APAINT AREA PAINTED SURFACE

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
0.0	18	8	8	640.00	1	0	27	1488.21	1	0	47
15.61	1	0	8	649.35	1	0	28	1509.86	1	0	47
23.39	1	0	8	675.81	1	0	28	1526.96	1	0	47
46.51	1	0	9	677.03	1	0	28	1585.61	1	0	48
63.00	1	0	9	677.49	1	0	29	1632.00	1	0	48
69.45	1	0	10	759.72	1	0	29	1680.00	1	0	49
77.65	1	0	10	764.69	1	0	30	1718.36	1	0	49
86.15	1	0	11	770.00	1	0	30	1737.84	1	0	50
88.59	1	0	11	800.90	1	0	31	1835.45	1	0	50
97.77	1	0	11	805.57	1	0	31	1963.82	1	0	50
120.17	1	0	12	812.71	1	0	31	1971.71	1	0	51
124.39	1	0	12	879.86	1	0	32	1978.32	1	0	51
129.05	1	0	13	885.58	1	0	32	2016.00	1	0	52
156.27	1	0	13	889.25	1	0	33	2073.19	1	0	52
212.17	1	0	14	890.18	1	0	33	2099.42	1	0	53
248.82	1	0	14	893.46	1	0	33	2112.66	1	0	53
256.71	1	0	14	914.16	1	0	34	2130.00	1	0	53
258.06	1	0	15	922.64	1	0	34	2161.31	1	0	54
259.68	1	0	15	926.89	1	0	35	2219.84	1	0	54
276.92	1	0	16	940.80	1	0	35	2240.00	1	0	55
300.56	1	0	16	954.02	1	0	36	2309.83	1	0	55
301.64	1	0	17	979.31	1	0	36	2350.12	1	0	56
304.14	1	0	17	981.81	1	0	36	2382.10	1	0	56
310.38	1	0	17	997.03	1	0	37	2400.00	1	0	56
318.56	1	0	18	1013.94	1	0	37	2412.37	1	0	57
347.45	1	0	18	1024.92	1	0	38	2441.24	1	0	57
353.17	1	0	19	1032.76	1	0	38	2501.16	1	0	58
379.96	1	0	19	1047.41	1	0	39	2545.22	1	0	58
380.77	1	0	19	1053.22	1	0	39	2546.34	1	0	58
383.41	1	0	20	1059.41	1	0	39	2547.86	1	0	59
422.75	1	0	20	1106.04	1	0	40	2554.62	1	0	59
432.00	1	0	21	1131.90	1	0	40	2713.00	1	0	60
456.49	1	0	21	1153.48	1	0	41	2750.00	2	1	61
463.47	1	0	22	1170.50	1	0	41	2787.10	1	0	61
504.00	1	0	22	1178.18	1	0	42	2800.00	1	0	61
509.83	1	0	22	1182.81	1	0	42	2811.81	1	0	62
521.62	1	0	23	1188.00	1	0	42	3000.00	2	1	63
546.59	1	0	23	1195.34	1	0	43	3023.47	1	0	63
555.52	1	0	24	1239.62	1	0	43	3080.80	1	0	64
558.55	1	0	24	1275.52	1	0	44	3124.24	1	0	64
559.77	1	0	25	1329.85	1	0	44	3158.69	1	0	64
560.43	1	0	25	1388.91	1	0	44	3185.49	1	0	65
562.26	1	0	25	1400.47	1	0	45	3187.90	1	0	65
564.35	1	0	26	1409.68	1	0	45	3266.67	1	0	66
572.73	1	0	26	1419.14	1	0	46	3333.09	1	0	66
611.39	1	0	27	1460.60	1	0	46	3416.00	1	0	67

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
3443.81	1	0	67	4956.57	1	0	78	9644.80	1	0	89
3484.08	1	0	67	4984.71	1	0	79	9751.53	1	0	90
3615.50	1	0	68	5184.00	1	0	79	9939.80	1	0	90
3680.00	1	0	68	5257.14	1	0	80	10008.00	1	0	91
3680.69	1	0	69	5400.00	1	0	80	10359.11	1	0	91
3684.53	1	0	69	5442.23	1	0	81	10830.74	1	0	92
3738.51	1	0	69	5490.20	1	0	81	11015.38	1	0	92
3750.00	1	0	70	5500.00	1	0	81	11195.81	1	0	92
3750.00	1	0	70	5524.65	1	0	82	11219.51	1	0	93
3875.27	1	0	71	5591.84	1	0	82	11432.52	1	0	93
3904.69	1	0	71	5720.09	1	0	83	11560.08	1	0	94
3905.33	2	1	72	5950.00	1	0	83	11913.16	1	0	94
4114.29	1	0	72	6000.00	1	0	83	12347.74	2	1	95
4200.00	1	0	73	6400.00	1	0	84	12989.88	1	0	95
4264.00	1	0	73	7000.00	1	0	84	15110.29	1	0	96

4290.65	1	0	74	7145.65	1	0	85	16100.00	1	0	96		
4327.25	1	0	74	7280.00	1	0	86	17894.41	1	0	97		
4368.00	1	0	75	7750.43	1	0	86	17945.38	1	0	97		
4540.54	1	0	75	7760.93	1	0	86	19980.00	1	0	97		
4576.00	1	0	75	7836.91	1	0	86	20753.48	1	0	98		
4620.00	1	0	76	8084.61	1	0	87	21000.00	1	0	98		
4700.00	1	0	76	8631.36	1	0	87	21994.43	1	0	99		
4730.30	1	0	77	9000.00	1	0	87	22880.32	1	0	99		
4777.53	1	0	77	9143.00	1	0	88	29140.95	1	0	100		
4848.00	1	0	78	9366.97	1	0	88	67735.85	1	0	100		
4888.32	1	0	78	9600.00	1	0	88						

```
  COUNT    MIDPOINT     ONE SYMBOL EQUALS APPROXIMATELY  4.00 OCCURRENCES

    154        1608  ****************************************
     44        4834  ***********
     13        8060  ***
     13       11286  ***
      3       14512  *
      2       17738  *
      4       20964  *
      1       24190
      0       27416
      1       30642
      0       33868
      0       37094
      0       40320
      0       43546
      0       46772
      0       49998
      0       53224
      0       56450
      0       59676
      0       62902
      1       66128
                I.   +.    I    +...I.   +...I.   +...I.   +...I.   +...I
                0         40        80       120       160       200
                        HISTOGRAM FREQUENCY
```

MEAN	3820.998	STD ERR	410.163	MEDIAN	1899.632
MODE	0.0	STD DEV	6301.047	VARIANCE	39703189.7
KURTOSIS	46.151	S E KURT	1.992	SKEWNESS	5.429
S E SKEW	.158	RANGE	67735.849	MINIMUM	0.0
MAXIMUM	67735.849	SUM	901755.618		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	75.189	25.00	560.886	33.30	892.278
50.00	1899.632	66.70	3446.993	75.00	4567.135
90.00	9960.259				

VALID CASES 236 MISSING CASES 0

AMORT AREA, MORTAR / MASONRY SURFACE

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
0.0	70	30	30	1721.80	1	0	49	2594.43	1	0	69
66.30	1	0	30	1736.00	1	0	50	2601.04	1	0	69
158.99	1	0	31	1743.71	1	0	50	2614.06	1	0	69
181.82	1	0	31	1795.92	1	0	50	2619.23	1	0	70
239.35	1	0	31	1822.27	1	0	51	2631.10	1	0	70
335.29	1	0	32	1830.77	1	0	51	2702.30	1	0	71
349.44	1	0	32	1842.36	1	0	52	2724.55	1	0	71
369.88	1	0	33	1855.87	1	0	52	2834.12	1	0	72
389.70	1	0	33	1870.00	1	0	53	3000.22	1	0	72
390.24	1	0	33	1889.93	1	0	53	3005.75	1	0	72
472.55	1	0	34	1920.00	1	0	53	3038.77	1	0	73

