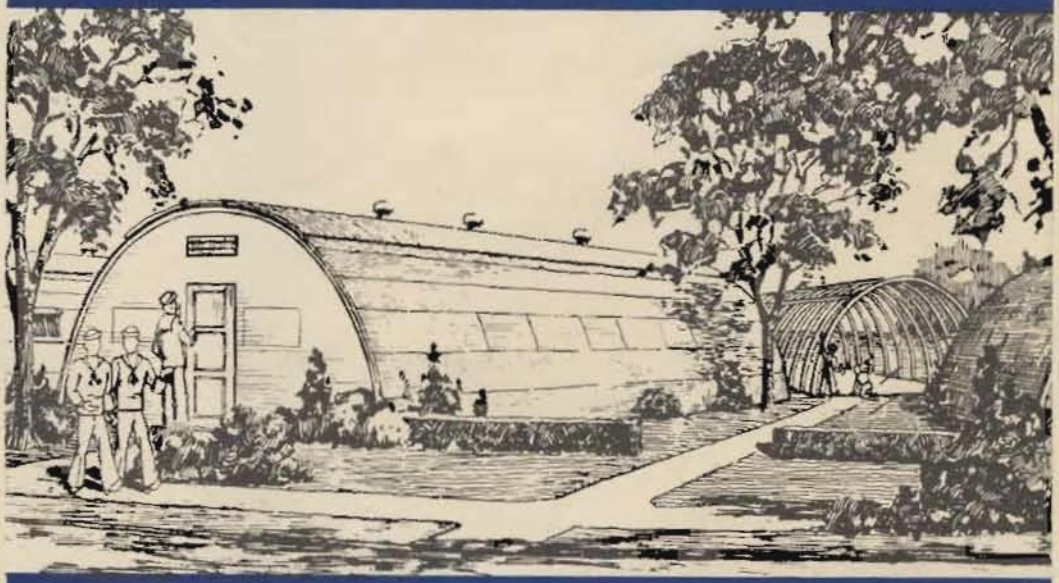
ERECTION INSTRUCTIONS



FOR THE

20′ x 48′

U. S. NAVY QUONSET BUILDING

MANUFACTURED FOR

NAVY DEPARTMENT

BUREAU YARDS AND DOCKS

BY

GREAT LAKES STEEL CORPORATION

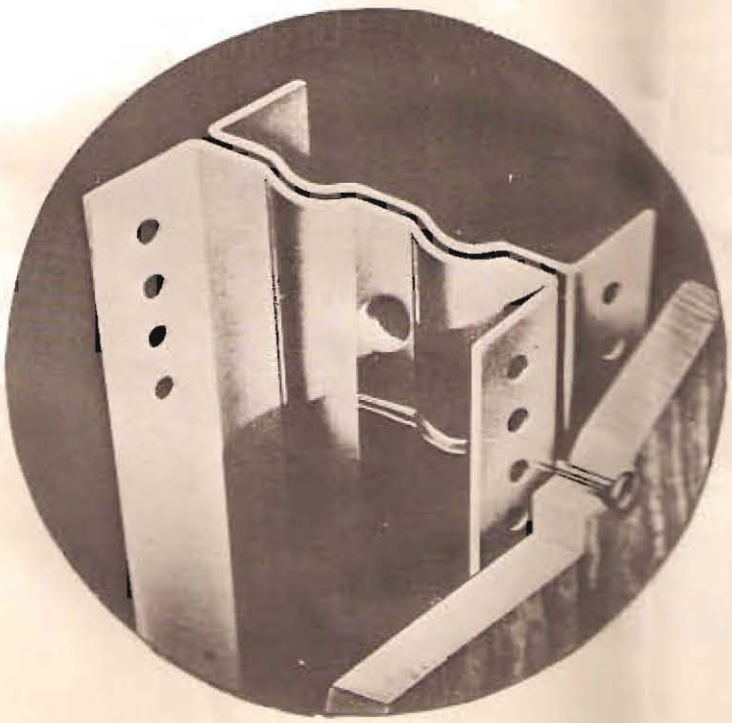
Stran-Steel Division • Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION

