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Technical Note N-482

PIONEER POLAR STRUCTURES

SPECIFICATIONS FOR JAMESWAY SHELTER ACCESSORIES

15 April 1963

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**PIONEER POLAR STRUCTURES
SPECIFICATIONS FOR JAMESWAY SHELTER ACCESSORIES**

**Y-F015-11-146
Type B**

Compiled by

G. E. Sherwood

ABSTRACT

Accessories were developed for improving the Jamesway in order to provide a suitable, lightweight, quick-erecting shelter for use as quarters, messing, galley, utilities, administration and other such applications in pioneer polar camps. These accessories include: A heavy duty floor and foundation system; a wall extension kit; special entry kits; an improved electrical distribution system; and special utility accessories. This technical note contains the specifications for the Jamesway shelter accessories presented in the Naval Civil Engineering Laboratory Technical Report TR-241, "Pioneer Polar Structures - Accessories for the Jamesway Shelter."

INTRODUCTION

Experience has shown that a warm, comfortable shelter for use as quarters, messing, galley, utilities, administration and medical care is required for efficient and effective performance of a work force in a polar environment. Shelters for use when pioneering these regions must be lightweight and quick-erecting. Based on fulfillment of the above requirements and several years of successful use in Arctic and Antarctic operations, the Army Quartermaster Corps Tent, frame-type, insulated, commonly known as the Jamesway, was selected as the basic building to be used for development of a suitable shelter for pioneer polar camps.¹ Although the Jamesway basically fulfills the requirements of shelters for pioneer polar operations, continued usage of the structure has revealed certain limitations. This technical note contains the specifications* for² accessories developed for the Jamesway to overcome these limitations.

DESCRIPTION OF THE ACCESSORIES

The accessories developed for the Jamesway are detailed in the drawings contained in the Appendix. Accessories developed are:

1. A heavy duty floor which supports large concentrated loads without excessive deflection. Y&D Drawing No. 936916.
2. A special foundation system which provides structural steel support under the center of a building where cavitation is most critical. Y&D Drawing No. 936916.
3. A wall extension kit which raises the roof arches two feet above the standard position providing adequate headroom along the edges of the building. Y&D Drawing Nos. 936903 through 936905.
4. A side entry kit which is an entry vestibule for the side of a building. Y&D Drawing Nos. 936907 through 936912.
5. A standard vestibule end entry kit which permits direct entry through a standard vestibule. Y&D Drawing No. 936913.
6. An improved electrical distribution system which provides adequate lighting and convenience outlets for general use and flexibility for special applications. Y&D Drawing No. 936906.

* Developed by King, Benioff and Associates, Consulting Engineers, Sherman Oaks, California under Contract NBy-32208.

7. Water storage tanks which permit elevated water storage. Y&D Drawing No. 936915.

8. A snow melter which can be supplied with snow and used inside a building. Y&D Drawing No. 936917.

9. A dry head kit which permits placement of a toilet inside a building. Y&D Drawing No. 936914.

10. A special roof vent which can be placed anywhere in a building. Y&D Drawing No. 936902.

SPECIFICATIONS FOR THE ACCESSORIES

The specifications in the following paragraphs apply as appropriate to the Jamesway shelter accessories.

1. Scope. The work shall include the furnishing of all material and equipment, and performing all labor for the complete fabrication of the items indicated on the drawings and described and specified herein. The contractor's proposal shall be based on the drawings and specifications herewith and no deviations shall be accepted except as approved in writing by the Contracting Officer.

2. Materials

A. Wood

(1) Lumber. (Referred to on drawings as "Wood"). All lumber shall thoroughly and uniformly be dried to a moisture content not more than 12 percent at time of fabrication determined in accordance with Specification MIL-W-6110, and shall be free from decay, case bordering, shakes, checks, or any other defect which may affect the strength, wear or serviceability of the member. Not more than two small round knots 1/4 to 1/2 inch in diameter or one 3/4 inch knot will be permitted per square foot. Members shall be finished on all sides to drawing dimensions. Any of the following species of wood may be used, unless otherwise specified:

Fir, Douglas, Coast Region
Hemlock, Western
Pine, Norway or Ponderosa
Pine, (White) Northern or Western
Spruce (Eastern, Sitka)
Pine, Southern (long leaf, slash, short leaf and loblolly)

(2) Plywood. Plywood shall conform to Specification NN-P-530a for all plywood, and shall be grade marked to indicate conformance with the following requirements.

(a) Douglas Fir, Exterior Type, Grade AC, sanded 2 sides, as per Commercial Standard CS-45 of latest date.

B. Steel

(1) Sheet or Strip. Conform to Specification QQ-S-640 FS-1020 unless noted otherwise.

(2) Bar stock. Conform to Specification QQ-S-633a.

(3) Structural. Conform to "Standard Specifications for Structural Steel for Bridges and Buildings," Serial Designation A-7 of the American Society for Testing Materials.

C. Aluminum

(1) For structural purposes. Alloy 6061 or 6062, T-6 Temper, conform to Specification QQ-A-270a. Alloy and use as indicated on the drawings.

(2) For tanks. Alloy 5052, zero Temper, conform to Specification QQ-A-318c. Alloy and use as indicated on the drawings.

(3) Welding Wire. 5154 or 5356 for Alloys 6061 and 6062; 5356 for Alloy 5052.

(4) For vent roof flashing. Conform to Specification MIL-A-52174, .025 inches thick.

D. Fastenings

(1) Nails. The nails shall be steel, cement coated, either standard (coolers) or countersunk head (sinters) and size as indicated on the drawings, and shall conform to Specification FF-N-105.

(2) Screws

(a) Wood. Wood screws shall be steel, of the size indicated on the drawings and of style 2c (Flat (countersink) head with cross recess drive) and shall conform to Specification FF-S-111b. Wood screws shall be used only where length requirements are in excess of two (2) inches.

(b) Screws, threaded full length. All screws screwing wood to wood or other materials to wood and where the length requirement is not in excess of two (2) inches shall be a type of screw that is threaded full length. These screws shall be cadmium plated with cross recess drive and head type as indicated on the drawings. Type A, Parker Kalon, cadmium plated screws with Phillips slot conforms to these requirements.

(3) Fasteners, Corrugated. Corrugated fasteners shall be standard commercial of size indicated on the drawings.

(4) Bolts, nuts, washers

(a) Bolts, carriage, square neck, and nuts. Conform to Type C-2 Table X, of Specification FF-B-571a, and nuts Type A1 and Table XII.

(b) Bolts, and nuts, hexagonal. Conform to Specification FF-B-571a, Type B1 and Table V and nuts Type A1 and Table XII.

(c) Nuts, wing. The wing nuts shall be standard commercial, of the type and size as indicated on the drawings.

(d) Washers. The washers shall be standard commercial cut steel of the type and size indicated on the drawings.

(e) Finishes. All bolts, nuts, and washers shall be finished with a zinc coating conforming to type II or III, class 2 of Specification QQ-Z-325a or cadmium plating type II or III, class 2 of Specification QQ-P-416a.

(5) Rivets. Rivets for attaching metal to wood shall be standard commercial, of type and size as indicated on the drawings and finished the same as specified for bolts in Section (D) (4) (e).

(6) Adhesive A - wood to wood. The adhesive used for adhering wood to wood (other than the manufacture of plywood) shall conform to Type I, Grade A Class 1 of Specification MIL-A-397B.

E. Insulation

(1) Blanket. The insulation material shall be composed of glass fibers firmly bonded with a thermo-setting plastic resin into a mat structure of thickness as indicated on the drawings, (plus 1/2 inch, minus 0), with a density of 1# per cubic foot plus or minus 10 percent. The blanket shall be faced on each face with bright aluminum foil, 2 mils thick, and applied with a fire retardant adhesive. The thermal

conductivity shall not exceed 0.25 B.T.U. per hour, per square foot, per degree Fahrenheit taken at a mean temperature of 70 F; when tested in accordance with the ASTM Specification D 1518-57T.

(2) Felt. Gaskets indicated as felt shall be composed of a wool felt, specially impregnated with an anti-corrosion and anti-electrolysis compound. It shall have a tacky, pressure sensitive adhesive on one side as an application aid. Size shall be as indicated on the drawings.

F. Straps

(1) Webbing, cotton. The webbing for straps shall conform to Specification MIL-W-530B and shall be Type III, Class 4 of width indicated on the drawings. Webbing shall be dyed to olive drab shade No. 7.

(2) Clips, end. The end clips on webbing straps shall be brass, black chemical finish conforming to type I, (ball type) of Specification JAN-C-496.

(3) Buckles, slide, with hook. The buckles shall be made of steel, hot rolled sheet or strip, condition optional as indicated on the drawings. The buckle shall be heat treated to a hardness of RC-16-22 and shall be free from cracks, scale, and other injurious defects. Case hardening will not be permitted. The buckles shall be given a finish consisting of a phosphate treated zinc-plate, conforming to Class 3, Type III of Specification QQ-Z-325, followed by bake enameling. The enamel shall conform to Type II, Specification JAN-E-480, in a black color. The coatings shall level out to a uniform dry film thickness of 0.25 mils minimum, without objectionable orange peel, wrinkles, drops, streaks, or areas of thin or no film.

G. Coating

(1) Galvanizing. Conform to Specification QQ-Z-325a, Type II, Class I zinc coating.

(2) Cadmium Plating. Conform to Specification QQ-P-416a, Class I, Type II.

H. Paint

(1) Primer. The primer shall conform to Specification TT-P-636b.

(2) Enamel. The enamel shall conform to Specification TT-E-529a, Class A. The color shall be No. 24087, Table VI of Standard FED-STD-595.

J. Hardware

(1) Hinges. All hinges shall conform to Specification FF-H-116c of the following types and sizes as indicated on the drawings.

Doors - type 2171H
Tie down assembly bar - Strpa hinge, type 2203
Dry Head Lid - Tee hinges, type 2209
Dry Head Access Door - Type 2203, 4" strap
Snow Melter Chute - Type 2203, 4" strap

(2) Latch and Keeper. Latch and keeper for doors shall be a type easily operated from either inside or outside of the door. Latch and keeper shall be substantially the type indicated on the drawings, easily operated by a person wearing polar type mittens, but any acceptable latch that meets the necessary requirements, may be used upon the approval of the contracting officer. The Vonnegut No. 25 latch, as manufactured by Vonnegut Hardware Company, Indianapolis, Indiana, meets the requirements of this specification.

(3) Barrel bolt. Conform to Specification FF-H-111a, Type F1012C, 4 inches long.

(4) Sash fasteners. Conform to Specification FF-H-111a, Type F1142.

(5) Suitcase fasteners. Standard commercial as detailed, cadmium or zinc plated.

(6) Link lock. Medium duty, spring locking device. Load carrying capacity 1,000 pounds tension, operated by cam action with large wing-nut handle. (No. 2 Spring-Loaded Link-Lock as manufactured by Simmons Fastener Corporation, Albany, New York, conforms to this specification.)

(7) Chain bolt. Conform to Specification FF-H-111a, Type F 1023AC-6.

K. Toilet Seat

(1) Standard commercial, regular, solid wood core with plastic white finish, without cover.

L. Cloth

(1) For Vent Roof Flashing. A closely woven glass fabric coated on one side with chloroprene containing fire retardant. Material shall be resistant to acids, alkalies, gasoline and grease and will withstand a constant temperature of 250 F. (Ventglas, LA, manufactured by Ventfabrics, Inc., 640 North Kedzie Avenue, Chicago 12, Illinois, conforms to this specification.)

M. Plumbing Materials

(1) Pipe fittings - for steel pipe. Conform to Specification WW-P-521d.

N. Electrical Materials

(1) Materials listed below shall conform to Specifications as noted.

<u>Materials</u>	<u>Specification</u>
(a) Conduit outlets	W-C-586a
(b) Type VI, Design 27, Form 2	
(c) Wire connectors	W-S-610
Types I, Class B Style 3 or 4, Type II, Class A	
(d) Fittings, cable and conduit	W-F-406a
Type I Class 1, Style A; Type I, Class 3, Style A; Type V, Class 1, Style A.	
(e) Outlet Boxes	W-J-800a
Type I Size A Style 1; Type I, Size C, Style 8;	

Materials

Specification

Type II, Size E,
Style 13;
Type II, Size G,
Style 18;
Type IV Size K
Style 29;
Type VIII, Size S,
Style 43;
Type VIII, Size S
Style 44;
Type VIII, Size U,
Style 52, 54, 56, 57, 58;
Type VIII, Size S,
Style 49

(f) Panel Boards

WW-P-131a(2)

Class A-1, A-2, and A-4
as indicated on drawings
and conform to Table III.

(g) Receptacles and Plugs

W-C-596

Style, Series D except
with pressure type
terminals.

**(h) Switches,
(surface mounted)**

W-S-865c

Type NDD, Design 4, Box 1

(i) Switches, toggle

W-S-896a

Table III, Style 62

(j) Conduit, Steel, flexible

WW-C-566a

Sizes as indicated

(k) Conduit, steel, rigid

WW-C-581c

Sizes as indicated

Materials

Specification

(1) Nipples

WW-C-351a

Type 1, sizes as indicated

(m) Tubing, metallic

WW-T-806b

Sizes as indicated

(2) Conductors

(a) Conductors in buildings shall be copper, of size indicated, color coded; insulation to be of a type to withstand bending at -50 F without damage.

(3) Lighting Fixtures. Conform to Specification 9Yg.

3. Jamesway Wall Extension Kits (Y&D Drawings 936903, 936904 and 936905)

(a) The Wall Extension Kits consist of prefabricated, insulated plywood panels two feet (2') high of length indicated used for increasing the head room of the Jamesway Structure by two feet (2'). Included in the kit is the necessary material for modification of the end walls. The side and end wall panels connect to the floor units by means of bolts and link-lock fasteners. The end walls must be modified in the field in accordance with the drawings. Separate kits are listed for 32' long and 48' Jamesway Structures.

(b) Fabrication. All panels and items for end wall modification shall be fabricated in accordance with the drawings. Materials to conform to paragraph 2. All joints, wood to wood, and plywood to wood, shall be nail-glued with Adhesive A. All exposed surfaces of wood and plywood and all surfaces of steel shall receive one coat of Primer and two (2) coats of Enamel.

4. Jamesway General Electrical (Y&D Drawing 936906)

(a) The General Electrical plan provides a general lighting system with convenience outlets on each fixture. Separate designs are indicated for the 32' long and 48' long Jamesway Structure. This electric system is included as part of the Basic Building indicated on Y&D Drawing 936902.