506.61	1	0	34	1923.11	1	0	54	3074.89	1	0	73		
618.82	1	0	35	1930.19	1	0	54	3118.86	1	0	74		
663.27	1	0	35	1942.95	1	0	55	3193.96	1	0	74		
713.53	1	0	36	1967.82	1	0	55	3221.05	1	0	75		
720.00	1	0	36	1988.01	1	0	56	3323.08	1	0	75		
762.55	1	0	36	2005.57	1	0	56	3560.91	1	0	75		
864.86	1	0	37	2025.76	1	0	56	3565.64	1	0	76		
880.00	1	0	37	2044.19	1	0	57	3567.19	1	0	76		
917.48	1	0	38	2057.28	1	0	57	3669.38	1	0	77		
947.37	1	0	38	2064.10	1	0	58	3800.00	1	0	77		
1066.95	1	0	39	2064.96	1	0	58	3828.86	1	0	78		
1102.17	1	0	39	2069.20	1	0	58	3924.48	1	0	78		
1121.10	1	0	39	2091.12	1	0	59	3967.24	1	0	78		
1123.28	1	0	40	2126.91	1	0	59	4026.06	1	0	79		
1186.64	1	0	40	2137.00	1	0	60	4200.00	1	0	79		
1215.75	1	0	41	2149.88	1	0	60	4248.93	1	0	80		
1254.89	1	0	41	2179.55	1	0	61	4275.31	1	0	80		
1280.36	1	0	42	2229.34	1	0	61	4297.54	1	0	81		
1415.31	1	0	42	2233.61	1	0	61	4361.23	1	0	81		
1452.90	1	0	42	2238.28	1	0	62	4402.83	1	0	81		
1456.68	1	0	43	2253.41	1	0	62	4457.14	1	0	82		
1457.24	1	0	43	2253.43	1	0	63	4480.00	1	0	82		
1464.05	1	0	44	2261.23	1	0	63	4524.26	1	0	83		
1491.31	1	0	44	2264.15	1	0	64	4661.49	1	0	83		
1502.17	1	0	44	2302.40	1	0	64	4919.37	1	0	83		
1503.95	1	0	45	2339.09	1	0	64	5018.02	1	0	84		
1558.76	1	0	45	2352.59	1	0	65	5847.27	1	0	84		
1592.66	1	0	46	2369.82	1	0	65	6216.00	1	0	85		
1595.45	1	0	46	2473.95	1	0	66	6421.68	1	0	85		
1602.34	1	0	47	2480.78	1	0	66	6538.85	1	0	86		
1620.16	1	0	47	2503.91	1	0	67	6668.10	1	0	86		
1627.60	1	0	47	2509.68	1	0	67	7350.19	1	0	86		
1655.00	1	0	48	2513.99	1	0	67	7530.15	1	0	87		
1674.42	1	0	48	2556.14	1	0	68	7645.87	1	0	87		
1702.34	1	0	49	2576.22	1	0	68	8547.48	1	0	88		

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
9149.26	1	0	88	14140.09	1	0	92	33611.21	1	0	96
9681.09	1	0	89	14353.38	1	0	93	34734.18	1	0	97
10113.60	1	0	89	14885.71	1	0	93	36048.53	1	0	97
10155.50	1	0	89	14985.00	1	0	94	39320.64	1	0	97
10262.85	1	0	90	17532.18	1	0	94	41240.77	1	0	98
10863.03	1	0	90	19959.18	1	0	94	41421.57	1	0	98
12450.69	1	0	91	23385.37	1	0	95	44772.70	2	1	99
12882.04	1	0	91	24000.00	1	0	95	49950.00	1	0	100
13668.64	2	1	92	29970.00	1	0	96	69930.00	1	0	100

COUNT MIDPOINT ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES

177	1665	**********
25	4995	******
7	8325	**
6	11655	**
6	14985	**
2	18315	*
0	21645	
2	24975	*
0	28305	
1	31635	
3	34965	*
1	38295	
2	41625	*
2	44955	*
0	48285	
1	51615	
0	54945	
0	58275	
0	61605	
0	64935	
1	68265	

I + I + I + I + I + I
0 40 80 120 160 200
HISTOGRAM FREQUENCY

MEAN	4502.168	STD ERR	619.815	MEDIAN	1769.813
MODE	0.0	STD DEV	9521.792	VARIANCE	90664516.1
KURTOSIS	16.309	S E KURT	1.992	SKEWNESS	3.807
S E SKEW	.158	RANGE	69930.000	MINIMUM	0.0
MAXIMUM	69930.000	SUM	1062511.69		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	390.201
50.00	1769.813	66.70	2510.018	75.00	3501.450
90.00	11339.328				

VALID CASES 236 MISSING CASES 0

ASTONE AREA STONE SURFACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0.0	200	84.7	84.7	84.7
	16.20	1	.4	.4	85.2
	22.89	1	.4	.4	85.6
	23.39	1	.4	.4	86.0
	52.09	1	.4	.4	86.4
	57.92	1	.4	.4	86.9
	74.18	1	.4	.4	87.3
	84.00	1	.4	.4	87.7
	145.60	1	.4	.4	88.1
	160.00	1	.4	.4	88.6
	170.53	1	.4	.4	89.0
	174.98	1	.4	.4	89.4
	315.89	1	.4	.4	89.8
	342.86	1	.4	.4	90.3
	384.62	1	.4	.4	90.7
	398.69	1	.4	.4	91.1
	439.92	1	.4	.4	91.5
	475.35	1	.4	.4	91.9
	738.46	1	.4	.4	92.4
	792.00	1	.4	.4	92.8
	872.84	1	.4	.4	93.2
	1026.48	1	.4	.4	93.6
	1304.01	1	.4	.4	94.1
	1561.68	1	.4	.4	94.5
	2202.97	1	.4	.4	94.9
	2333.43	2	.8	.8	95.8
	2897.56	1	.4	.4	96.2
	4040.82	1	.4	.4	96.6
	7781.95	1	.4	.4	97.0
	13945.96	1	.4	.4	97.5
	14426.04	2	.8	.8	98.3
	15164.31	1	.4	.4	98.7
	15515.47	1	.4	.4	99.2
	17164.03	1	.4	.4	99.6
	24272.82	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES
221	576	**********
3	1732	
3	2888	
1	4044	
0	5200	
0	6356	
1	7512	
0	8668	
0	9824	
0	10980	
0	12136	
0	13292	
3	14448	
2	15604	
1	16760	
0	17916	
0	19072	
0	20228	
0	21384	
0	22540	
1	23696	

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0 80 160 240 320 400

HISTOGRAM FREQUENCY

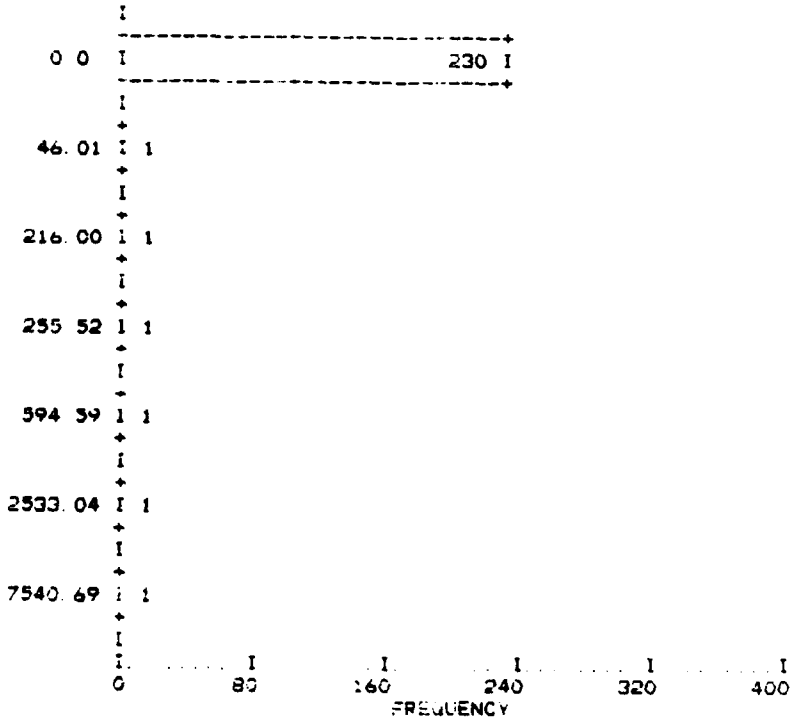
MEAN	619.235	STD ERR	189.134	MEDIAN	0.0
MODE	0.0	STD DEV	2905.533	VARIANCE	8442122.88
KURTOSIS	33.040	S E KURT	1.992	SKEWNESS	5.627
S E SKEW	.158	RANGE	24272.818	MINIMUM	0.0
MAXIMUM	24272.818	SUM	146139.376		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	355.385				