NORTHERN DESIGN

FEBRUARY, 1951

CONTENTS



THE STRAN-STEEL NAILING GROOVE

The distinctive feature of Stran-Steel is the nailing groove. This groove is in all Stran-Steel joists, arch ribs and studs, which are made by welding two pieces of steel together. The small space remaining between these pieces is just large enough to admit an ordinary nail. When a nail is driven into the groove, it is deformed and clinched in a grip of steel with a holding power much greater than that of wood. In this manner collateral materials are secured to the steel framework with the ordinary hammer-and-nails method. Construction in which Stran-Steel framing is used proceeds in the same way as with ordinary framing. Dimensions of Stran-Steel members conform exactly to the requirements of the collateral materials used with it.

SUGGESTIONS TO ERECTOR

Crews. The erection of the Quonset building is simple and fast. One operation quickly follows another — if the first one is done properly. It is most important to get off to the right start by having the floor joist assembly level and square and having the rib assembly plumb. This insures that subsequent operations will proceed without difficulty. Therefore, the best mechanics should be assigned to setting the frame even though the actual assembly of this portion of the work is the easiest of all. Likewise the roofing operation requires the care of a mechanic or mechanically-minded person. A sensible division of personnel is into separate crews for (1) site leveling and floor framing, (2) erection of ribs, purlins and endwall framing, (3) application of inside covering and insulation, (4) application of outside covering and plastic windows.

Hints. If any of the steel members have become damaged in shipment, the easiest way to straighten them is by placing the bent part over a crate or saw horse and having a man bear down on each end. The hardest way to straighten is by using a hammer. There is a trick to opening the banded crates. When this is known and used, much time and effort can be saved. Take a large screwdriver, as used for assembling the frame, insert flat side under steel band about an inch or inch-and-half. Turn the screwdriver about the handle roughly an eighth turn. This brings the sharp edge of the screwdriver in contact with the band. Pull up quickly. This motion cuts the band rather than breaking it. When the knack of using a screwdriver is learned, opening the crates is an easy job.

Care should be exercised in opening Crates No. 2, No. 6, No. 7 and No. 9. This crating lumber will be used for blocking at endwall ribs and for window headers and sills and for framing around louver.

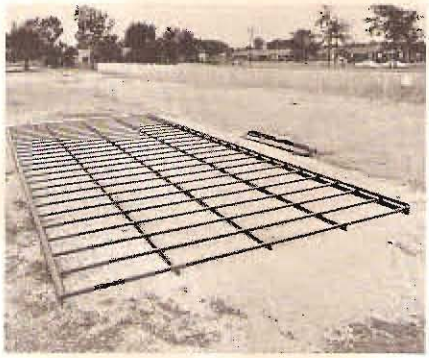
The importance of using the right nails, screws and attachments cannot be too strongly stressed. Follow the instructions closely in this regard because if the wrong ones are used, it will mean borrowing from another Quonset building all down the line with consequent loss of time.

For additional erection details consult the drawings included with this booklet in Crate No. 1.

Take good care of the tools.

ERECTION SEQUENCE

(See page 22 for alternate sequence)



FLOOR FRAME

RIBS AND PURLINS

INTERIOR COVERING

INSULATION

1. Floor Framing. Lay the sills first; then the joists, then the sidewall channels. Level and square the whole assembly. (See pages 4 and 5.)

2. Floor Panels. Lay out plywood floor panels on the joists. Install metal splines at longitudinal joints, and nail the panels to the joists. (See pages 6 and 7.)

3. Ribs and Purlins. Fasten the half-ribs together with splice plates, raise into position and screw to channel plates. Erect purlins and plumb entire assembly. (See pages 8 and 9.)

4. Inside Covering. Nail Masonite sheets to ribs. Install metal splines at horizontal joints and nail Masonite battens over joints at ribs. (See pages 10 and 11.)

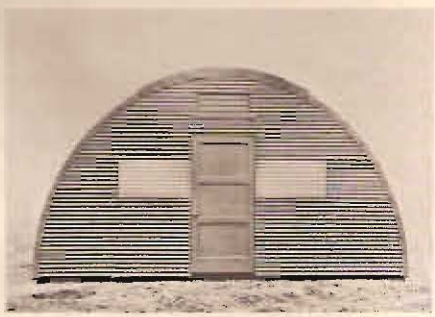
5. Insulation. Install insulation between ribs over Masonite lining and fasten ends. (See pages 12 and 13.)