(b) Fabrication. Materials to conform to paragraph 2-N. Assemblies shall be shop assembled with all parts as indicated and with wire ends cleaned ready for connecting.

5. Jamesway Side Entry Kit - For use with wall extensions (Y&D Drawing 936907, 936908, 936909)

(a) The Side Entry Kit provides a method of entering the Jamesway Structure along either side. It fits between arches and makes a vestibule with outer and inner doors. A four foot (4') long wall extension panel is furnished to replace one of the standard wall extension panels.

(b) Fabrication. Materials to conform to Paragraph 2. All joints, wood to wood, and plywood to wood, shall be nail-glued with Adhesive A. All exposed surfaces of wood and plywood, steel and hardware, shall receive one (1) coat of Primer and two (2) coats of Enamel.

6. Jamesway Side Entry Kit - For use with standard unit (Y&D Drawing 936910, 936911, 936912)

(a) The Side Entry Kit provides a method of entering the Standard (without wall extension) Jamesway Structure on either side. It fits between arches and makes a vestibule with outer and inner doors.

(b) Fabrication. Materials to conform to Paragraph 2. All joints, wood to wood, and plywood to wood, shall be nail-glued with Adhesive A. All exposed surfaces of wood and plywood, steel and hardware, shall receive one (1) coat of Primer and two (2) coats of Enamel.

7. Jamesway Vestibule End Entry Kit (Y&D Drawing 936913)

(a) The Vestibule End Entry Kit provides a door in the end of the standard vestibule. The kit consists of a frame and door, all assembled, ready for installation.

(b) Fabrication. Materials to conform to Paragraph 2. All joints, wood to wood and plywood to wood, shall be nail-glued with Adhesive A. All exposed surfaces of wood, plywood, steel and hardware shall receive one (1) coat of Primer and two (2) coats of Enamel.

8. Jamesway Dry Head Kit (Y&D Drawing 936914)

(a) The Dry Head Kit is used in conjunction with a Jamesway Side Entry Kit to provide a toilet stall. It is furnished in a "knock-down" condition and must be assembled in the field. It is so arranged that the waste can be removed from the exterior of the building.

(b) Fabrication. Materials to conform to Paragraph 2. All shop fabricated joints, wood to wood and wood to plywood, shall be nail-glued with Adhesive A. All surfaces of wood, plywood, steel and hardware shall receive one (1) coat of Primer and two (2) coats of Enamel.

9. Jamesway Tanks and Supports (Y&D Drawing 936915)

(a) The Tanks and Supports provide a 190 gallon Water Storage Tank, with cover, and Tank Support.

(b) Water Storage Tanks shall be formed of aluminum in accordance with details. Joints shall be full butt welds, ground smooth. Edges of sheared sheets shall be ground smooth. Holes in tank for piping shall be reinforced as detailed. Materials to conform to Paragraph 2.

(c) The Tank Support shall be fabricated as detailed ready for field assembly, including all erection bolts. Materials to conform to Paragraph 2.

(d) Welding shall be by inert gas process.

10. Jamesway Special Foundations (Y&D Drawing 936916)

(a) The Special Foundation provides steel supports, for the floor units, spanning 16 feet (16') to continuous timber sills. Included with each Special Foundation is insulation material to be placed over the snow below the foundation members and vent pipes to prevent or delay cavitation by heat from the building. The Special Foundation is to be used under floor areas where excessive heat may be generated. Special Foundations are provided for 16', 32' and 48' long structures. They may be used under the entire building or only a portion of the length.

(b) The Strengthening Members (SM) are pre-cut 2 x 6's for strengthening standard floor units where excessive loads may occur. They are to be field installed.

(c) Fabrication - Steel Beams and Angles. Shall be fabricated in accordance with American Institute of Steel Construction Specification for the Design, Fabrication and Erection of Structural Steel for Bridges and Buildings.

Steel Joists shall be fabricated of the members indicated in accordance with the specifications of the Steel Joist

Institute. Wood sills require no fabrication. Vent Pipes shall be fabricated of galvanized steel of gage indicated. Seams shall be of the single grooved seam type. Parts shall be separate ready for field assembly. Strengthening Members shall be cut to dimensions indicated.

(d) Painting. All surfaces of steel and wood shall receive one (1) coat of Primer and two (2) coats of Enamel. Steel members shall be dipped.

11. Snow Melter Tank and Chute (Y&D Drawing 936917)

(a) The Snow Melter consists of a melting tank and chute. The tank is constructed of plywood, insulation and aluminum liner. Immersion type electric water heaters are used for melting snow. The chute is constructed of lumber and plywood and requires modification of the end wall of the Jamesway Structure for installation. The door frame in the end wall and the entire vestibule must be discarded. The chute, when raised, provides a closure for the new opening.

(b) The Tank, shall be fabricated of the materials and to the dimensions as indicated on the drawings. The aluminum liner shall fit snugly into the plywood box and be secured only at the top. Joints in liner shall be full butt welded and ground smooth. Sheared edges shall be ground smooth. Fittings for pipe outlet shall be installed as detailed. Materials to conform to Paragraph 2. Joints, wood to wood and wood to plywood, shall be screw-glued with Adhesive A. Exposed surfaces of wood or plywood shall receive one (1) coat of Primer and two (2) coats of Enamel.

(c) The Chute and End Wall Modification shall be fabricated of materials and to dimensions indicated on the drawings ready for field installation. Joints, wood to wood and plywood to wood, shall be screw-glued with Adhesive A. Exposed surfaces of all material, except felt, shall receive one (1) coat of Primer and two (2) coats of Enamel.

(d) Welding shall be by inert gas process.

REFERENCES

1. NCEL Technical Note N-422, Erection of Quarters Building for Pioneer Polar Camp, by R. W. Hansen, C. R. Hoffman and E. H. Moser. 26 September 1961.
2. NCEL Technical Report R-241, Pioneer Polar Structures - Accessories for the Jamesway Shelter, by G. E. Sherwood. Port Hueneme, California, to be published in June 1963.

APPENDIX

Drawings For The Jamesway Shelter Accessories

The original of the drawings listed below and shown at reduced scale are available at the Naval Civil Engineering Laboratory, Port Hueneme, California. All drawings are 28 by 40 inches.

<u>Y&D Drawing No.</u>	<u>Title</u>
936902	Jamesway Structure Basic Building
936903	Jamesway Wall Extension Kit Fabrication - Walls
936904	Jamesway Wall Extension Kit Fabrication - Door Frame
936905	Jamesway Wall Extension Kit Erection Details
936906	Jamesway General Electrical 32' and 48' Buildings
936907	Jamesway Side Entry Kit (For use with wall extensions) Fabrication Details
936908	Jamesway Side Entry Kit (For use with wall extensions) Fabrication Details
936909	Jamesway Side Entry Kit (For use with wall extensions) Erection Details
936910	Jamesway Side Entry Kit (For use with standard unit) Fabrication Details
936911	Jamesway Side Entry Kit (For use with standard unit) Fabrication Details

Y&D Drawing No.

Title

936912

Jamesway Side Entry Kit
(For use with standard unit)
Erection Details

936913

Jamesway Vestibule End Entry Kit
Fabrication and Erection Details

936914

Jamesway Dry Head Kit
Fabrication and Erection

936915

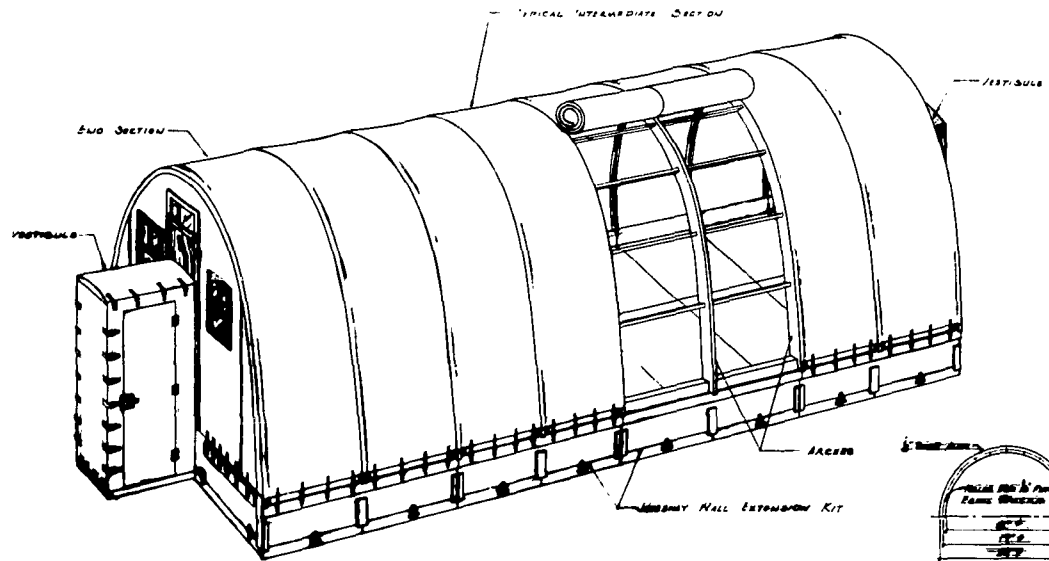
Jamesway Tanks and Supports
Fabrication and Erection

936916

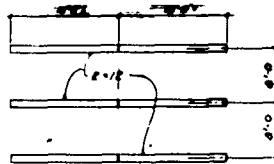
Jamesway Special Foundations
Fabrication and Erection

936917

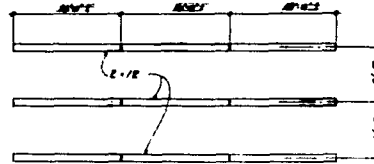
Snow Melter Tank and Chute
Fabrication and Erection



PERSPECTIVE (1 UNIT)

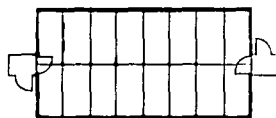


16' x 32' STRUCTURE

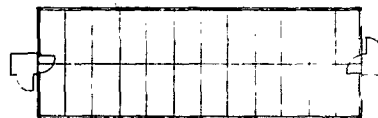


16' x 66' STRUCTURE

FOUNDATION PLANS

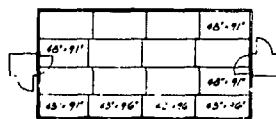


16' x 32' STRUCTURE



16' x 66' STRUCTURE

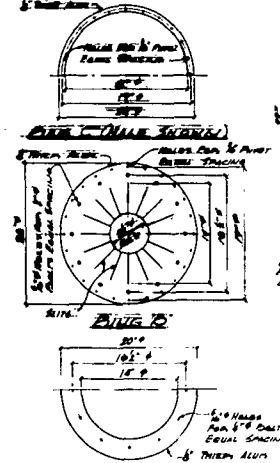
FLOOR PLAN PLANS



16' x 32' STRUCTURE

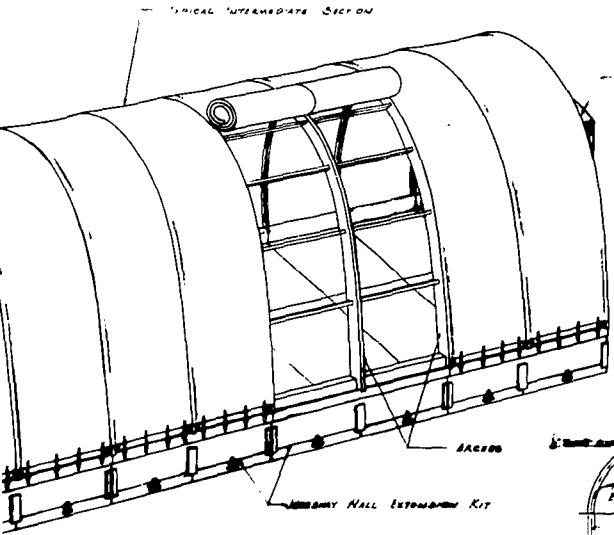


FLOOR PLAN



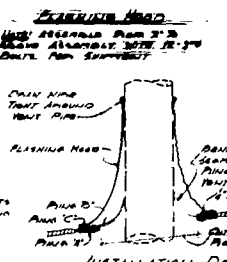
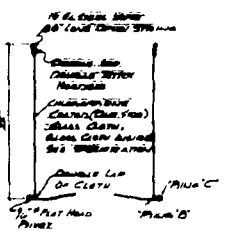
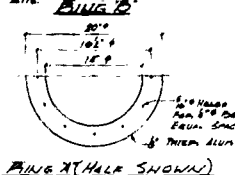
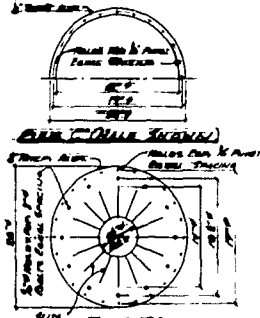
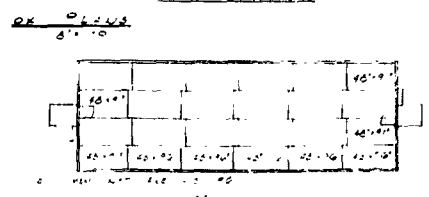
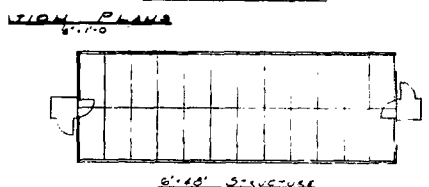
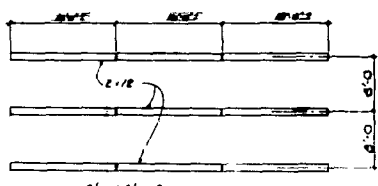
VENT AREA

NOTE: THE AREA IS NOT INCLUDED IN THE 'BUILDING' AREA. THE QUANTITY ASSUMED FOR EACH IS BASED ON GENERAL ASSUMPTIONS. FOR THE 16' x 32' THE AREA IS 16' x 32'.



2

PERSPECTIVE (1 UNIT)



VENT ROOF FLASHING

NOTE: THIS ITEM IS NOT INCLUDED IN THE BASIC BUILDING. ANCHORING CHAINS MUST BE INSTALLED. ANCHORS MUST BE INSTALLED IN THE CONCRETE. ANCHORS MUST BE INSTALLED IN THE CONCRETE. ANCHORS MUST BE INSTALLED IN THE CONCRETE.