VALID CASES	236	MISSING CASES	0

AGALV AREA GALVANIZED SURFACE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0.0	230	97.5	97.5	97.5
	46.01	1	.4	.4	97.9
	216.00	1	.4	.4	98.3
	255.52	1	.4	.4	98.7
	594.59	1	.4	.4	99.2
	2533.04	1	.4	.4	99.6
	7540.69	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



MEAN	47.398	STD ERR	33.762	MEDIAN	0.0
MODE	0.0	STD DEV	518.655	VARIANCE	269003.034
KURTOSIS	189.464	S E KURT	1.992	SKEWNESS	13.419
S E SKEW	.158	RANGE	7540.690	MINIMUM	0.0
MAXIMUM	7540.690	SUM	11185.852		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 236 MISSING CASES 0

AOTHER AREA OTHER MATERIALS

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
0.0	104	44	44	333.33	1	0	63	1045.75	1	0	82
12.55	1	0	44	337.93	1	0	63	1114.16	1	0	82
17.77	1	0	45	346.42	1	0	64	1170.73	1	0	83
19.47	1	0	45	364.53	1	0	64	1200.00	1	0	83
23.87	1	0	46	365.22	1	0	64	1222.00	1	0	83
30.32	1	0	46	366.39	1	0	65	1336.41	1	0	84
41.90	1	0	47	366.55	1	0	65	1400.00	1	0	84
45.45	1	0	47	369.34	1	0	66	1600.86	1	0	85
49.20	1	0	47	375.06	1	0	66	1612.00	1	0	85
52.14	1	0	48	378.95	1	0	67	1654.01	1	0	86
65.04	1	0	48	385.17	1	0	67	1816.35	1	0	86
118.60	1	0	49	388.24	1	0	67	1884.82	1	0	86
120.00	1	0	49	390.24	1	0	68	1939.66	1	0	87
132.62	1	0	50	392.93	1	0	68	1998.00	1	0	87
144.95	1	0	50	407.70	1	0	69	2034.62	1	0	88
154.49	1	0	50	408.16	1	0	69	2069.75	1	0	88
221.48	1	0	51	411.75	1	0	69	2071.66	1	0	89
232.26	1	0	51	412.90	1	0	70	2085.59	1	0	89
242.97	1	0	52	414.65	1	0	70	2184.00	1	0	89
246.33	1	0	52	418.73	1	0	71	2251.17	1	0	90
253.65	1	0	53	434.09	1	0	71	2255.81	1	0	90
254.07	1	0	53	486.13	2	1	72	2510.05	1	0	91
257.50	1	0	53	486.53	1	0	72	2768.00	1	0	91
261.61	1	0	54	493.51	1	0	73	2830.40	1	0	92
261.82	1	0	54	499.79	1	0	73	3040.00	1	0	92
266.52	1	0	55	527.51	1	0	74	3276.50	1	0	92
268.53	1	0	55	527.74	1	0	74	3534.92	1	0	93
276.26	1	0	56	544.50	1	0	75	3810.96	1	0	93
281.80	1	0	56	560.00	1	0	75	4152.47	1	0	94
281.90	1	0	56	568.42	1	0	75	4488.61	1	0	94
287.40	1	0	57	599.47	1	0	76	5320.00	1	0	94
287.61	1	0	57	600.00	1	0	76	6285.71	1	0	95
295.31	1	0	58	602.55	1	0	77	7896.33	1	0	95
306.85	1	0	58	607.29	1	0	77	8000.00	1	0	96
318.44	1	0	58	620.11	1	0	78	8201.04	1	0	96
318.48	1	0	59	569.04	1	0	78	8295.87	1	0	97
320.00	1	0	59	706.56	1	0	78	11557.8.	1	0	97
320.89	1	0	60	742.66	1	0	79	12900.00	1	0	97
323.08	1	0	60	815.45	1	0	79	14335.65	1	0	98
323.74	1	0	61	829.05	1	0	80	14938.32	1	0	98
325.61	1	0	61	864.66	1	0	80	21236.52	1	0	99
326.53	1	0	61	879.07	1	0	81	22795.97	1	0	99
328.95	1	0	62	899.51	1	0	81	27998.29	1	0	100
330.73	1	0	62	1029.91	1	0	81	52448.00	1	0	100

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES
213	1244	**************************
9	3742	*
2	6240	
4	8738	*
1	11236	
3	13734	
0	16232	
0	18730	
1	21228	
1	23726	
0	26224	
1	28722	
0	31220	
0	33718	
0	36216	
0	38714	
0	41212	
0	43710	
0	46208	
0	48706	
1	51204	

I + I + I + I + I + I
0 80 160 240 320 400
HISTOGRAM FREQUENCY

MEAN	1361.574	STD ERR	309.551	MEDIAN	149.720
MODE	0.0	STD DEV	4755.416	VARIANCE	22613985.3
KURTOSIS	63.393	S E KURT	1.992	SKEWNESS	7.118
S E SKEW	.158	RANGE	52448.000	MINIMUM	0.0
MAXIMUM	52448.000	SUM	321331.469		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	149.720	66.70	385.413	75.00	566.316
90.00	2332.080				

VALID CASES	236	MISSING CASES	0

Roof and roof-mounted apparatus items and material types

CAREA EXPOSED CHIMNEY AREA

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	114	48.3	48.3	48.3
	4	1	.4	.4	48.7
	6	1	.4	.4	49.2
	8	1	.4	.4	49.6
	10	8	3.4	3.4	53.0
	12	1	.4	.4	53.4
	15	1	.4	.4	53.8
	16	1	.4	.4	54.2
	18	2	.8	.8	55.1
	20	10	4.2	4.2	59.3
	24	1	.4	.4	59.7
	25	1	.4	.4	60.2
	28	1	.4	.4	60.6
	30	12	5.1	5.1	65.7
	36	3	1.3	1.3	66.9
	40	7	3.0	3.0	69.9
	48	1	.4	.4	70.3
	50	5	2.1	2.1	72.5
	60	11	4.7	4.7	77.1
	63	1	.4	.4	77.5
	64	2	.8	.8	78.4
	70	4	1.7	1.7	80.1
	80	8	3.4	3.4	83.5
	90	2	.8	.8	84.3
	100	9	3.8	3.8	88.1
	110	1	.4	.4	88.6
	112	1	.4	.4	89.0
	120	5	2.1	2.1	91.1
	121	1	.4	.4	91.5
	130	1	.4	.4	91.9
	136	1	.4	.4	92.4
	140	1	.4	.4	92.8
	160	2	.8	.8	93.6
	170	3	1.3	1.3	94.9
	200	4	1.7	1.7	96.6
	206	1	.4	.4	97.0
	400	2	.8	.8	97.9
	420	1	.4	.4	98.3
	600	1	.4	.4	98.7
	800	1	.4	.4	99.2
	1800	2	.8	.8	100.0
	TOTAL	236	100.0	100.0	

CAREA EXPOSED CHIMNEY AREA

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES
197	40	**********
24	126	******
8	212	**
0	298	
3	384	*
0	470	
0	556	
1	642	
0	728	
1	814	
0	900	
0	986	
0	1072	
0	1158	
0	1244	
0	1330	
0	1416	
0	1502	
0	1588	
0	1674	
2	1760	*

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I    .+.    I....+.    I    ...+....I....+....I....+....I
0         40         80        120        160        200
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HISTOGRAM FREQUENCY