6. Outside Covering and Windows. Nail straight corrugated sheets (including plastic window sheets) on sides to ribs and nail curved corrugated sheets on top to purlins. (See pages 14 and 15.)

7. Ventilators and Smokestack. Assemble ventilators and smokestack and install at center line of roof. (See pages 16 and 17.)

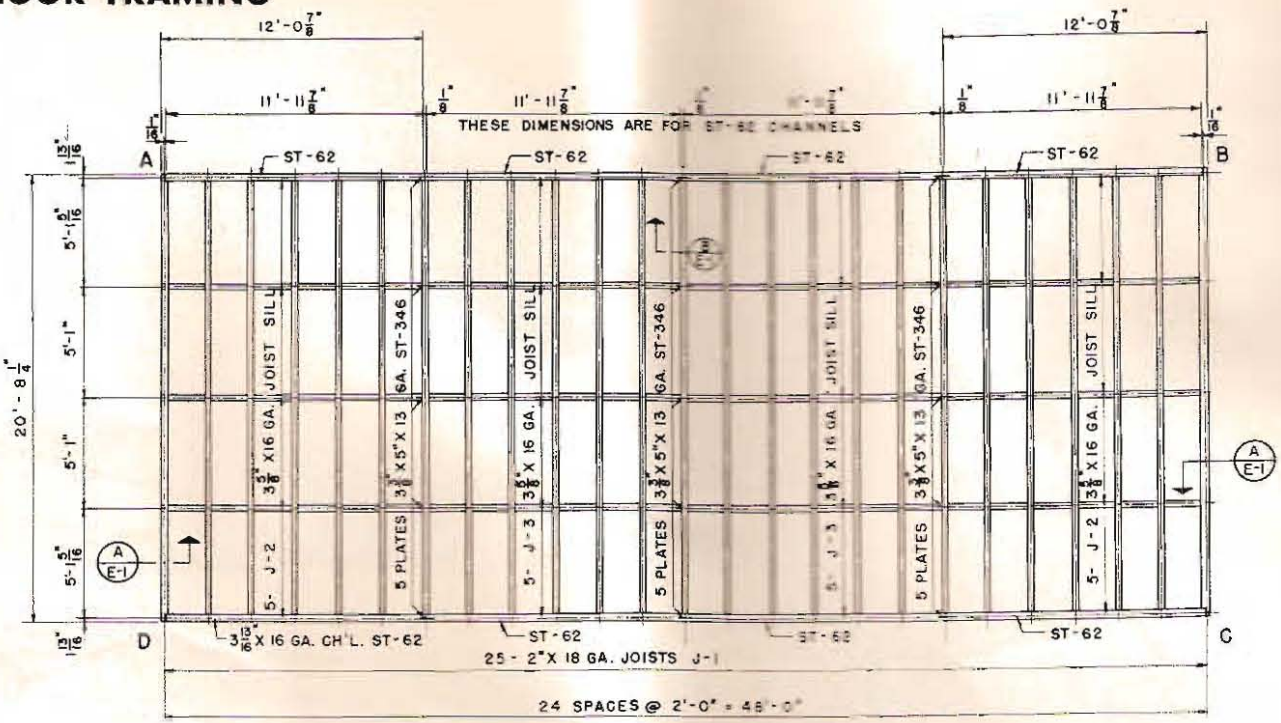
8. Endwalls. Fasten down endwall channels and erect studs. Install door and louver. Cut insulation to special size pieces by using Masonite endwall panels as templates. Nail special precut Masonite endwall panels into place. Attach insulation between studs and end rib. Nail corrugated sheets (including plastic window sheets) to studs and wood blocks on end rib. Attach flashing around arch. (See pages 18, 19, 20 and 21.)