REFER TO HCL 11 FOR ADDITIONAL INFORMATION AND SPECIFICATION

UNIT	DESCRIPTION	UNIT QUANTITY	STOCK NO	STK
16.02	BASIC BUILDING			
1	16'-0" INTERMEDIATE COMPLETE	1	ASMO-571-2001	2
2	16'-0" INTERMEDIATE COMPLETE	1	ASMO-571-2001	2
3	16'-0" INTERMEDIATE COMPLETE	1	ASMO-571-2001	2
4	16'-0" INTERMEDIATE COMPLETE	1	ASMO-571-2001	2
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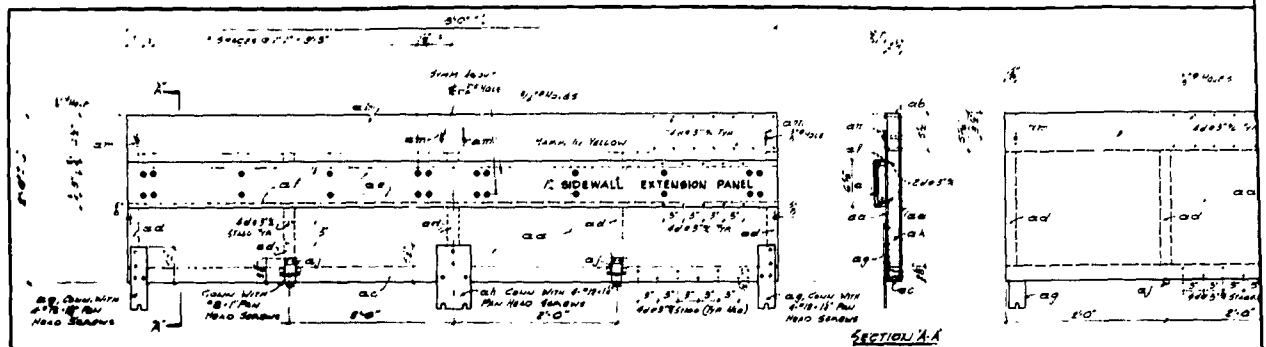
DEPARTMENT OF THE NAVY
U.S. NAVAL CIVIL ENGINEERING LABORATORY
KING, BENIOFF & ASSOCIATES
PIONEER POLAR STRUCTURES
JAMESWAY STRUCTURE
BASIC BUILDING

GRAPHIC SCALE
APPROVED FOR BUREAU OF YARDS & DOCK
DATE 11-1-62

REVISIONS
DATE 11-1-62

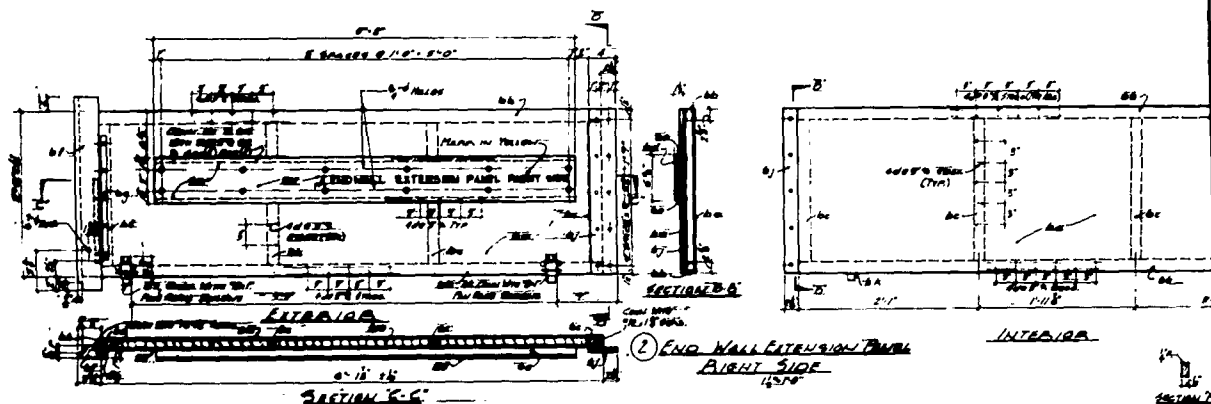
SCALE AS NOTED SPEC.
1/10

FIGURE NO. 229902



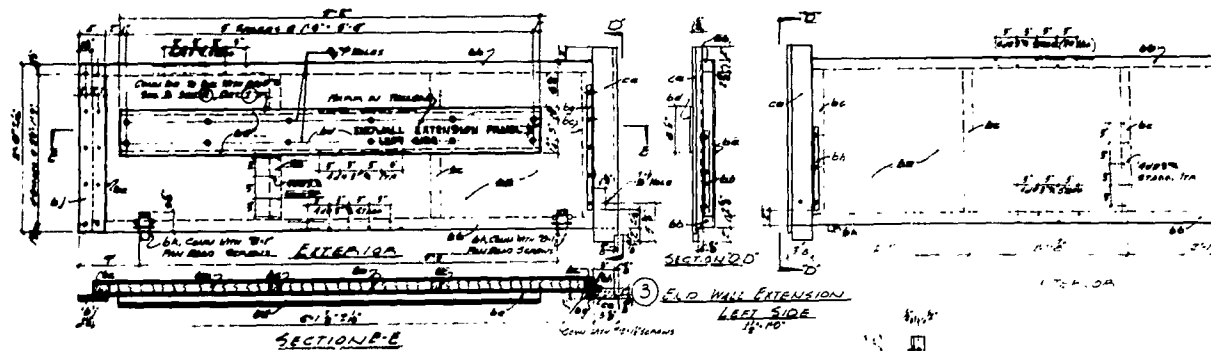
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① SIDEWALL EXTENSION PANEL
18'x10'



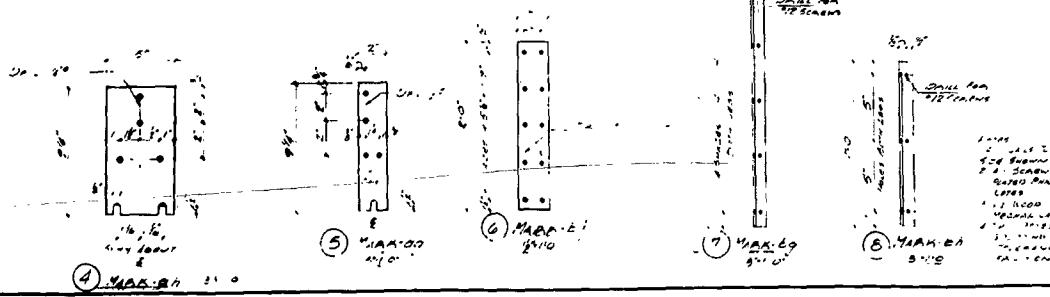
EXTERIOR

② END WALL EXTENSION PANEL
RIGHT SIDE
14'x10'

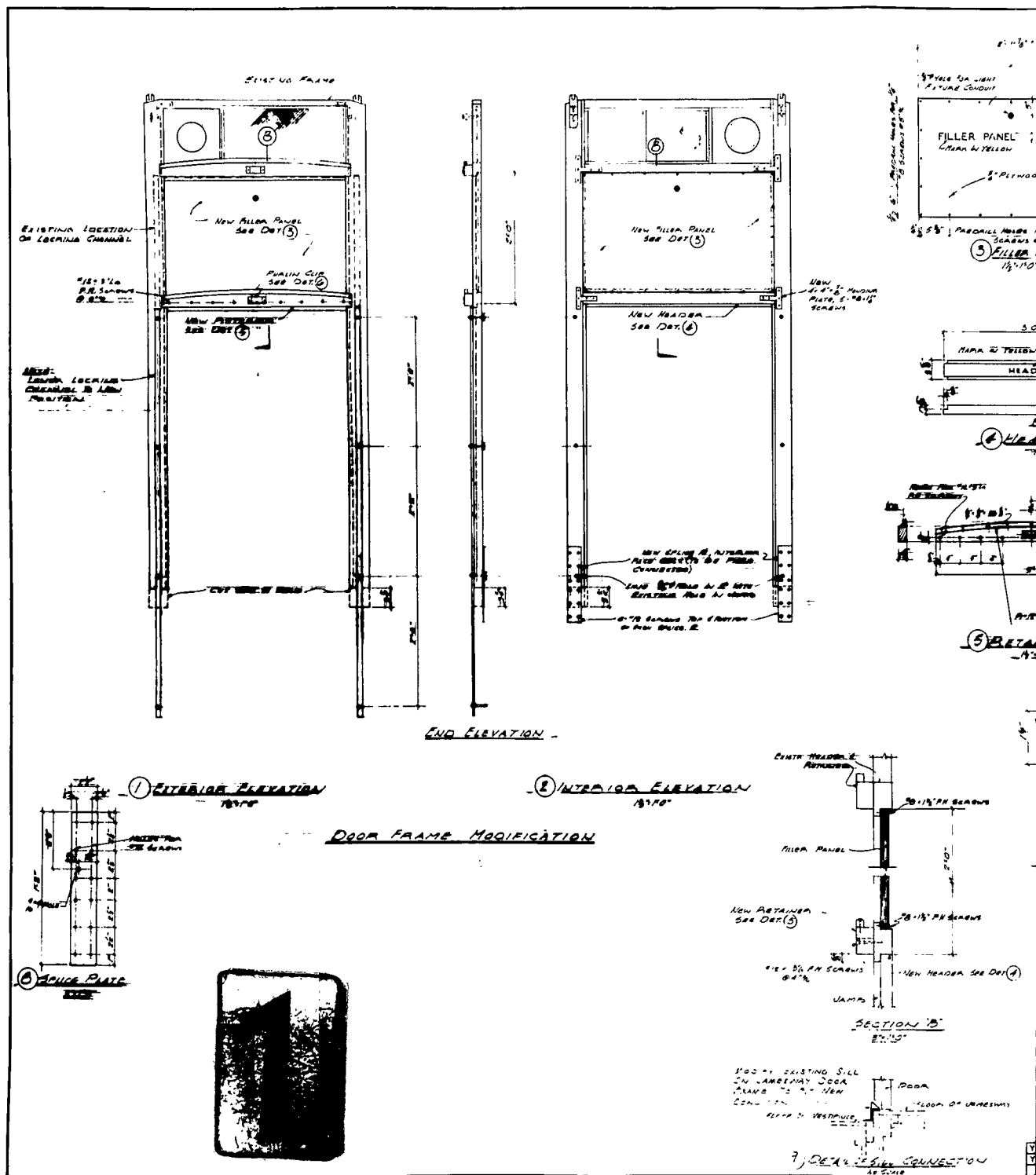


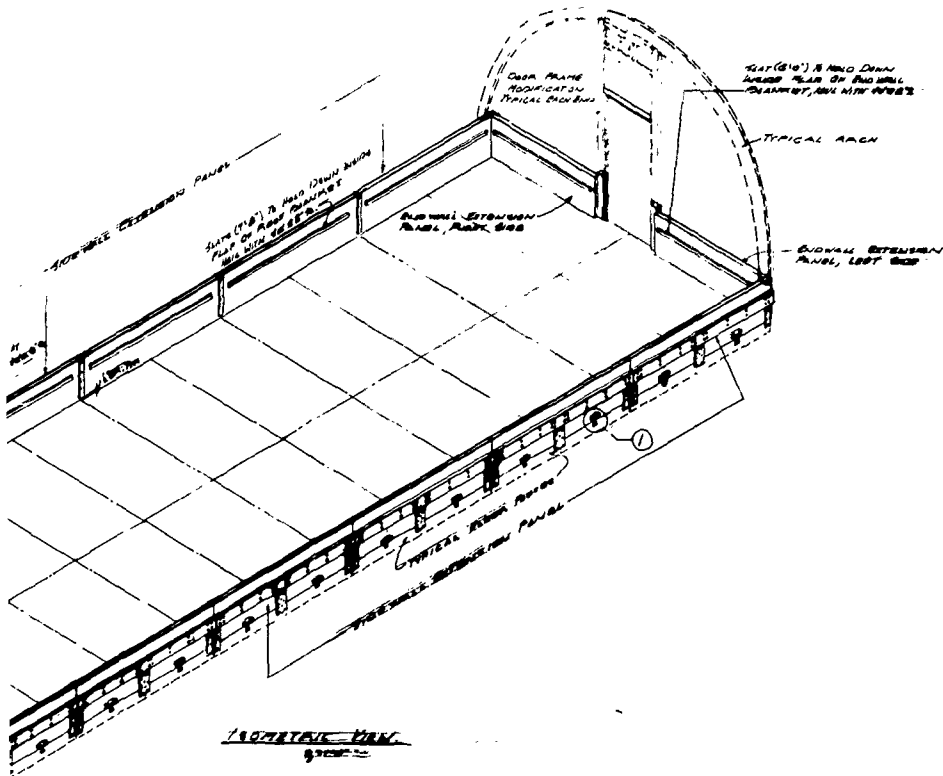
EXTERIOR

③ END WALL EXTENSION
LEFT SIDE
14'x10'

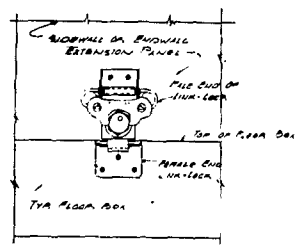


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DEPARTMENT OF THE NAVY U.S. NAVAL CIVIL ENGINEERING BUREAU OF YARDS AND DOCK LABORATORY					
KING, BENJOFF & ASSOCIATES CONSULTING ENGINEERS					
PIONEER POLAR STRUCTURES					
JAMESWAY WALL EXTENSION KIT					
FABRICATION - WALLS					
APPROVED 1 2 DATE 2-0-51					
FOR CHIEF OF BUREAU					
MAILED 2 OF 10					
DATE 10-10-50					