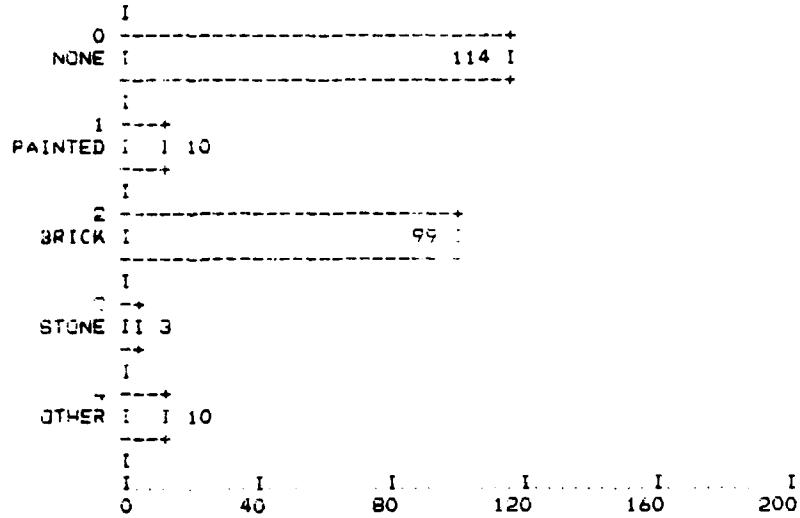
MEAN	58.288	STD ERR	11.979	MEDIAN	10.000
MODE	0.0	STD DEV	184.031	VARIANCE	33867.372
KURTOSIS	68.674	S E KURT	1.992	SKEWNESS	7.754
S E SKEW	.158	RANGE	1800.000	MINIMUM	0.0
MAXIMUM	1800.000	SUM	13756.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	10.000	66.70	36.316	75.00	60.000
90.00	120.000				

VALID CASES	236	MISSING CASES	0

CMAT CHIMNEY MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	114	48.3	48.3	48.3
PAINTED	1	10	4.2	4.2	52.5
BRICK	2	99	41.9	41.9	94.5
STONE	3	3	1.3	1.3	95.8
OTHER	4	10	4.2	4.2	100.0
	TOTAL	236	100.0	100.0	



MEAN	1.089	STD ERR	.075	MEDIAN	1.000
MODE	0.0	STD DEV	1.154	VARIANCE	1.332
KURTOSIS	-.613	S E KURT	1.992	SKEWNESS	.545
S E SKEW	.158	RANGE	4.000	MINIMUM	0.0
MAXIMUM	4.000	SUM	257.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	1.000	66.70	2.000	75.00	2.000
90.00	2.000				

VALID CASES 236 MISSING CASES 0

ESAREA AREA OF EXPOSED ROOF

VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT	VALUE	FREQ	PCT	CUM PCT
60	1	0	0	2100	1	0	43	10000	5	2	69
210	1	0	1	2160	3	1	44	11250	1	0	70
300	1	0	1	2200	1	0	44	12000	5	2	72
600	2	1	2	2210	2	1	45	13000	1	0	72
720	2	1	3	2240	2	1	46	15000	2	1	73
800	3	1	4	2242	1	0	47	18900	1	0	74
900	1	0	5	2250	4	2	48	20000	4	2	75
1000	5	2	7	2260	1	0	49	22500	1	0	76
1080	3	1	8	2380	2	1	50	25000	3	1	77
1100	4	2	10	2400	7	3	53	26250	1	0	78
1114	1	0	10	2410	1	0	53	30000	5	2	80
1120	1	0	11	2422	1	0	53	40000	6	3	82
1200	15	6	17	2500	1	0	54	45000	1	0	83

1240	1	0	17	2550	2	1	[illegible]	50000	4	2 84
1260	1	0	18	2648	1	0	[illegible]	55000	1	0 85
1300	2	1	19	2700	1	0	[illegible]	60000	7	3 88
1350	2	1	19	2750	1	0	[illegible]	62500	3	1 89
1360	1	0	20	2800	2	1	[illegible]	70000	1	0 89
1400	5	2	22	2850	1	0	57	75000	2	1 90
1428	1	0	22	2880	1	0	58	80000	3	1 92
1440	3	1	24	2900	1	0	58	90000	1	0 92
1480	1	0	24	3000	2	1	59	100000	3	1 93
1500	6	3	27	3200	2	1	60	104000	1	0 94
1530	1	0	27	3280	1	0	60	110000	1	0 94
1560	1	0	28	3600	1	0	61	120000	3	1 95
1600	11	5	32	4000	4	2	62	125000	1	0 96
1700	3	1	33	4512	1	0	63	135000	1	0 96
1800	10	4	38	4800	1	0	64	160000	3	1 97
1920	2	1	39	5000	3	1	64	175000	1	0 98
1950	1	0	39	5400	1	0	65	180000	1	0 98
2000	5	2	41	5950	1	0	65	240000	1	0 99
2020	1	0	42	6400	3	1	67	300000	1	0 99
2040	1	0	42	7000	1	0	67	315000	1	0 100
2080	1	0	42	7800	1	0	67	488400	1	0 100

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COUNT    MIDPOINT     ONE SYMBOL EQUALS APPROXIMATELY  4.00 OCCURRENCES

  179       11680   *********************************************
   16       34935   ****
   15       58190   ****
    7       81445   **
    5      104700   *
    5      127955   *
    3      151210   *
    2      174465   *
    0      197720
    0      220975
    1      244230
    0      267485
    1      290740
    1      313995
    0      337250
    0      360505
    0      383760
    0      407015
    0      430270
    0      453525
    1      476780

                I    .    +    .    I    .    +    .    I    .    +    .    I    .    +    .    I    .    +    .    I
                0              40              80             120             160             200
                                    HISTOGRAM FREQUENCY
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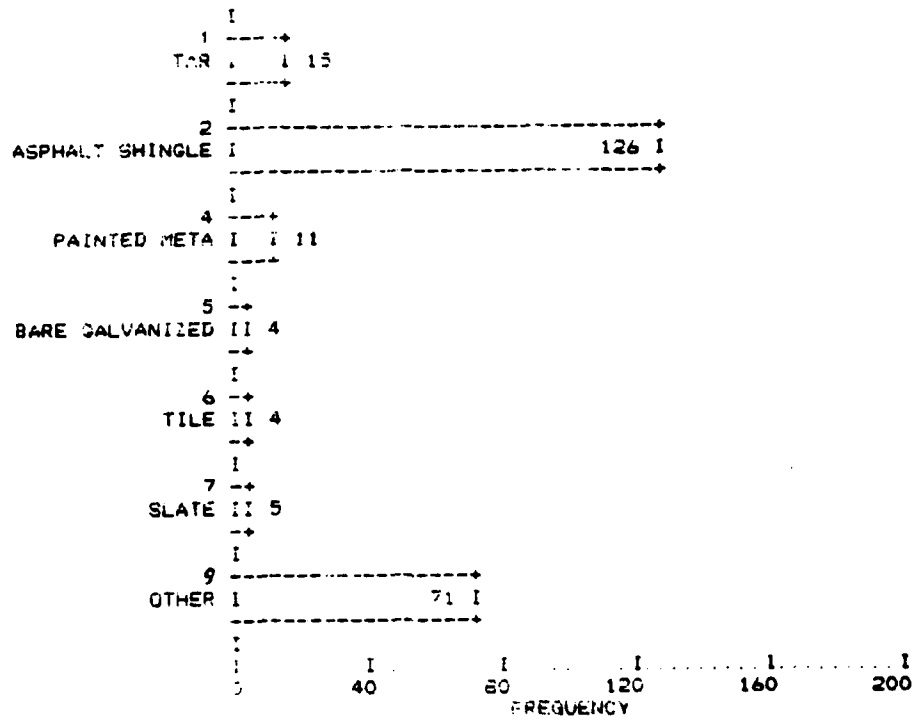
MEAN	24309.983	STD ERR	3618.552	MEDIAN	2400.000
MODE	1200.000	STD DEV	55589.244	VARIANCE	3090164058
KURTOSIS	26.213	S E KURT	1.992	SKEWNESS	4.405
S E SKEW	.158	RANGE	488340.000	MINIMUM	60.000
MAXIMUM	488400.000	SUM	5878756.00		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1109.800	25.00	1500.000	33.30	1700.000
50.00	2400.000	66.70	7063.200	75.00	20000.000
90.00	76500.000				