EXTERIOR COVERING

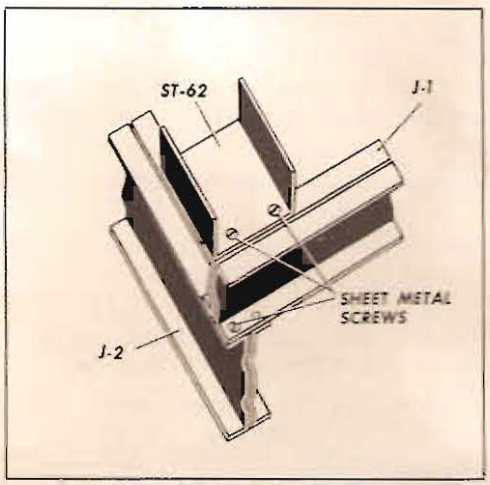


ENDWALLS

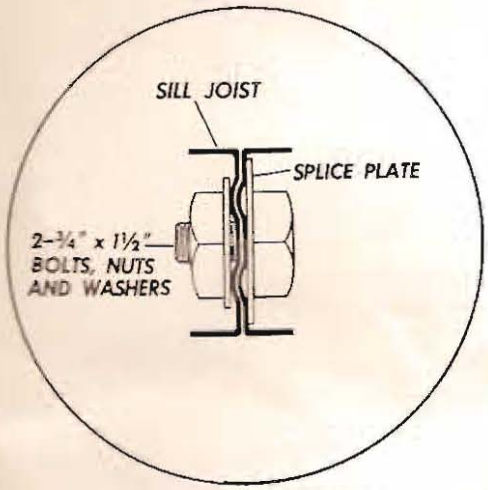
FLOOR FRAMING



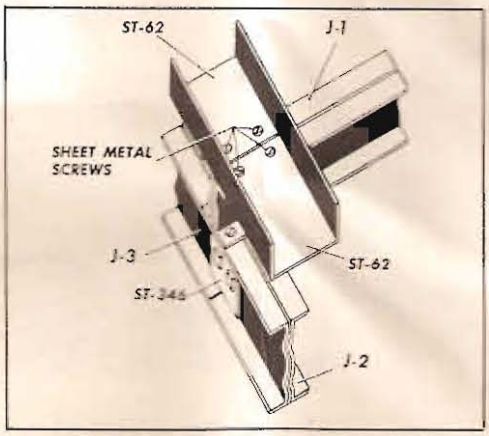
FLOOR FRAMING PLAN



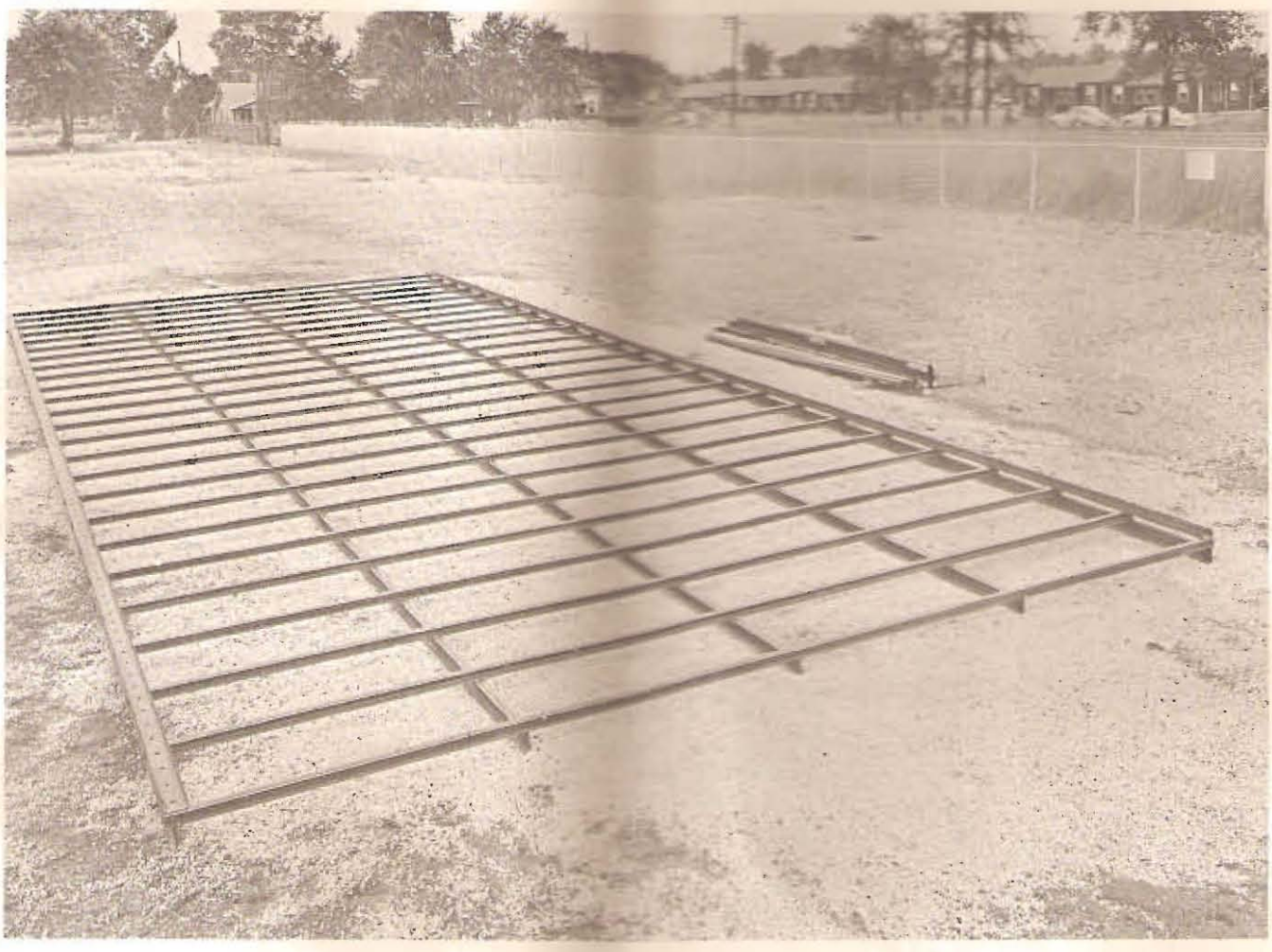
DETAIL AT CORNER



TYPICAL SILL SPLICE



DETAIL AT CHANNEL SPLICE



COMPLETE FLOOR FRAME

STEP 1 The floor joist assembly consists of steel sills, joists and channels. The sills run lengthwise of the huilding on the ground and support the joists, which are fastened to the sills at right angles to them. At the extreme ends of the joists channel plates are fastened for receiving the ribs.

Procedure:

(a) Level and tamp an area of ground approximately 30′ x 60′ for the building site. If site is too uneven to level easily, see Wood Foundation Adaptation, page 23.