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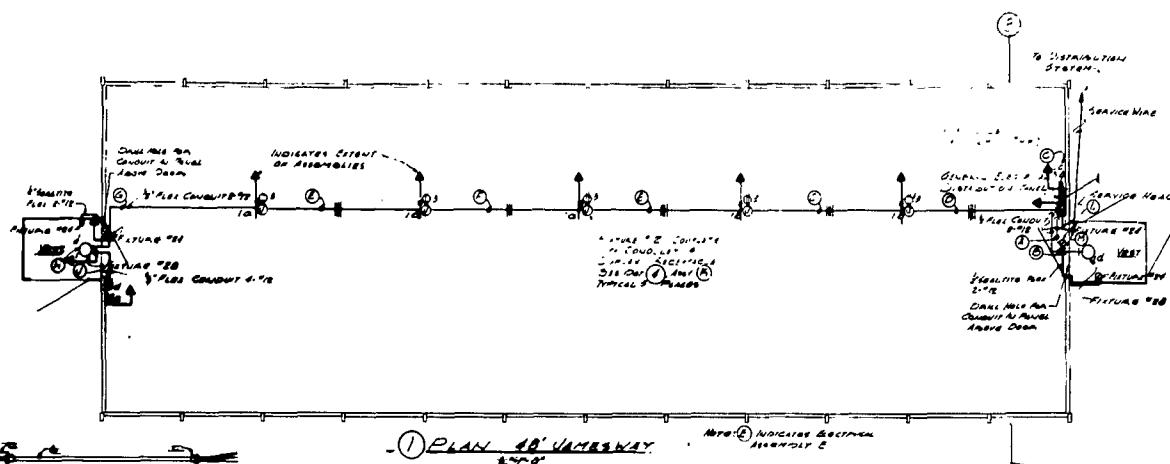
REFER TO INCL. 1 FOR ADDITIONAL INFORMATION AND SPECIFICATION

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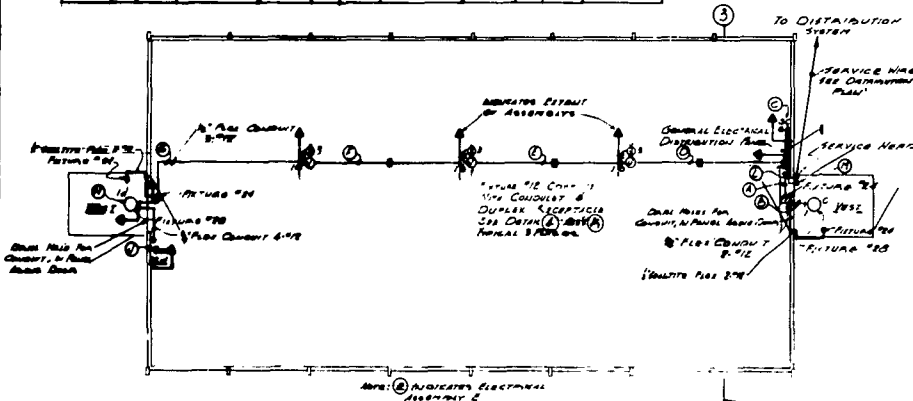
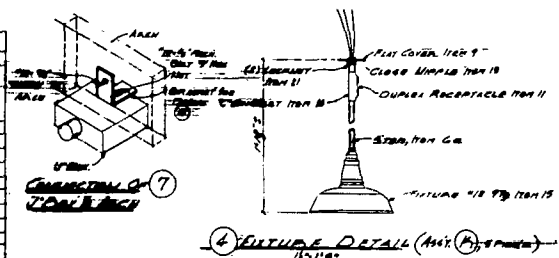
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U.S. NAVAL CIVIL ENGINEERING LABORATORY
 KING, BENIOFF & ASSOCIATES
 PIONEER POLAR STRUCTURES
 JAMESWAY WALL EXTENSION KIT
 ERECTION DETAILS

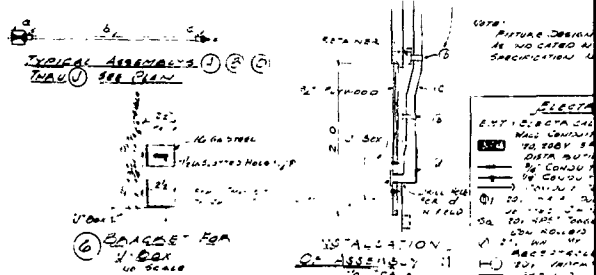
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 SHEET 4 OF 10

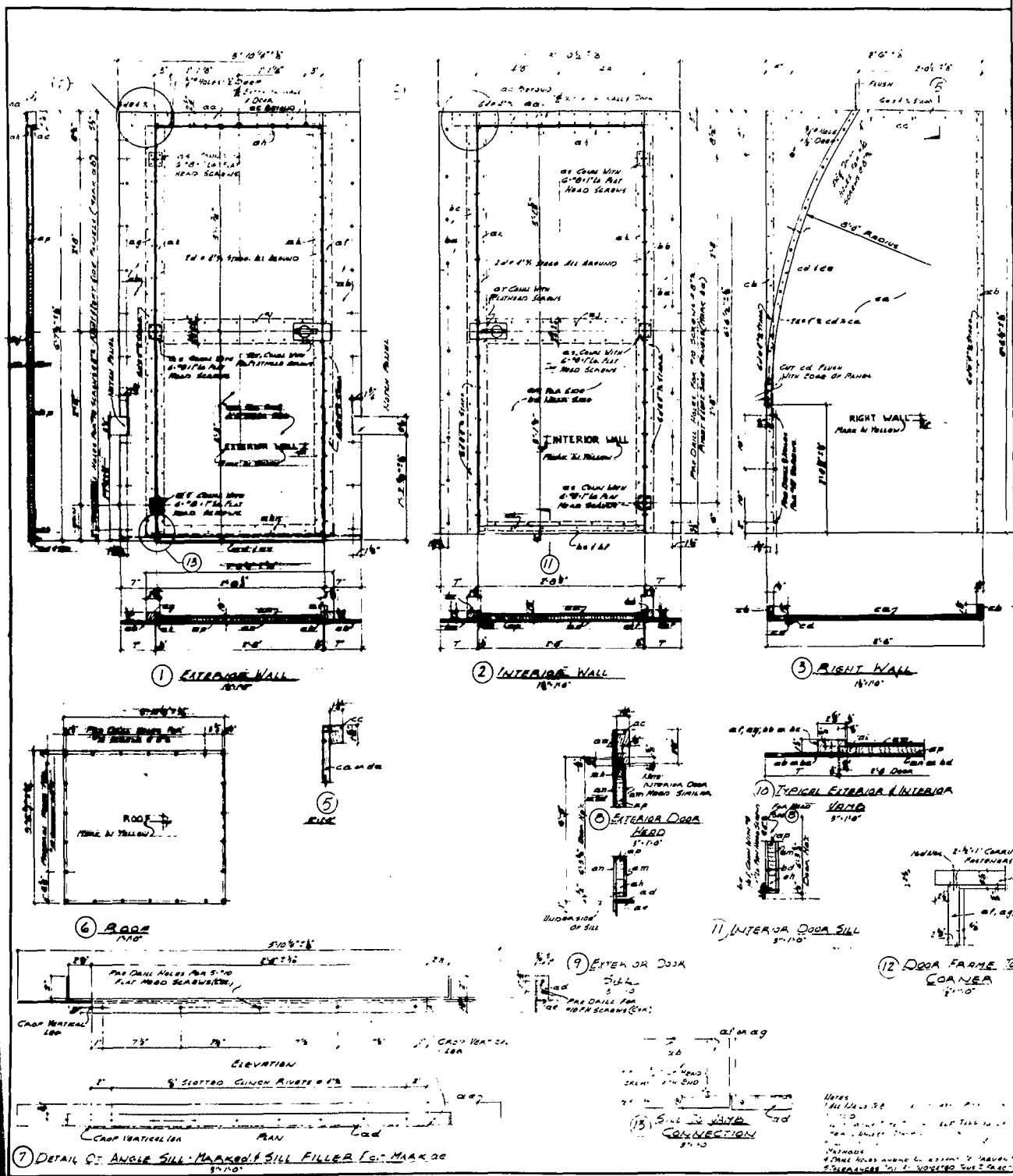


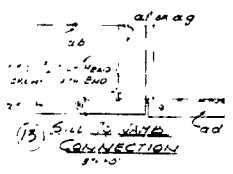
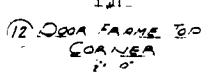
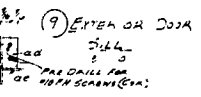
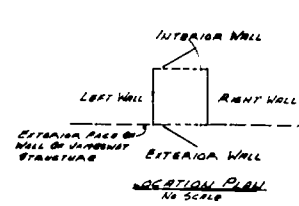
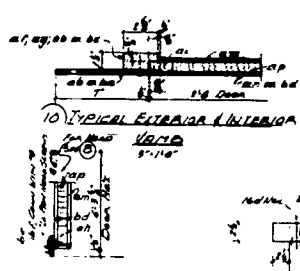
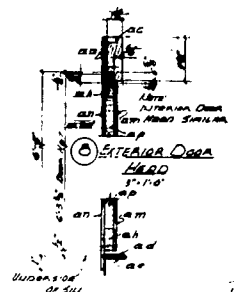
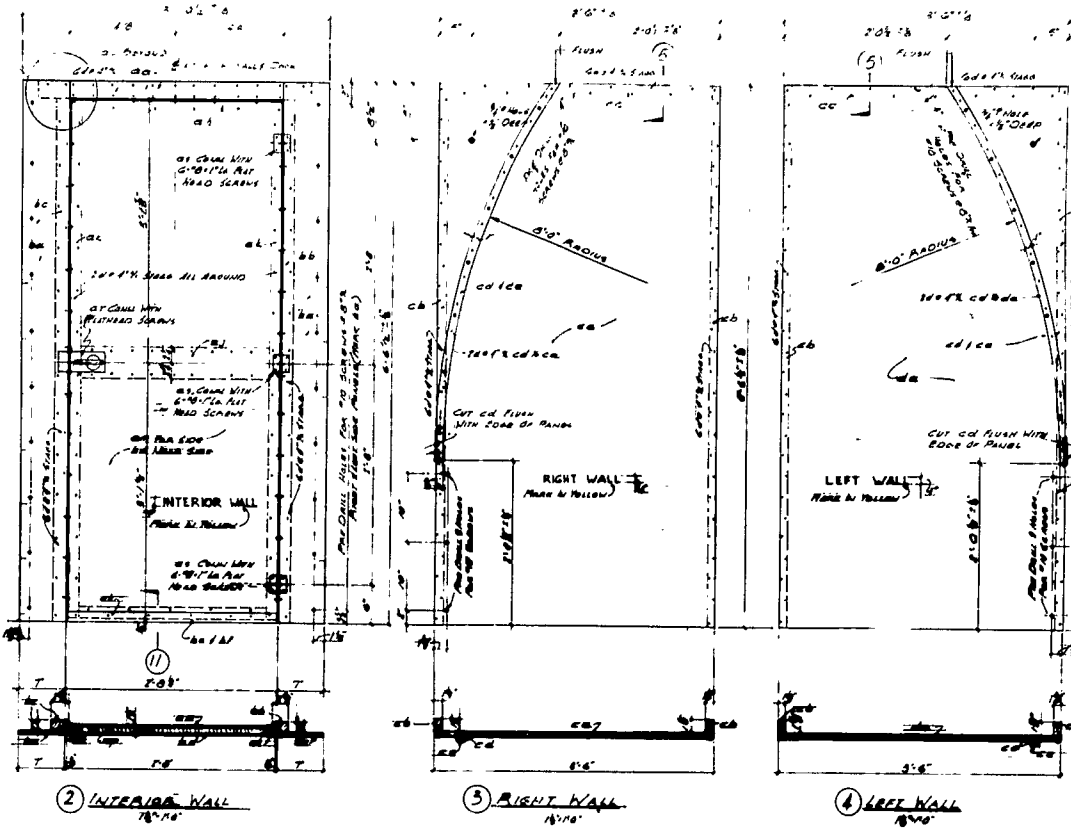
- ① PLAN 40' VARIWAY

[illegible]

② PLAN 32' JAMESWAY
1:110'

[illegible]





REVISIONS		DATE	APPROVED
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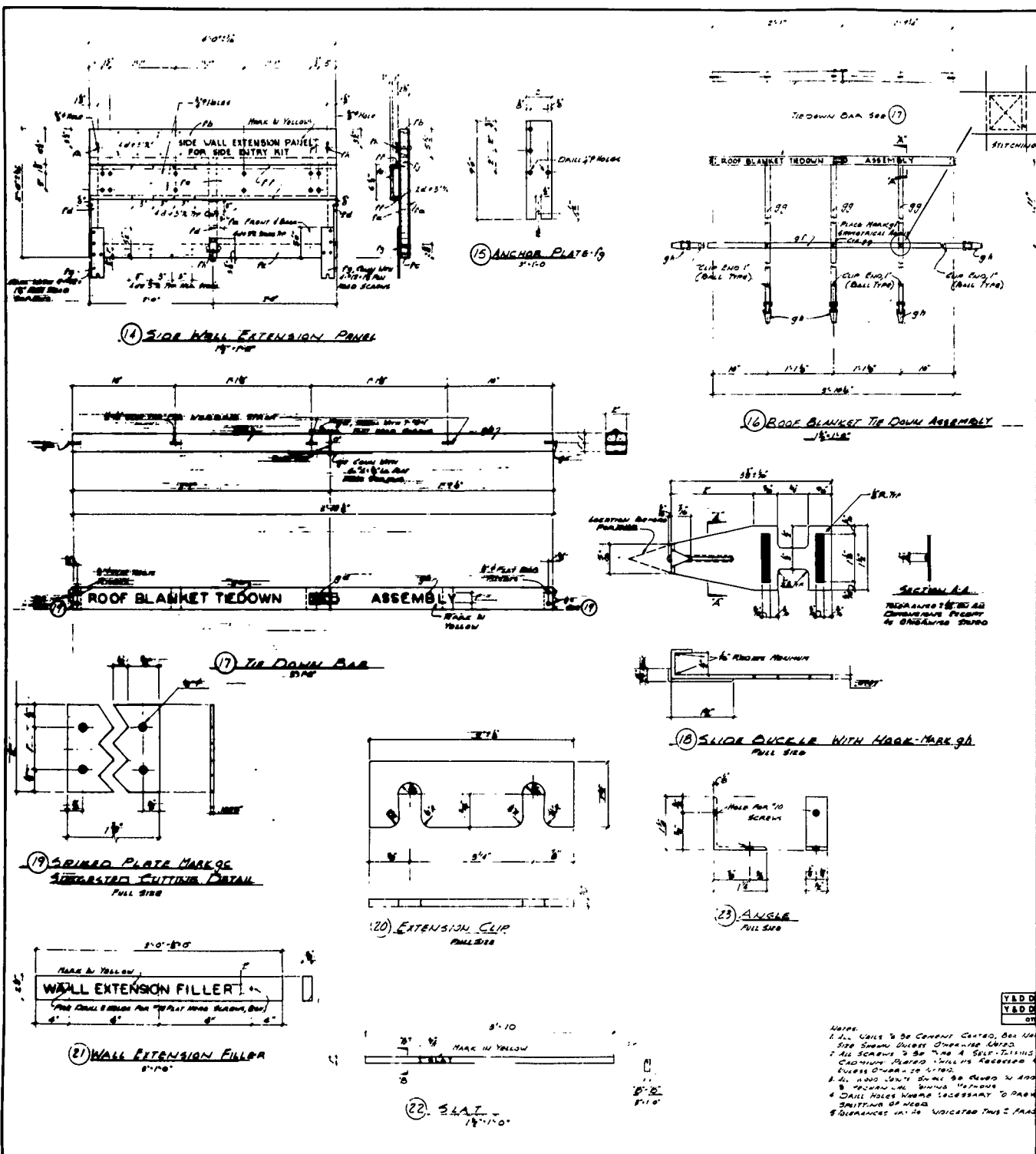