VALID CASES	236	MISSING CASES	0

ERMAT ROOF MATERIAL TYPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
TAR	1	15	6.4	6.4	6.4
ASPHALT SHINGLE	2	126	53.4	53.4	59.7
PAINTED META	4	11	4.7	4.7	64.4
BARE GALVANIZED	5	4	1.7	1.7	66.1
TILE	6	4	1.7	1.7	67.8
SLATE	7	5	2.1	2.1	69.9
OTHER	9	71	30.1	30.1	100.0
	TOTAL	236	100.0	100.0	



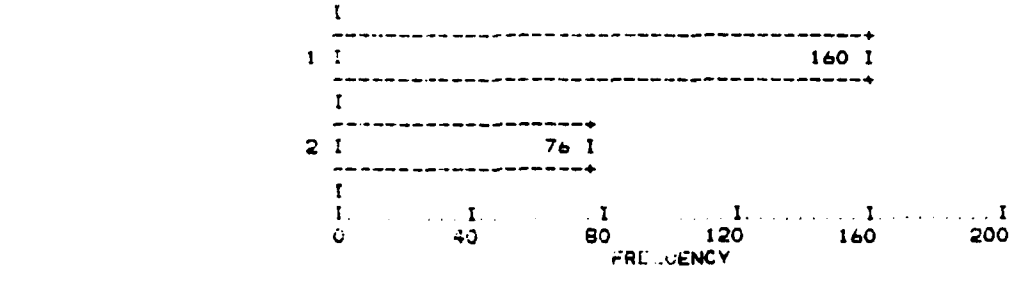
MEAN	4.360	STD ERR	.210	MEDIAN	2.000
MODE	2.000	STD DEV	3.226	VARIANCE	10.419
KURTOSIS	-1.470	S E KURT	1.992	SKEWNESS	.635
S E SKEW	.158	RANGE	8.000	MINIMUM	1.000
MAXIMUM	9.000	SUM	1029.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	2.000	25.00	2.000	33.30	2.000
50.00	2.000	66.70	6.000	75.00	9.000
90.00	9.000				

VALID CASES 236 MISSING CASES 0

SLOPE INDICATOR: ROOF SLOPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	1	160	67.8	67.8	67.8
	2	76	32.2	32.2	100.0
	TOTAL	236	100.0	100.0	



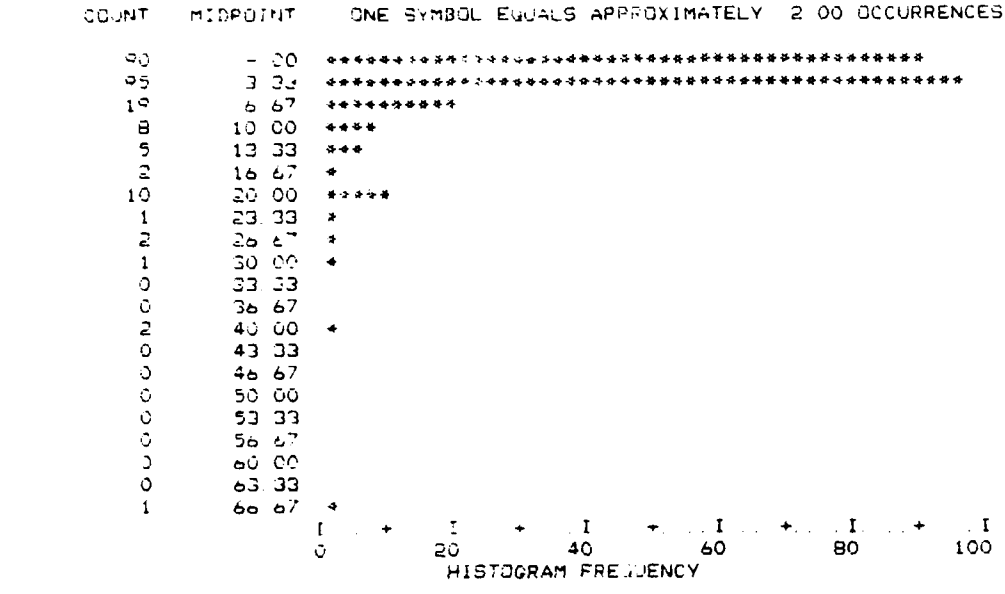
MEAN	1.322	STD ERR	.030	MEDIAN	1.000
MODE	1.000	STD DEV	.468	VARIANCE	.219
KURTOSIS	-1.424	S E KURT	1.992	SKEWNESS	.767
S E SKEW	.158	RANGE	1.000	MINIMUM	1.000
MAXIMUM	2.000	SUM	312.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	1.000	25.00	1.000	33.30	1.000
50.00	1.000	66.70	1.000	75.00	2.000
90.00	2.000				

VALID CASES	236	MISSING CASES	0

ITEM1 NO OF VENTS, FLUES, STACKS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	76	32.2	32.2	32.2
	1	14	5.9	5.9	38.1
	2	59	25.0	25.0	63.1
	3	28	11.9	11.9	75.0
	4	8	3.4	3.4	78.4
	5	4	1.7	1.7	80.1
	6	5	2.1	2.1	82.2
	7	6	2.5	2.5	84.7
	8	4	1.7	1.7	86.4
	10	8	3.4	3.4	89.8
	12	4	1.7	1.7	91.5
	14	1	.4	.4	91.9
	15	1	.4	.4	92.4
	18	1	.4	.4	92.8
	20	10	4.2	4.2	97.0
	22	1	.4	.4	97.5
	25	1	.4	.4	97.9
	28	1	.4	.4	98.3
	30	1	.4	.4	98.7
	40	2	.8	.8	99.6
	67	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



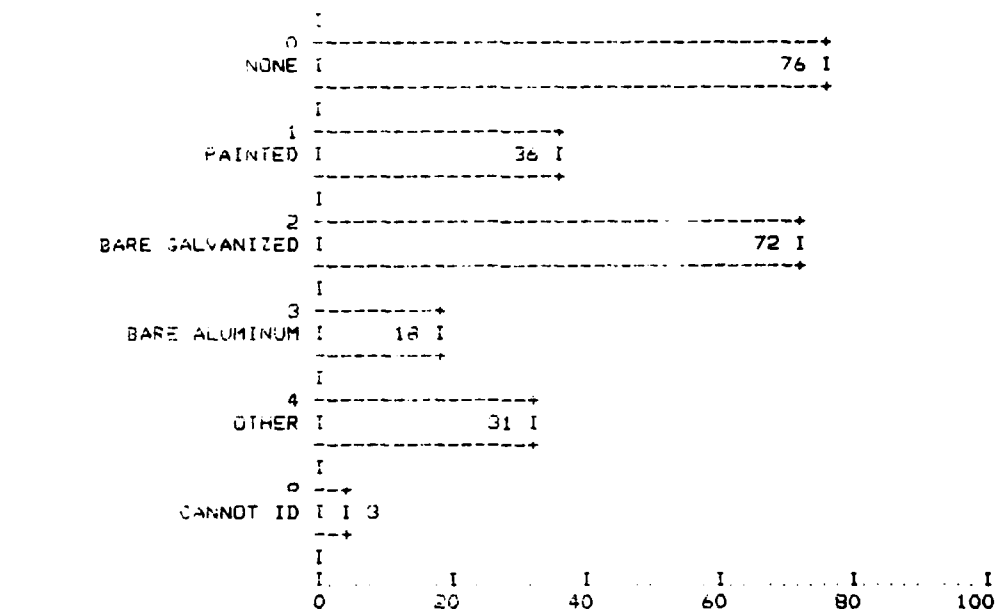
MEAN	4.133	STD ERR	.499	MEDIAN	2.000
MODE	0.0	STD DEV	7.677	VARIANCE	58.869
KURTOSIS	22.870	S E KURT	1.992	SKEWNESS	4.035
S E SKEW	.158	RANGE	67.000	MINIMUM	0.0
MAXIMUM	67.000	SUM	999.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	2.000	66.70	3.000	75.00	3.750
90.00	12.000				

VALID CASES 736 MISSING CASES .