(b) Lay the sills on the tamped ground in five parallel lines about 5′ apart with the holes (for connecting the joists) facing upward. In order not to force the sills out of line when the splice plates are tightened, line up the sills with the nailing grooves matching (see drawing), starting at one end. However, when it comes to the last splice on each sill, the nailing grooves cannot be lined up, and therefore the splice bolts at these points should not be drawn up tight until after joist at this splice is screwed down to sills.

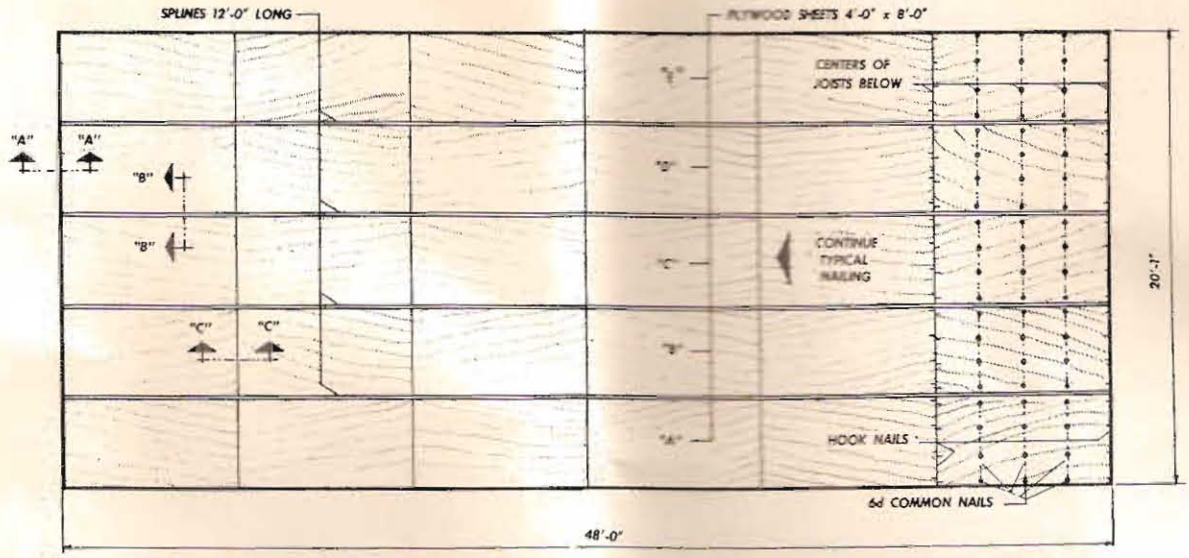
(c) Lay the joists (connecting holes down) at right angles to the sills on 2′ centers as shown. Insert 2 screws diagonally opposite to each other at each connection.