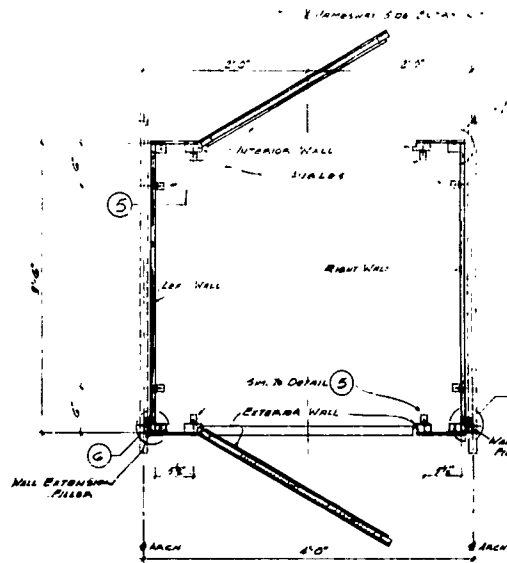
REFER TO SPEC. FOR ADDITIONAL INFORMATION AND SPECIFICATION

GRAPHIC SCALE
1" = 10'-0"

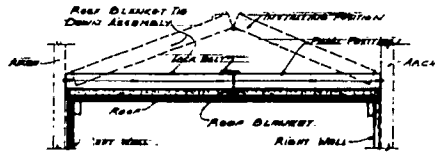
APPROVED BY: [Signature]
DATE: 12-15-61

DEPARTMENT OF THE NAVY
U.S. NAVAL CIVIL ENGINEERING LABORATORY
KING, BENNETT & ASSOCIATES
PIONEER POLAR STRUCTURES
JAMESWAY SIDE ENTRY KIT
(FOR USE WITH WALL EXTENSIONS)
FABRICATION DETAILS
SCALE AS NOTED SPEC.
SHEET 0 OF 10
100 DRAWING NO. 938907

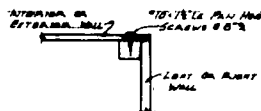




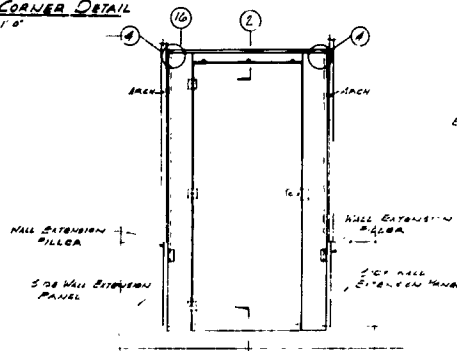
1 PLAN AT FLOOR
15'0" x 8'0"



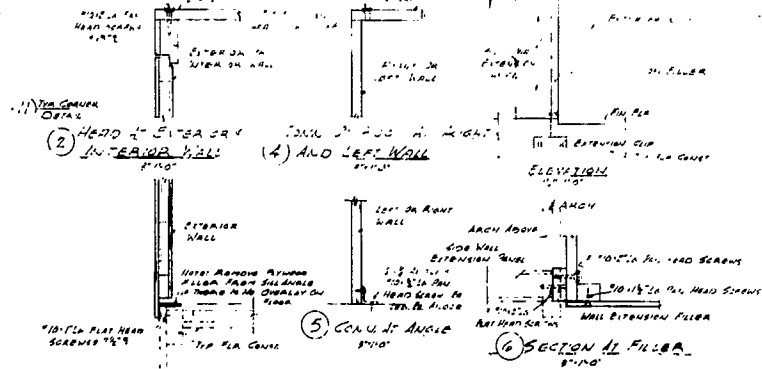
10 SECTION OF TIE DOWN BAR TO ARCHES
15'0" x 8'0"



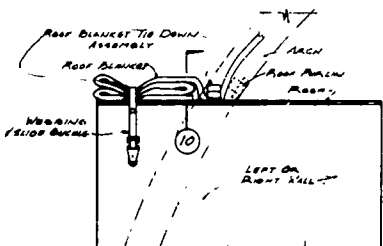
11 TYPICAL CORNER DETAIL
5'0" x 8'0"



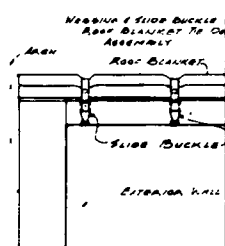
15 EXTERIOR ELEVATION
8'0" x 15'0"



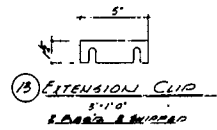
2 HEAD OF INTERIOR WALL
8'0" x 15'0"



8 DETAIL OF ROOF BLANKET FASTENING TO SIDE WALL
15'0" x 8'0"

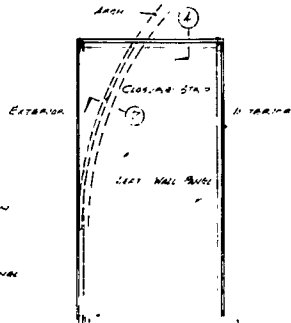


9 DETAIL OF ROOF BLANKET TO EXTERIOR WALL
15'0" x 8'0"



13 EXTENSION CLIP
8'0" x 15'0"

12 ANGLE
8'0" x 15'0"

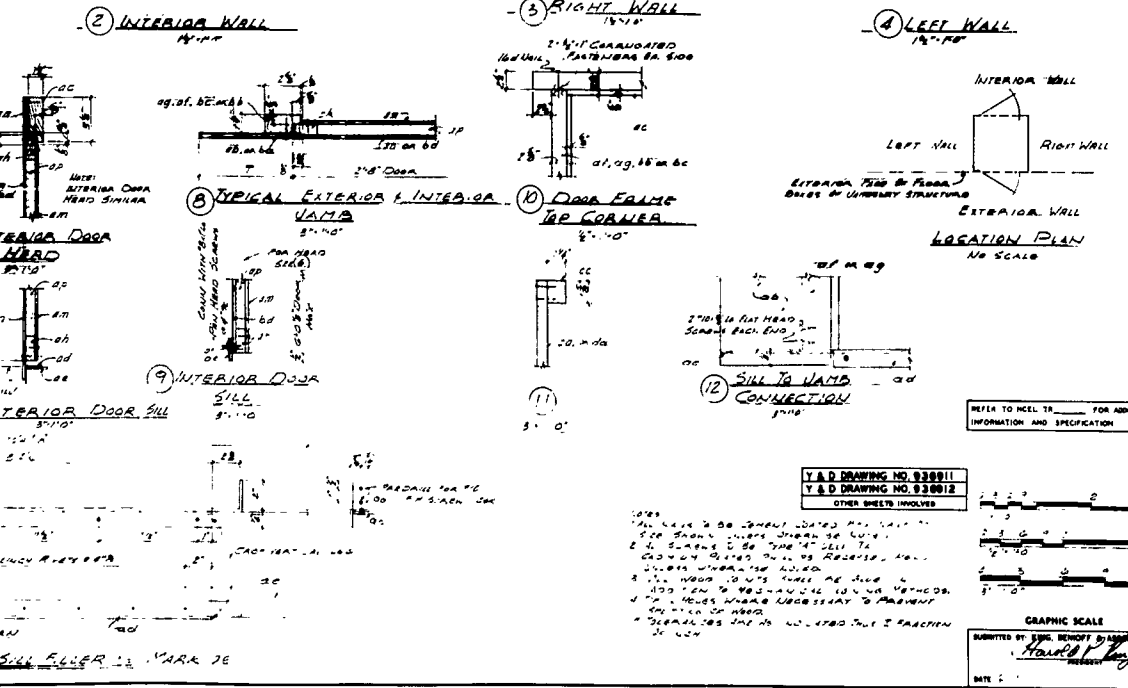
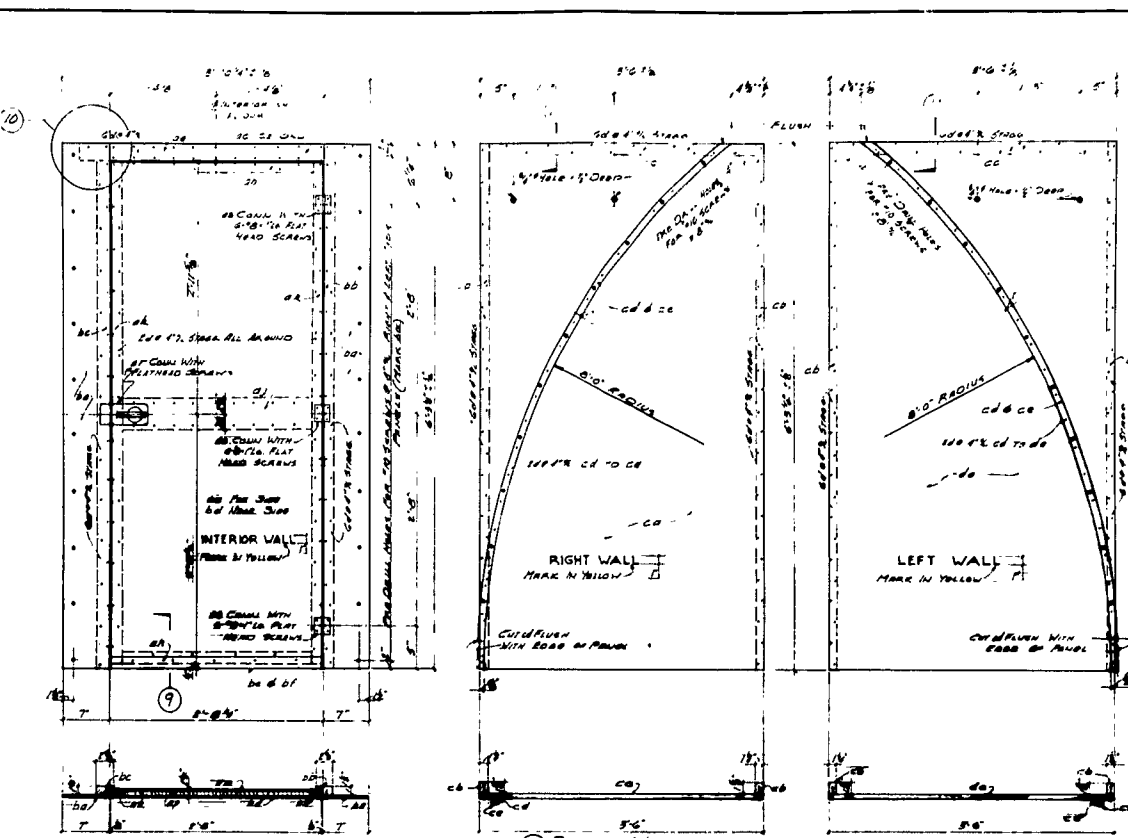


16 SECTION
8'0" x 15'0"



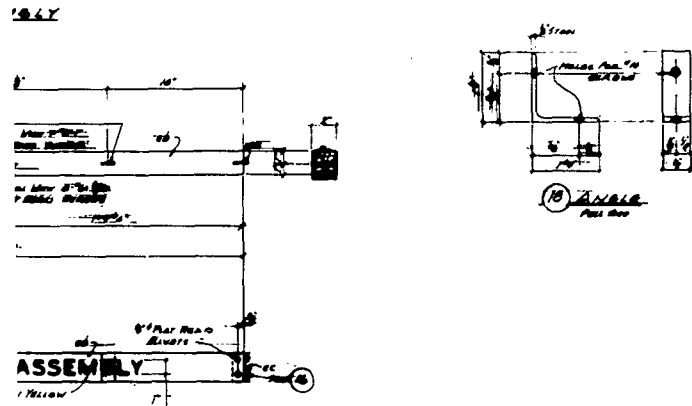
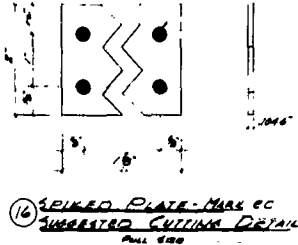
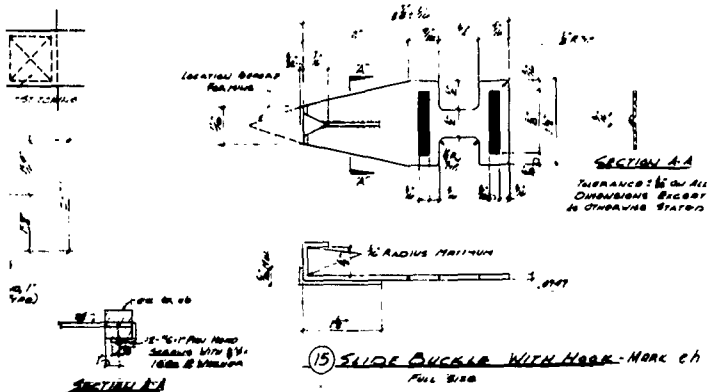
14 LOCATION
8'0" x 15'0"

10/19
1. AL 4410 to be removed 10/19
2. AL 4410 to be removed 10/19
3. AL 4410 to be removed 10/19
4. AL 4410 to be removed 10/19
5. AL 4410 to be removed 10/19
6. AL 4410 to be removed 10/19
7. AL 4410 to be removed 10/19
8. AL 4410 to be removed 10/19
9. AL 4410 to be removed 10/19
10. AL 4410 to be removed 10/19



NO.	DESCRIPTION	QTY	UNIT	REMARKS
1	8'0" RADIUS	1	PIECE	FOR INTERIOR WALL
2	8'0" RADIUS	1	PIECE	FOR RIGHT WALL
3	8'0" RADIUS	1	PIECE	FOR LEFT WALL
4	8'0" RADIUS	1	PIECE	FOR EXTERIOR WALL
5	8'0" RADIUS	1	PIECE	FOR DOOR FRAME
6	8'0" RADIUS	1	PIECE	FOR SILL TO WALL CONNECTION
7	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
8	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
9	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
10	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
11	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
12	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
13	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
14	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
15	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
16	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
17	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
18	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
19	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
20	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
21	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
22	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
23	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
24	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
25	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
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27	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
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29	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
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36	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
37	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
38	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
39	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
40	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
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42	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
43	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
44	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
45	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
46	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
47	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
48	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL
49	8'0" RADIUS	1	PIECE	FOR EXTERIOR DOOR SILL
50	8'0" RADIUS	1	PIECE	FOR INTERIOR DOOR SILL

NOTES
ALL 4.5 3 BA CEMENT COATED
4.5 3.5 IN. SUCCESS CHAINING
2 IN. SCREWS 3.5 IN. 1" SEL
WALNUT PLATED SCREWDRIVER
SUCCESS CHAINING NOTED.
1 1.5 IN. 3.5 IN. SHALL BE
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J. L. THIS AREA NECESSARY, 3.5 IN.
3.5 IN. 3.5 IN. 3.5 IN. 3.5 IN.