RMAT ROOF APP MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	76	32.2	32.2	32.2
PAINTED	1	36	15.3	15.3	47.5
BARE GALVANIZED	2	72	30.5	30.5	78.0
BARE ALUMINUM	3	18	7.6	7.6	85.6
OTHER	4	31	13.1	13.1	98.7
CANNOT ID	9	3	1.3	1.3	100.0
	TOTAL	236	100.0	100.0	



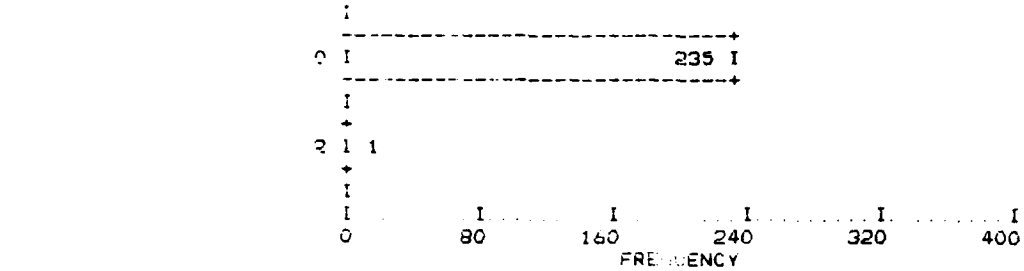
MEAN	1.631	STD ERR	.104	MEDIAN	2.000
MODE	0.0	STD DEV	1.594	VARIANCE	2.540
KURTOSIS	4.017	S E KURT	1.992	SKEWNESS	1.402
S E SKEW	.158	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	385.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	2.000	66.70	2.000	75.00	2.000
90.00	4.000				

VALID CASES 236 MISSING CASES 0

ITEM2 NO OF SKYLIGHTS

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	235	99.6	99.6	99.6
	2	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



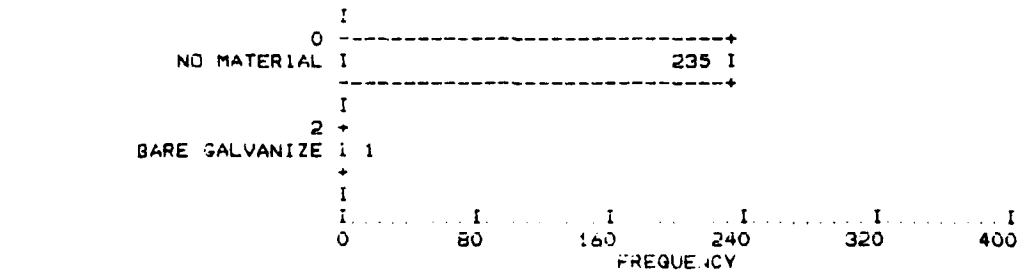
MEAN	.008	STD ERR	.008	MEDIAN	0.0
MODE	0.0	STD DEV	.130	VARIANCE	.017
KURTOSIS	236.000	S E KURT	1.992	SKEWNESS	15.362
S E SKEW	.158	RANGE	2.000	MINIMUM	0.0
MAXIMUM	2.000	SUM	2.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 236 MISSING CASES 0

SKYM SKYLIGHT MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	235	99.6	99.6	99.6
BARE GALVANIZE	2	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



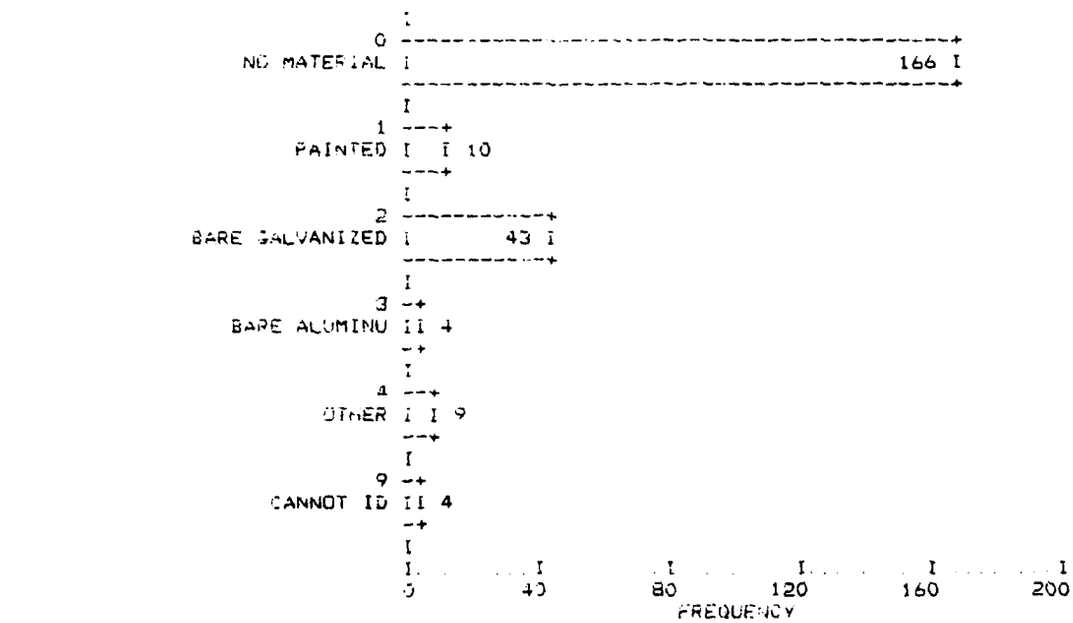
MEAN	.008	STD ERR	.008	MEDIAN	0.0
MODE	0.0	STD DEV	.130	VARIANCE	.017
KURTOSIS	236.000	S E KURT	1.992	SKEWNESS	15.362
S E SKEW	.158	RANGE	2.000	MINIMUM	0.0
MAXIMUM	2.000	SUM	2.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	0.0
90.00	0.0				

VALID CASES 236 MISSING CASES 0

FLMAT FLASHING MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NO MATERIAL	0	166	70.3	70.3	70.3
PAINTED	1	10	4.2	4.2	74.6
BARE GALVANIZED	2	43	18.2	18.2	92.8
BARE ALUMINU	3	4	1.7	1.7	94.5
OTHER	4	9	3.8	3.8	98.3
CANNOT ID	9	4	1.7	1.7	100.0
	TOTAL	236	100.0	100.0	



MEAN	.763	STD ERR	.099	MEDIAN	0.0
MODE	0.0	STD DEV	1.528	VARIANCE	2.335
KURTOSIS	12.704	S E SKEW	.158	SKEWNESS	3.120
S E KURT	1.992	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	180.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	2.000
90.00	2.000				

VALID CASES 236 MISSING CASES 0

FLAREA FLASHING AREA SQ FT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	166	70.3	70.3	70.3
	1	1	.4	.4	70.8
	2	6	2.5	2.5	73.3
	3	10	4.2	4.2	77.5
	4	12	5.1	5.1	82.6
	5	5	2.1	2.1	84.7
	6	3	1.3	1.3	86.0
	7	2	.8	.8	86.9
	8	4	1.7	1.7	88.6
	9	1	.4	.4	89.0
	10	6	2.5	2.5	91.5
	15	1	.4	.4	91.9
	20	3	1.3	1.3	93.2
	24	2	.8	.8	94.1
	32	1	.4	.4	94.5
	60	1	.4	.4	94.9
	100	2	.8	.8	95.8
	147	1	.4	.4	96.2
	300	1	.4	.4	96.6
	396	1	.4	.4	97.0
	400	3	1.3	1.3	98.3
	460	1	.4	.4	98.7
	510	1	.4	.4	99.2
	720	1	.4	.4	99.6
GREATER THAN 999	999	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 8.00 OCCURRENCES
222	20	*********************************
2	48	
2	116	
1	164	
0	212	
0	260	
1	308	
0	356	
4	404	*
1	452	
0	500	
0	548	
1	596	
0	644	
0	692	
1	740	
0	788	
0	836	
0	884	
0	932	
1	980	