2

ITEM	DESCRIPTION	QUANTITY	UNIT	REMARKS
1	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
2	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
3	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
4	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
5	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
6	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
7	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
8	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
9	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
10	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
11	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
12	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
13	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)

ITEM	DESCRIPTION	QUANTITY	UNIT	REMARKS
1	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
2	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
3	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
4	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
5	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
6	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
7	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
8	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
9	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
10	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
11	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
12	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)
13	1000 1/2" DIA. STEEL ROLLER	1	EA	SEE DET. (C)

U.S. NAVAL CIVIL ENGINEERING LABORATORY

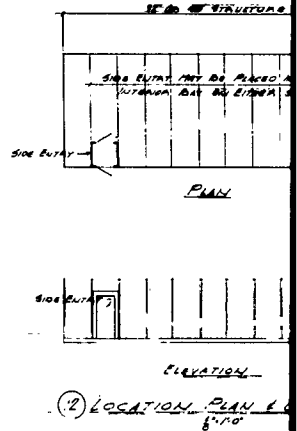
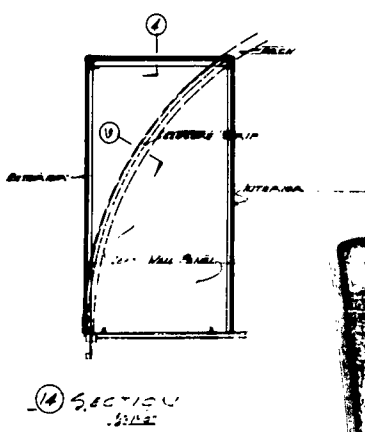
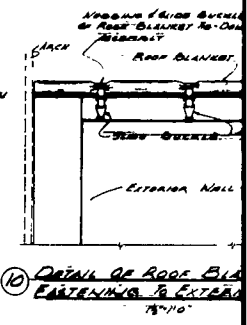
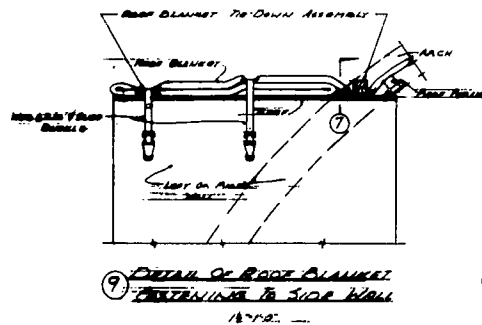
PIONEER POLAR STRUCTURES
JAMESWAY SIDE ENTRY KIT
(FOR USE WITH STANDARD UNIT)
FABRICATION DETAILS

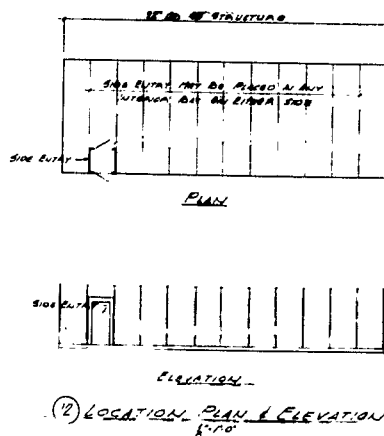
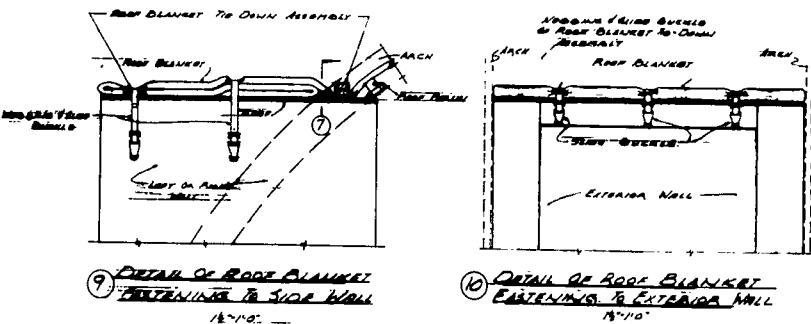
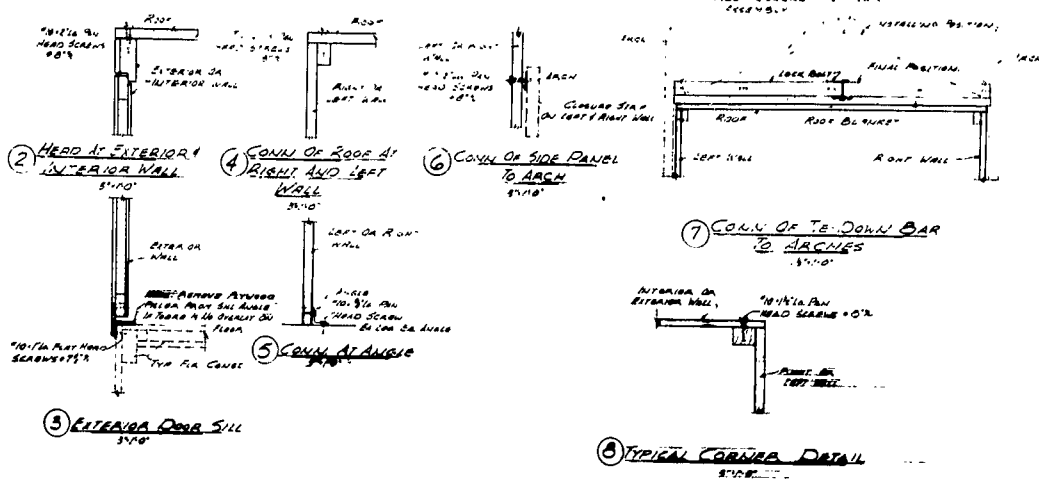
REVISIONS

DATE 10/10/50

BY 10/10/50

10/10/50





2

REFER TO NCCL TR. FOR ADDITIONAL INFORMATION AND SPECIFICATION



Y.S.D. DRAWING NO. 030010
Y.S.D. DRAWING NO. 030011
OTHER SHEETS INVOLVED

REVISIONS		DATE	APPROVED
1	REVISION		
2	REVISION		
3	REVISION		
4	REVISION		
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100	REVISION		

U.S. NAVAL CIVIL ENGINEERING LABORATORY

KING, BENOFF & ASSOCIATES

PIONEER POLAR STRUCTURES

JAMESWAY SIDE ENTRY KIT

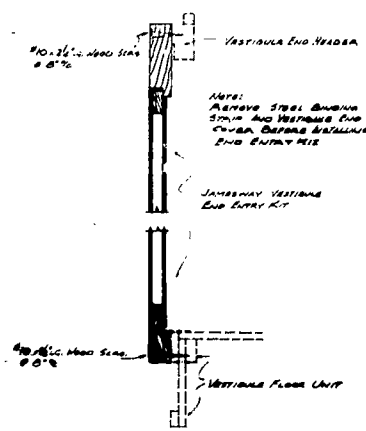
(FOR USE WITH STANDARD UNIT)

ERECTION DETAILS

DATE: 11/10/60

SCALE: AS NOTED

Y.S.D. DRAWING NO. 030012



LOCATION PLAN
NO SCALE

PLAN SECTION
S.F.O

INTERWAY VESTIBULE AND ENTRY KIT ERECTION DETAILS

VERTICAL SECTION
9.1.0

NOTE: -
CNS ENTRY BY SMALL BO
COMPLETELY ASSIGNED
INCLUDING DATA & MONITORING
ON IMPACT

INTERIOR VERTICAL END ENTRY KIT FABRICATION DETAILS

NOTED

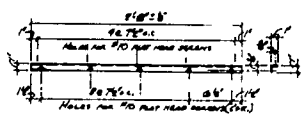
1. MAILS TO BE CURRENT CARRIED, AND MAIL OF 1/15 JUDGING
UNDESIRABLE STOPPAGE NOTED.

2. ALL MAILING TO BE FIRST CLASS SHIPMENT MUST BE READY

3. ALL MAILING DATE SHALL BE CARRIED IN ADDITION TO INTERNATIONAL
STANDARD TIMEZONE.

4. ALL MAILING NECESSARY TO PREVENT SPLITTING
OF MAILING

5. TRANSMISSIONS AND SO. INDICATES THAT'S PROTECTION ON EACH



⑥ THRESHOLD MARK 'C' (1.1' - 1.5')
12.1.10



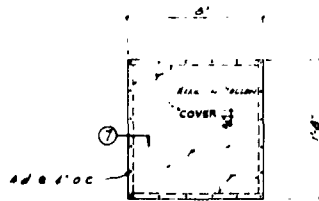
B. W. GA. "CATTLE" AL.					
Year	Sex	Tag	Size	Weight	Remarks
1	Q	HEAD	8 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
2	A	SKIN	18 1/2 x 22 1/2 x 10	W/HEAD	See Out 100
3	C	ANTH	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
4	A	ANTH	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
5	C	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
6	F	ANTH	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
7	Q	ANTH	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
8	A	SKIN	18 1/2 x 22 1/2 x 10	W/HEAD	See Out 100
9	A	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
10	A	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
11	Q	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
12	Q	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
13	A	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100
14	A	HEAD	18 1/2 x 8 1/2 x 6	W/HEAD	See Out 100

IF THESE SCREENS TO BE SUPPLIED BY MAGNACOLOR I REQUEST FOR SHIPMENT WITH VESTIBULE AND ENTRY

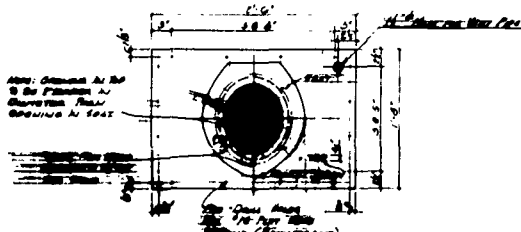
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REFER TO NCEL TR _____ FOR ADDITIONAL
INFORMATION AND SPECIFICATION

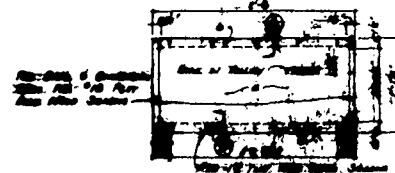
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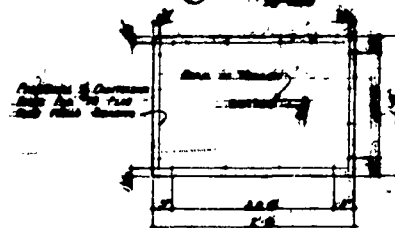
① COVER
1/2\"/>



② TOP
1/2\"/>



③ FRONT
1/2\"/>



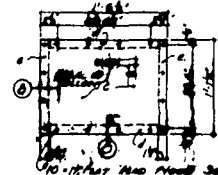
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1/2\"/>



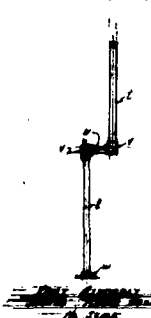
⑤ DOOR
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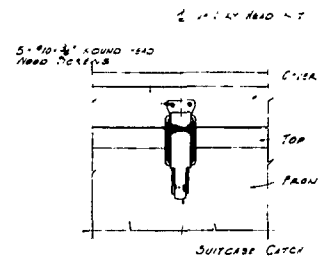
⑥ DOOR
1/2\"/>



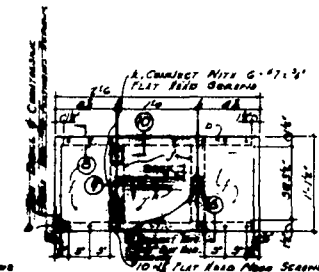
⑦ END
1/2\"/>



⑧ END
1/2\"/>



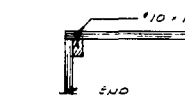
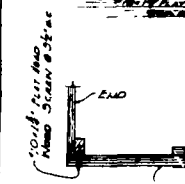
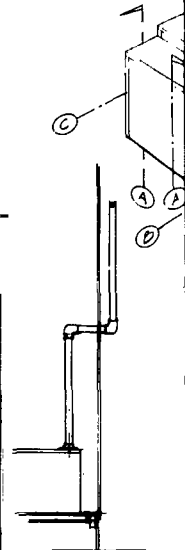
⑨ COVER LATCH CONNECTION
1/2\"/>



⑩ DOOR
1/2\"/>

DRY HAND KIT
FABRICATION DETAILS

NOTE:
1. ALL LISTS TO BE "TYPE" COATED UNLESS OTHERWISE NOTED
2. ALL SCREWS TO BE "TYPE" 1/2\"/>

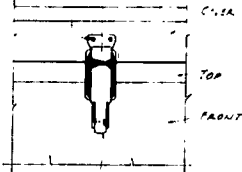


⑪ DOOR
1/2\"/>

⑫ DOOR
1/2\"/>

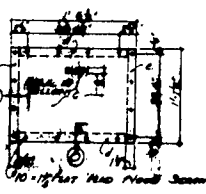
⑬ DOOR
1/2\"/>

5" x 10" x 1/4" AROUND HEAD
WOOD SCREWS

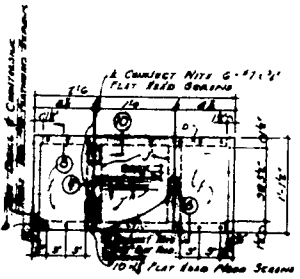


SUITCASE LATCH

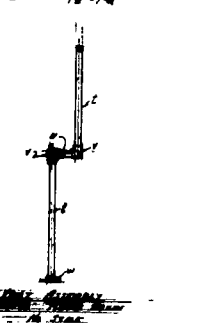
(D) COVER LATCH CONNECTION
REF. 5122



(8) END
10" x 14" PLAT HEAD WOOD SCREWS

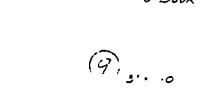


(9) DRY HEAD KIT
10" x 14" PLAT HEAD WOOD SCREWS



(10) DRY HEAD KIT
10" x 14" PLAT HEAD WOOD SCREWS

DRY HEAD KIT
FABRICATION DETAILS

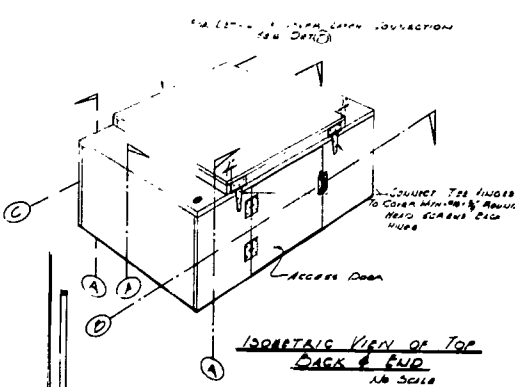


(9) 3" x 10"

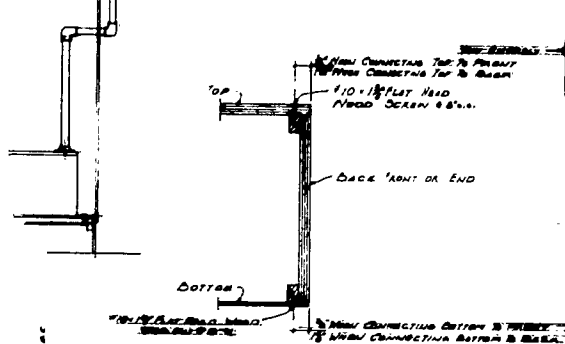


(10) 3" x 10"

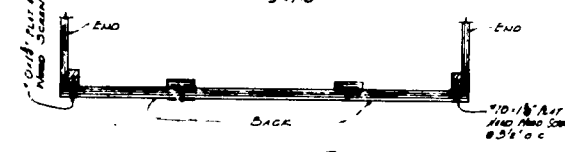
NOTE:
1. ALL TO BE THIN COATED UNLESS OTHER IS NOTED
2. ALL SCREWS TO BE TYPE "A" 4" TAPPING UNLESS NOTED
3. ALL PLATES TO BE 1/4" THICK UNLESS NOTED
4. ALL WOOD PARTS TO BE DRYED 100-120°F
5. ALL WOOD PARTS TO BE 10-12% MOISTURE
6. ALL WOOD PARTS TO BE 10-12% MOISTURE
7. ALL WOOD PARTS TO BE 10-12% MOISTURE
8. ALL WOOD PARTS TO BE 10-12% MOISTURE
9. ALL WOOD PARTS TO BE 10-12% MOISTURE
10. ALL WOOD PARTS TO BE 10-12% MOISTURE



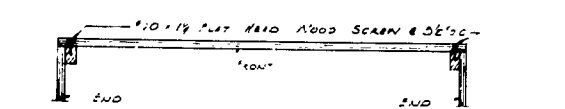
ISOMETRIC VIEW OF TOP
BACK & END
NO SCALE



SECTION A
3" x 10"



SECTION B
3" x 10"



SECTION C
3" x 10"

DRY HEAD KIT
ERECTOR DETAILS



BILL OF MATERIAL

ITEM	MARK	QTY	SIZE	UNIT	REMARKS
1	WOOD PANEL	1	4" x 8" x 1/4"	1	SEE 51
2	WOOD SCREW	4	4" x 1/4"	4	SEE 51
3	WOOD SCREW	4	4" x 1/4"	4	SEE 51
4	WOOD SCREW	4	4" x 1/4"	4	SEE 51
5	WOOD SCREW	4	4" x 1/4"	4	SEE 51
6	WOOD SCREW	4	4" x 1/4"	4	SEE 51
7	WOOD SCREW	4	4" x 1/4"	4	SEE 51
8	WOOD SCREW	4	4" x 1/4"	4	SEE 51
9	WOOD SCREW	4	4" x 1/4"	4	SEE 51
10	WOOD SCREW	4	4" x 1/4"	4	SEE 51
11	WOOD SCREW	4	4" x 1/4"	4	SEE 51
12	WOOD SCREW	4	4" x 1/4"	4	SEE 51
13	WOOD SCREW	4	4" x 1/4"	4	SEE 51
14	WOOD SCREW	4	4" x 1/4"	4	SEE 51
15	WOOD SCREW	4	4" x 1/4"	4	SEE 51
16	WOOD SCREW	4	4" x 1/4"	4	SEE 51
17	WOOD SCREW	4	4" x 1/4"	4	SEE 51
18	WOOD SCREW	4	4" x 1/4"	4	SEE 51
19	WOOD SCREW	4	4" x 1/4"	4	SEE 51
20	WOOD SCREW	4	4" x 1/4"	4	SEE 51
21	WOOD SCREW	4	4" x 1/4"	4	SEE 51
22	WOOD SCREW	4	4" x 1/4"	4	SEE 51
23	WOOD SCREW	4	4" x 1/4"	4	SEE 51
24	WOOD SCREW	4	4" x 1/4"	4	SEE 51
25	WOOD SCREW	4	4" x 1/4"	4	SEE 51
26	WOOD SCREW	4	4" x 1/4"	4	SEE 51
27	WOOD SCREW	4	4" x 1/4"	4	SEE 51
28	WOOD SCREW	4	4" x 1/4"	4	SEE 51
29	WOOD SCREW	4	4" x 1/4"	4	SEE 51
30	WOOD SCREW	4	4" x 1/4"	4	SEE 51

REVISIONS

ITEM	DESCRIPTION	UNIT	REMARKS
1	TOP	EA	SEE 51
2	DOOR	EA	SEE 51
3	FRONT	EA	SEE 51
4	BACK	EA	SEE 51
5	END	EA	SEE 51
6	SUITCASE LATCH	EA	SEE 51
7	WOOD SCREW	EA	SEE 51
8	WOOD SCREW	EA	SEE 51
9	WOOD SCREW	EA	SEE 51
10	WOOD SCREW	EA	SEE 51
11	WOOD SCREW	EA	SEE 51
12	WOOD SCREW	EA	SEE 51
13	WOOD SCREW	EA	SEE 51

REVISIONS

ITEM	DESCRIPTION	UNIT	REMARKS
1	TOP	EA	SEE 51
2	DOOR	EA	SEE 51
3	FRONT	EA	SEE 51
4	BACK	EA	SEE 51
5	END	EA	SEE 51
6	SUITCASE LATCH	EA	SEE 51
7	WOOD SCREW	EA	SEE 51
8	WOOD SCREW	EA	SEE 51
9	WOOD SCREW	EA	SEE 51
10	WOOD SCREW	EA	SEE 51
11	WOOD SCREW	EA	SEE 51
12	WOOD SCREW	EA	SEE 51
13	WOOD SCREW	EA	SEE 51

REVISIONS

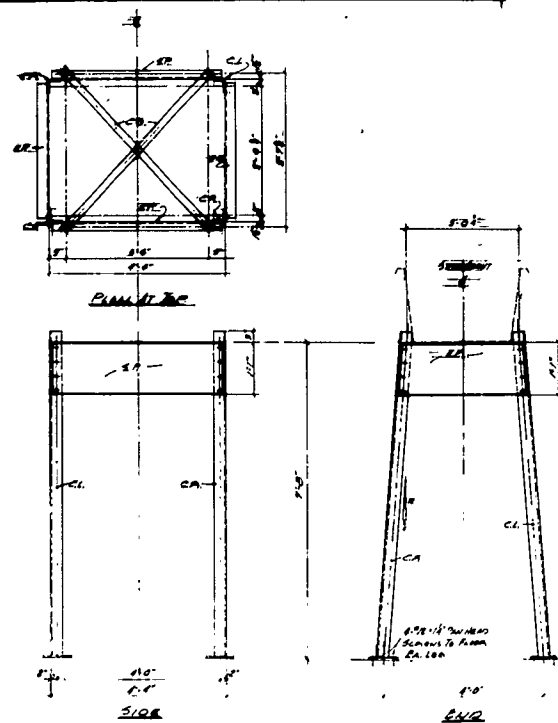
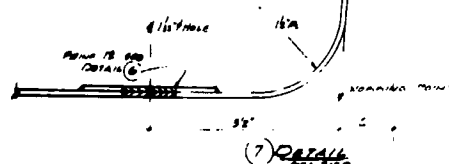
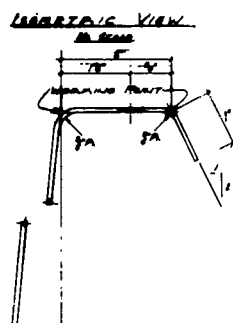
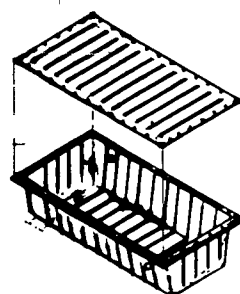
ITEM	DESCRIPTION	UNIT	REMARKS
1	TOP	EA	SEE 51
2	DOOR	EA	SEE 51
3	FRONT	EA	SEE 51
4	BACK	EA	SEE 51
5	END	EA	SEE 51
6	SUITCASE LATCH	EA	SEE 51
7	WOOD SCREW	EA	SEE 51
8	WOOD SCREW	EA	SEE 51
9	WOOD SCREW	EA	SEE 51
10	WOOD SCREW	EA	SEE 51
11	WOOD SCREW	EA	SEE 51
12	WOOD SCREW	EA	SEE 51
13	WOOD SCREW	EA	SEE 51

REVISIONS

ITEM	DESCRIPTION	UNIT	REMARKS
1	TOP	EA	SEE 51
2	DOOR	EA	SEE 51
3	FRONT	EA	SEE 51
4	BACK	EA	SEE 51
5	END	EA	SEE 51
6	SUITCASE LATCH	EA	SEE 51
7	WOOD SCREW	EA	SEE 51
8	WOOD SCREW	EA	SEE 51
9	WOOD SCREW	EA	SEE 51
10	WOOD SCREW	EA	SEE 51
11	WOOD SCREW	EA	SEE 51
12	WOOD SCREW	EA	SEE 51
13	WOOD SCREW	EA	SEE 51

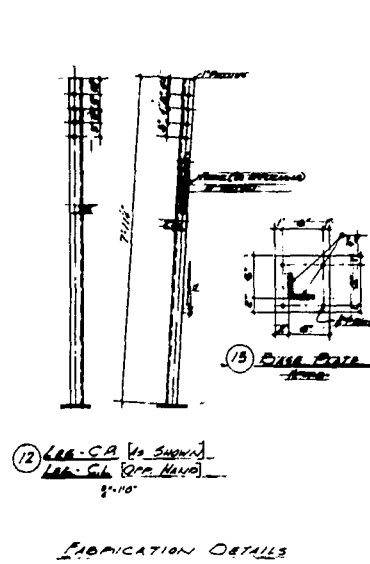
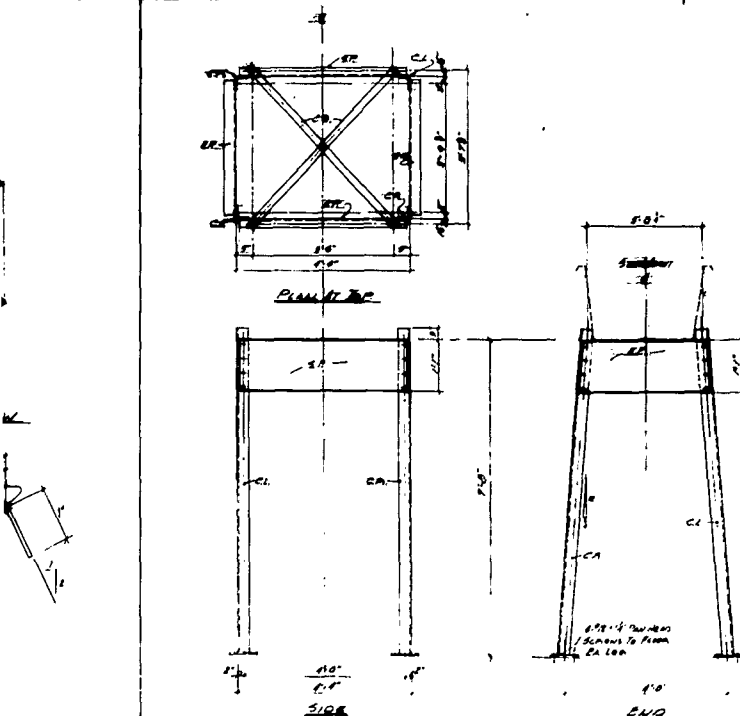
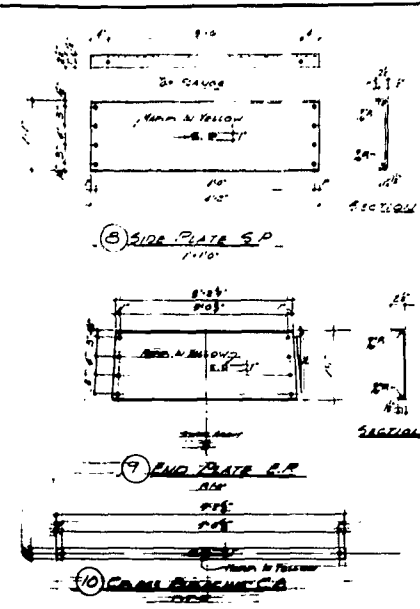
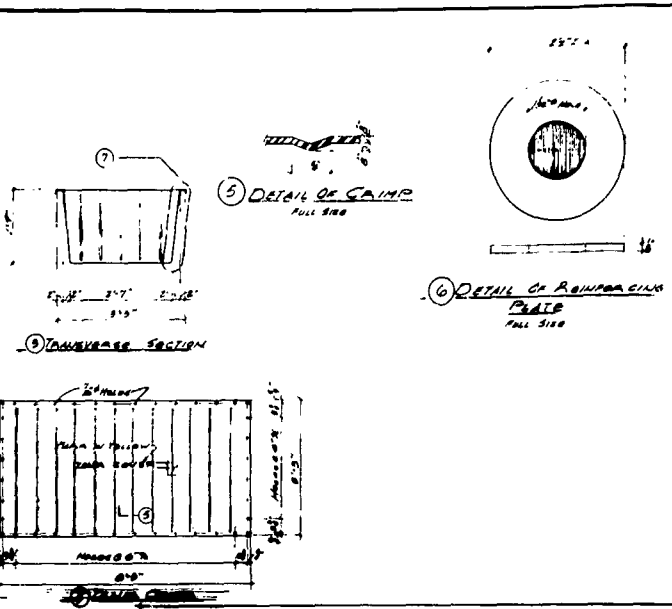
REVISIONS