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0 80 160 240 320 400

HISTOGRAM FREQUENCY

MEAN	23.373	STD ERR	7.042	MEDIAN	0.0
MODE	0.0	STD DEV	108.177	VARIANCE	11702.371
KURTOSIS	41.020	S E KURT	1.992	SKEWNESS	6.053
S E SKEW	.158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	5516.000		

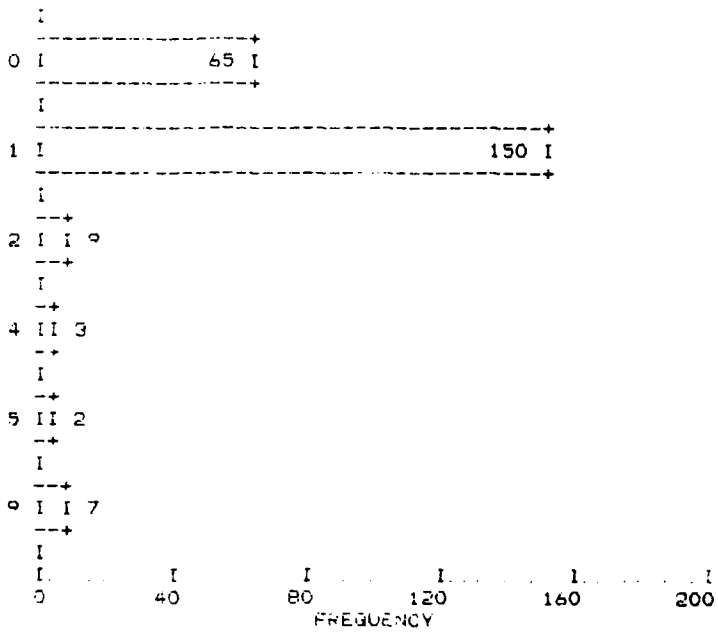
PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	3.000
90.00	10.000				

VALID CASES 236 MISSING CASES 0

Rain gutters, downspouts and fences

RGMAT RAIN GUTTER MATERIAL

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	1	150	63.6	63.6	91.1
	2	9	3.8	3.8	94.9
	4	3	1.3	1.3	96.2
	5	2	.8	.8	97.0
	9	7	3.0	3.0	100.0
	TOTAL	236	100.0	100.0	



MEAN	1.072	STD ERR	.102	MEDIAN	1.000
MODE	1.000	STD DEV	1.571	VARIANCE	2.467
KURTOSIS	17.360	S E KURT	1.992	SKEWNESS	4.000
S E SKEW	.158	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	253.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	1.000	66.70	1.000	75.00	1.000
90.00	1.000				

VALID CASES	236	MISSING CASES	0

RGLENGTH RAIN GUTTER LENGTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	10	1	.4	.4	28.0
	20	3	1.3	1.3	29.2
	40	6	2.5	2.5	31.8
	50	4	1.7	1.7	33.5
	60	11	4.7	4.7	38.1
	70	4	1.7	1.7	39.8
	72	9	3.8	3.8	43.6
	75	2	.8	.8	44.5
	78	1	.4	.4	44.9
	80	8	3.4	3.4	48.3
	84	1	.4	.4	48.7
	85	1	.4	.4	49.2
	90	4	1.7	1.7	50.8
	92	1	.4	.4	51.3
	100	13	5.5	5.5	56.8
	102	1	.4	.4	57.2
	104	1	.4	.4	57.6
	110	1	.4	.4	58.1
	120	12	5.1	5.1	63.1
	124	1	.4	.4	63.6
	125	2	.8	.8	64.4
	130	10	4.2	4.2	68.6
	132	1	.4	.4	69.1
	134	1	.4	.4	69.5
	140	9	3.8	3.8	73.3
	145	1	.4	.4	73.7
	150	7	3.0	3.0	76.7
	156	1	.4	.4	77.1
	160	8	3.4	3.4	80.5
	172	1	.4	.4	80.9
	180	5	2.1	2.1	83.1
	192	1	.4	.4	83.5
	200	10	4.2	4.2	87.7
	250	3	1.3	1.3	89.0
	260	3	1.3	1.3	90.3
	300	3	1.3	1.3	91.5
	320	1	.4	.4	91.9
	325	1	.4	.4	92.4
	350	1	.4	.4	92.8
	360	1	.4	.4	93.2
	400	3	1.3	1.3	94.5
	480	1	.4	.4	94.9
	500	5	2.1	2.1	97.0
	600	2	.8	.8	97.9
	999	5	2.1	2.1	100.0
	TOTAL	236	100.0	100.0	

LENGTH RAIN GUTTER LENGTH

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 1.50 OCCURRENCES
75	20	**********
45	68	**********
44	116	**********
32	164	**********
11	212	*******
6	260	****
5	308	***
2	356	*
3	404	**
0	452	
6	500	****
0	548	
1	596	*
0	644	
0	692	
0	740	
0	788	
0	836	
0	884	
0	932	
5	980	***

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0 15 30 45 60 75
HISTOGRAM FREQUENCY

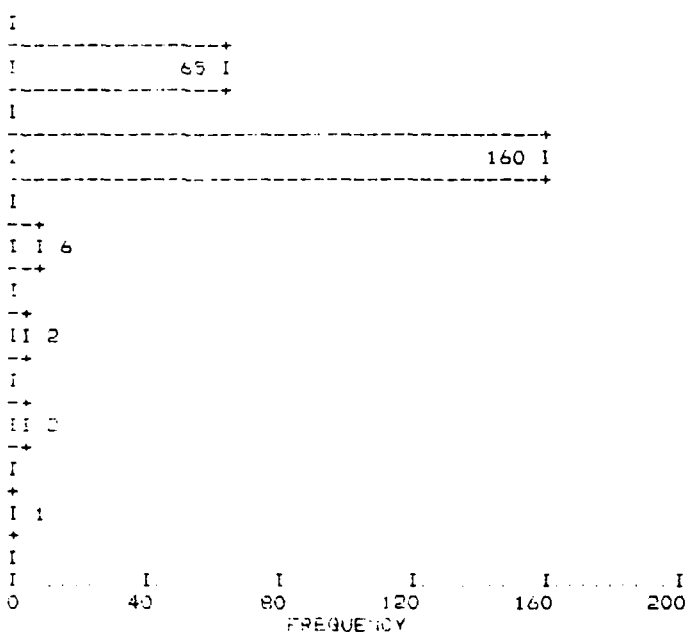
MEAN	126.686	STD ERR	11.277	MEDIAN	90.000
MODE	0.0	STD DEV	173.245	VARIANCE	30013.740
KURTOSIS	12.356	S E KURT	1.992	SKEWNESS	3.152
S E SKEW	.158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	29898.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	50.000
50.00	90.000	66.70	130.000	75.00	150.000
90.00	272.000				

VALID CASES	236	MISSING CASES	0

DSPOUT MATERIAL OF DOWNSPOUT

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	1	160	67.8	67.8	95.3
	2	6	2.5	2.5	97.9
	4	2	.8	.8	98.7
	5	2	.8	.8	99.6
	9	1	.4	.4	100.0
	TOTAL	236	100.0	100.0	



MEAN	.843	STD ERR	.057	MEDIAN	1.000
MODE	1.000	STD DEV	.873	VARIANCE	.763
KURTOSIS	36.495	S E KURT	1.992	SKEWNESS	4.642
S E SKEW	.158	RANGE	9.000	MINIMUM	0.0
MAXIMUM	9.000	SUM	199.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	1.000
50.00	1.000	66.70	1.000	75.00	1.000
90.00	1.000				