ITEM	DESCRIPTION	UNIT	REMARKS
1	TOP	EA	SEE 51
2	DOOR	EA	SEE 51
3	FRONT	EA	SEE 51
4	BACK	EA	SEE 51
5	END	EA	SEE 51
6	SUITCASE LATCH	EA	SEE 51
7	WOOD SCREW	EA	SEE 51
8	WOOD SCREW	EA	SEE 51
9	WOOD SCREW	EA	SEE 51
10	WOOD SCREW	EA	SEE 51
11	WOOD SCREW	EA	SEE 51
12	WOOD SCREW	EA	SEE 51
13	WOOD SCREW	EA	SEE 51



(ii) WATER TANK SUPPORTS ERECTION DETAIL
9-10"

4/20/80
1466 43105 800 1466 55 60 400
846 100000 1466 55 60 400
4/20 11 00 1466 55 60 400
1466 55 60 400



B. J. V. 12									
NO.	DATE	REV.	BY	CHKD.	APPROVED	REVISIONS	DATE	APPROVED	REVISIONS
1	1/10/50	1	J. B. V.			SEE DETAIL 5			
2	1/10/50	2	J. B. V.			SEE DETAIL 6			
3	1/10/50	3	J. B. V.			SEE DETAIL 7			
4	1/10/50	4	J. B. V.			SEE DETAIL 8			
5	1/10/50	5	J. B. V.			SEE DETAIL 9			
6	1/10/50	6	J. B. V.			SEE DETAIL 10			
7	1/10/50	7	J. B. V.			SEE DETAIL 11			
8	1/10/50	8	J. B. V.			SEE DETAIL 12			
9	1/10/50	9	J. B. V.			SEE DETAIL 13			
10	1/10/50	10	J. B. V.			SEE DETAIL 14			
11	1/10/50	11	J. B. V.			SEE DETAIL 15			
12	1/10/50	12	J. B. V.			SEE DETAIL 16			
13	1/10/50	13	J. B. V.			SEE DETAIL 17			
14	1/10/50	14	J. B. V.			SEE DETAIL 18			
15	1/10/50	15	J. B. V.			SEE DETAIL 19			
16	1/10/50	16	J. B. V.			SEE DETAIL 20			
17	1/10/50	17	J. B. V.			SEE DETAIL 21			
18	1/10/50	18	J. B. V.			SEE DETAIL 22			
19	1/10/50	19	J. B. V.			SEE DETAIL 23			
20	1/10/50	20	J. B. V.			SEE DETAIL 24			
21	1/10/50	21	J. B. V.			SEE DETAIL 25			
22	1/10/50	22	J. B. V.			SEE DETAIL 26			
23	1/10/50	23	J. B. V.			SEE DETAIL 27			
24	1/10/50	24	J. B. V.			SEE DETAIL 28			
25	1/10/50	25	J. B. V.			SEE DETAIL 29			
26	1/10/50	26	J. B. V.			SEE DETAIL 30			
27	1/10/50	27	J. B. V.			SEE DETAIL 31			
28	1/10/50	28	J. B. V.			SEE DETAIL 32			
29	1/10/50	29	J. B. V.			SEE DETAIL 33			
30	1/10/50	30	J. B. V.			SEE DETAIL 34			
31	1/10/50	31	J. B. V.			SEE DETAIL 35			
32	1/10/50	32	J. B. V.			SEE DETAIL 36			
33	1/10/50	33	J. B. V.			SEE DETAIL 37			
34	1/10/50	34	J. B. V.			SEE DETAIL 38			
35	1/10/50	35	J. B. V.			SEE DETAIL 39			
36	1/10/50	36	J. B. V.			SEE DETAIL 40			
37	1/10/50	37	J. B. V.			SEE DETAIL 41			
38	1/10/50	38	J. B. V.			SEE DETAIL 42			
39	1/10/50	39	J. B. V.			SEE DETAIL 43			
40	1/10/50	40	J. B. V.			SEE DETAIL 44			
41	1/10/50	41	J. B. V.			SEE DETAIL 45			
42	1/10/50	42	J. B. V.			SEE DETAIL 46			
43	1/10/50	43	J. B. V.			SEE DETAIL 47			
44	1/10/50	44	J. B. V.			SEE DETAIL 48			
45	1/10/50	45	J. B. V.			SEE DETAIL 49			
46	1/10/50	46	J. B. V.			SEE DETAIL 50			
47	1/10/50	47	J. B. V.			SEE DETAIL 51			
48	1/10/50	48	J. B. V.			SEE DETAIL 52			
49	1/10/50	49	J. B. V.			SEE DETAIL 53			
50	1/10/50	50	J. B. V.			SEE DETAIL 54			
51	1/10/50	51	J. B. V.			SEE DETAIL 55			
52	1/10/50	52	J. B. V.			SEE DETAIL 56			
53	1/10/50	53	J. B. V.			SEE DETAIL 57			
54	1/10/50	54	J. B. V.			SEE DETAIL 58			
55	1/10/50	55	J. B. V.			SEE DETAIL 59			
56	1/10/50	56	J. B. V.			SEE DETAIL 60			
57	1/10/50	57	J. B. V.			SEE DETAIL 61			
58	1/10/50	58	J. B. V.			SEE DETAIL 62			
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60	1/10/50	60	J. B. V.			SEE DETAIL 64			
61	1/10/50	61	J. B. V.			SEE DETAIL 65			
62	1/10/50	62	J. B. V.			SEE DETAIL 66			
63	1/10/50	63	J. B. V.			SEE DETAIL 67			
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66	1/10/50	66	J. B. V.			SEE DETAIL 70			
67	1/10/50	67	J. B. V.			SEE DETAIL 71			
68	1/10/50	68	J. B. V.			SEE DETAIL 72			
69	1/10/50	69	J. B. V.			SEE DETAIL 73			
70	1/10/50	70	J. B. V.			SEE DETAIL 74			
71	1/10/50	71	J. B. V.			SEE DETAIL 75			
72	1/10/50	72	J. B. V.			SEE DETAIL 76			
73	1/10/50	73	J. B. V.			SEE DETAIL 77			
74	1/10/50	74	J. B. V.			SEE DETAIL 78			
75	1/10/50	75	J. B. V.			SEE DETAIL 79			
76	1/10/50	76	J. B. V.			SEE DETAIL 80			
77	1/10/50	77	J. B. V.			SEE DETAIL 81			
78	1/10/50	78	J. B. V.			SEE DETAIL 82			
79	1/10/50	79	J. B. V.			SEE DETAIL 83			
80	1/10/50	80	J. B. V.			SEE DETAIL 84			
81	1/10/50	81	J. B. V.			SEE DETAIL 85			
82	1/10/50	82	J. B. V.			SEE DETAIL 86			
83	1/10/50	83	J. B. V.			SEE DETAIL 87			
84	1/10/50	84	J. B. V.			SEE DETAIL 88			
85	1/10/50	85	J. B. V.			SEE DETAIL 89			
86	1/10/50	86	J. B. V.			SEE DETAIL 90			
87	1/10/50	87	J. B. V.			SEE DETAIL 91			
88	1/10/50	88	J. B. V.			SEE DETAIL 92			
89	1/10/50	89	J. B. V.			SEE DETAIL 93			
90	1/10/50	90	J. B. V.			SEE DETAIL 94			
91	1/10/50	91	J. B. V.			SEE DETAIL 95			
92	1/10/50	92	J. B. V.			SEE DETAIL 96			
93	1/10/50	93	J. B. V.			SEE DETAIL 97			
94	1/10/50	94	J. B. V.			SEE DETAIL 98			
95	1/10/50	95	J. B. V.			SEE DETAIL 99			
96	1/10/50	96	J. B. V.			SEE DETAIL 100			
97	1/10/50	97	J. B. V.			SEE DETAIL 101			
98	1/10/50	98	J. B. V.			SEE DETAIL 102			
99	1/10/50	99	J. B. V.			SEE DETAIL 103			
100	1/10/50	100	J. B. V.			SEE DETAIL 104			



REFER TO INCL. TO FOR ADDITIONAL INFORMATION AND SPECIFICATION

GRAPHIC SCALE

U.S. NAVAL CIVIL ENGINEERING LABORATORY

KING, BENIOFF & ASSOCIATES

PIONEER POLAR STRUCTURES

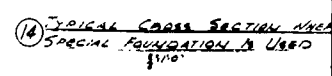
JAMESWAY TANKS AND SUPPORTS

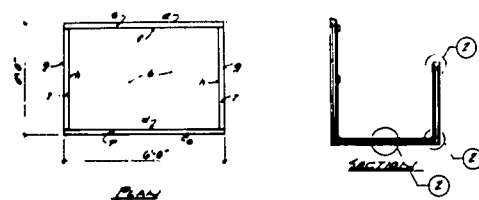
FABRICATION & ERECTION

DATE 1/10/50

SCALE AS NOTED

1000 SHOWN NO. 936915



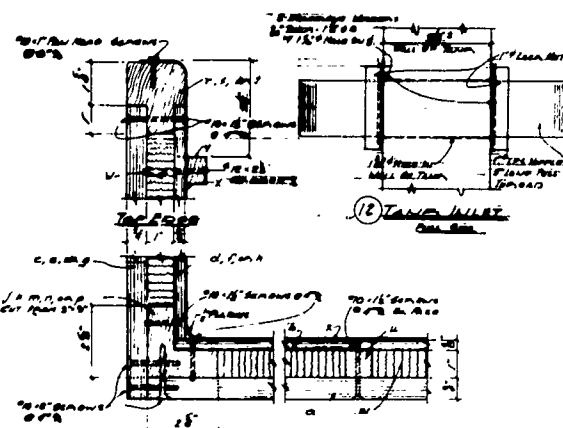


2000 ELECTRIC MACHINERY FROM HEATON
FOR THE NEW HEATON TOWN, AND
SPECIALIZED ELECTRICAL EQUIPMENT
FOR UTILITY BUSINESSES - 20 NEW
PARKWAY ROAD, CORV - Y4/D
2000, 10, 2000.

① TANK DETAILS

SNOW MELTED TAX

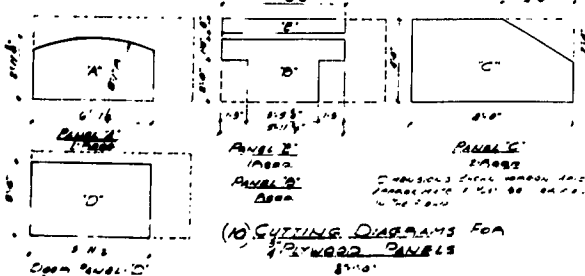
TO BE INDICATED BY MANUFACTURER PRIOR TO SHIPMENT



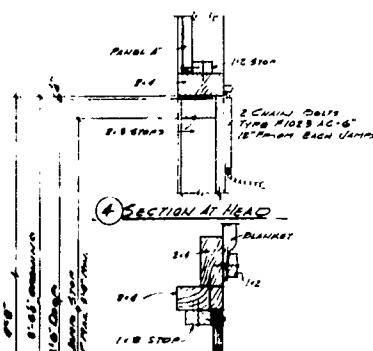
TYPICAL CORNER
HORIZONTAL / VERTICAL

More:
All joints, head to neck and neck to
thorax to be seen silver with
aching "A" all seems to be full
thorax, chest recess flat head
white more

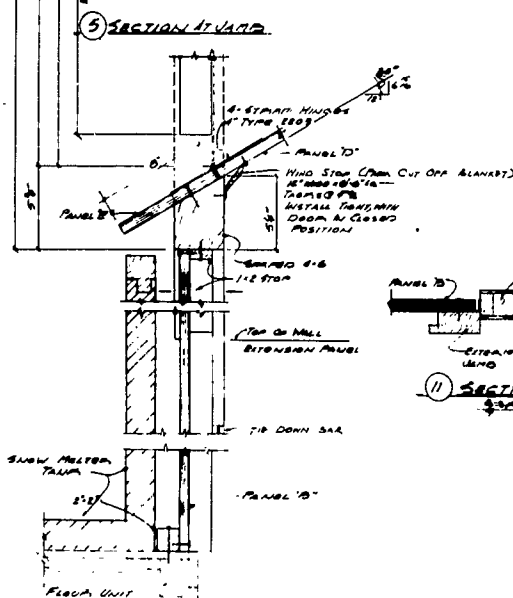
② TYPICAL TANK ASSEMBLY



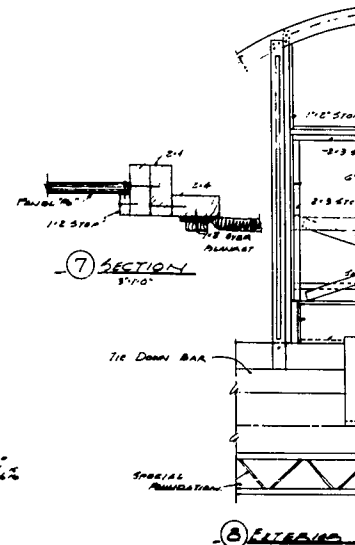
(3) SECTION AT AUCU



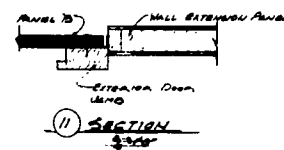
(4) SECTION AT HEAD



6, SECTION



⑦ SECTION



11 SECTION

SNOW MELTER CHUTE