VALID CASES 236 MISSING CASES 0

DSLENG DOWNSPOUT LENGTH

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	65	27.5	27.5	27.5
	8	1	.4	.4	28.0
	10	1	.4	.4	28.4
	12	1	.4	.4	28.8
	16	2	.8	.8	29.7
	20	6	2.5	2.5	32.2
	24	5	2.1	2.1	34.3
	25	3	1.3	1.3	35.6
	26	1	.4	.4	36.0
	28	1	.4	.4	36.4
	30	6	2.5	2.5	39.0
	32	6	2.5	2.5	41.5
	35	2	.8	.8	42.4
	40	19	8.1	8.1	50.4
	42	1	.4	.4	50.8
	44	1	.4	.4	51.3
	45	2	.8	.8	52.1
	48	7	3.0	3.0	55.1
	50	12	5.1	5.1	60.2
	52	3	1.3	1.3	61.4
	60	26	11.0	11.0	72.5
	62	1	.4	.4	72.9
	64	1	.4	.4	73.3
	65	2	.8	.8	74.2
	70	3	1.3	1.3	75.4
	71	1	.4	.4	75.8
	72	2	.8	.8	76.7
	78	1	.4	.4	77.1
	80	13	5.5	5.5	82.6
	90	1	.4	.4	83.1
	100	6	2.5	2.5	85.6
	110	1	.4	.4	86.0
	120	10	4.2	4.2	90.3
	125	1	.4	.4	90.7
	128	1	.4	.4	91.1
	140	2	.8	.8	91.9
	150	2	.8	.8	92.8
	160	3	1.3	1.3	94.1
	200	3	1.3	1.3	95.3
	240	2	.8	.8	96.2
	250	1	.4	.4	96.6
	280	2	.8	.8	97.5
	300	2	.8	.8	98.3
	360	1	.4	.4	98.7
	600	1	.4	.4	99.2
	999	2	.8	.8	100.0
	TOTAL	236	100.0	100.0	

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES
120	20	**********
76	68	******
19	116	*****
7	164	**
3	212	*
5	260	*
2	308	*
1	356	
0	404	
0	452	
0	500	
0	548	
1	596	
0	644	
0	692	
0	740	
0	788	
0	836	
0	884	
0	932	
2	980	*

I ...+... I ...+... I ...+... I ...+... I ...+... I
0 40 80 120 160 200

HISTOGRAM FREQUENCY

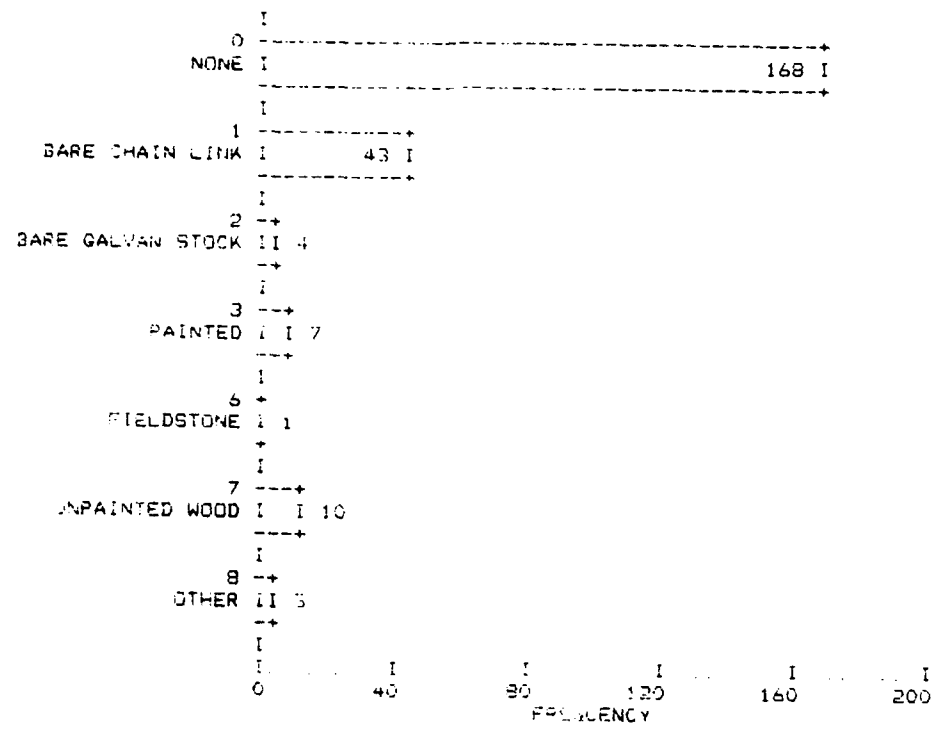
MEAN	63.648	STD ERR	7.264	MEDIAN	40.000
MODE	0.0	STD DEV	111.593	VARIANCE	12452.986
KURTOSIS	43.067	S E KURT	1.992	SKEWNESS	5.797
S E SKEW	.158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	15021.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	24.000
50.00	40.000	66.70	60.000	75.00	70.000
90.00	121.500				

VALID CASES	236	MISSING CASES	0

FENCE FENCE TYPE

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
NONE	0	168	71.2	71.2	71.2
BARE CHAIN LINK	1	43	18.2	18.2	89.4
BARE GALVAN STOCK	2	4	1.7	1.7	91.1
PAINTED	3	7	3.0	3.0	94.1
FIELDSTONE	6	1	.4	.4	94.5
UNPAINTED WOOD	7	10	4.2	4.2	98.7
OTHER	8	3	1.3	1.3	100.0
	TOTAL	236	100.0	100.0	



MEAN	.729	STD ERR	.114	MEDIAN	0.0
MODE	0.0	STD DEV	1.744	VARIANCE	3.041
KURTOSIS	8.700	S E KURT	1.992	SKEWNESS	3.069
S E SKEW	.158	RANGE	8.000	MINIMUM	0.0
MAXIMUM	8.000	SUM	172.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	1.000
90.00	2.000				

VALID CASES 236 MISSING CASES 0

FAREA FENCE AREA

VALUE LABEL	VALUE	FREQUENCY	PERCENT	VALID PERCENT	CUM PERCENT
	0	168	71.2	71.2	71.2
	60	1	.4	.4	71.6
	80	1	.4	.4	72.0
	90	2	.8	.8	72.9
	120	3	1.3	1.3	74.2
	150	1	.4	.4	74.6
	180	2	.8	.8	75.4
	240	2	.8	.8	76.3
	280	1	.4	.4	76.7
	300	1	.4	.4	77.1
	360	4	1.7	1.7	78.8
	400	1	.4	.4	79.2
	450	1	.4	.4	79.7
	480	1	.4	.4	80.1
	520	1	.4	.4	80.5
	525	1	.4	.4	80.9
	540	1	.4	.4	81.4
	600	4	1.7	1.7	83.1
	630	1	.4	.4	83.5

640	1	4	4	83.9
700	1	4	4	84.3
720	1	4	4	84.7
730	1	4	4	85.2
750	1	4	4	85.6
800	3	1.3	1.3	86.9
920	1	4	4	87.3
999	30	12.7	12.7	100.0
TOTAL	236	100.0	100.0	

COUNT	MIDPOINT	ONE SYMBOL EQUALS APPROXIMATELY 4.00 OCCURRENCES
168	20	**********
4	66	*
3	116	*
3	164	*
0	212	
3	260	*
1	308	
4	356	*
1	404	
1	452	
2	500	*
2	548	*
4	596	*
2	644	*
1	692	
3	740	*
3	788	*
0	836	
0	884	
1	932	
30	980	********

0 40 80 120 160 200

HISTOGRAM FREQUENCY

MEAN	196.886	STD ERR	23.373	MEDIAN	0.0
MODE	0.0	STD DEV	359.063	VARIANCE	128926.238
KURTOSIS	.608	S E KURT	1.992	SKEWNESS	1.523
S E SKEW	.158	RANGE	999.000	MINIMUM	0.0
MAXIMUM	999.000	SUM	46465.000		

PERCENTILE	VALUE	PERCENTILE	VALUE	PERCENTILE	VALUE
10.00	0.0	25.00	0.0	33.30	0.0
50.00	0.0	66.70	0.0	75.00	180.000
90.00	999.000				

VALID CASES	236	MISSING CASES	0