(d) Place channels (ST-62) over ends of joists and parallel to outside sill joists. Screw these to the joists. Use 2 screws diagonally at each joist but use 4 screws where there is a joint in the channel.

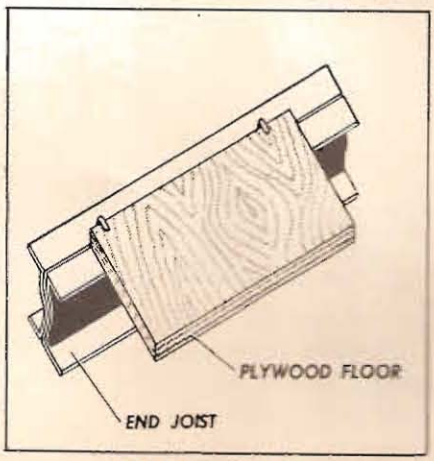
(e) Square up the above floor assembly. Distance A-C should be the same as B-D. Use a length of wire for measuring these distances. Hold one end of the wire on the inside lip of the channel at point "A". Stretch to the same point at "C". Do the same from B to D. Shift the corners until distances A-C and B-D are equal. Check the ends and sides for straightness, using a line or wire and recheck for square. Then check the assembly for level starting at joist B-C. With this joist level, proceed to level the channel plate, working from C to D. Level the channel by placing the level on the lip of the channel in about four locations.

When the channel is levelled, level the other end joist, working from D to A. Then proceed with levelling the channel from A to B. Bring the other joists to level, using level at four points as for opposite side. Use small wedges or blocking made from crating lumber to raise the sills, and scoop dirt from under the sills to lower. *Be sure the floor assembly is level before proceeding.*

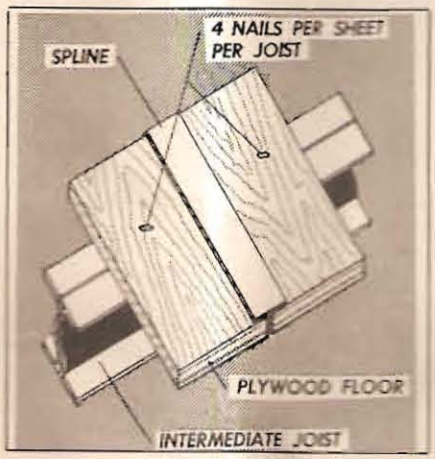
FLOOR PANELS



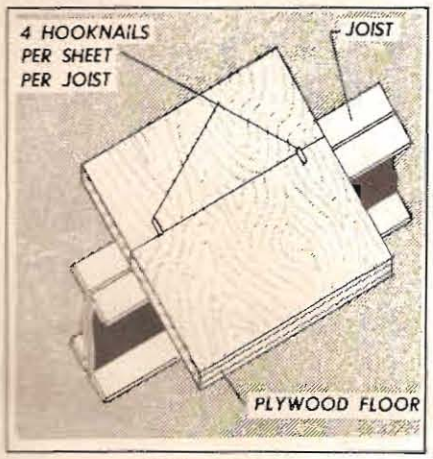
LAYOUT OF PLYWOOD PANELS



SECTION "A-A"



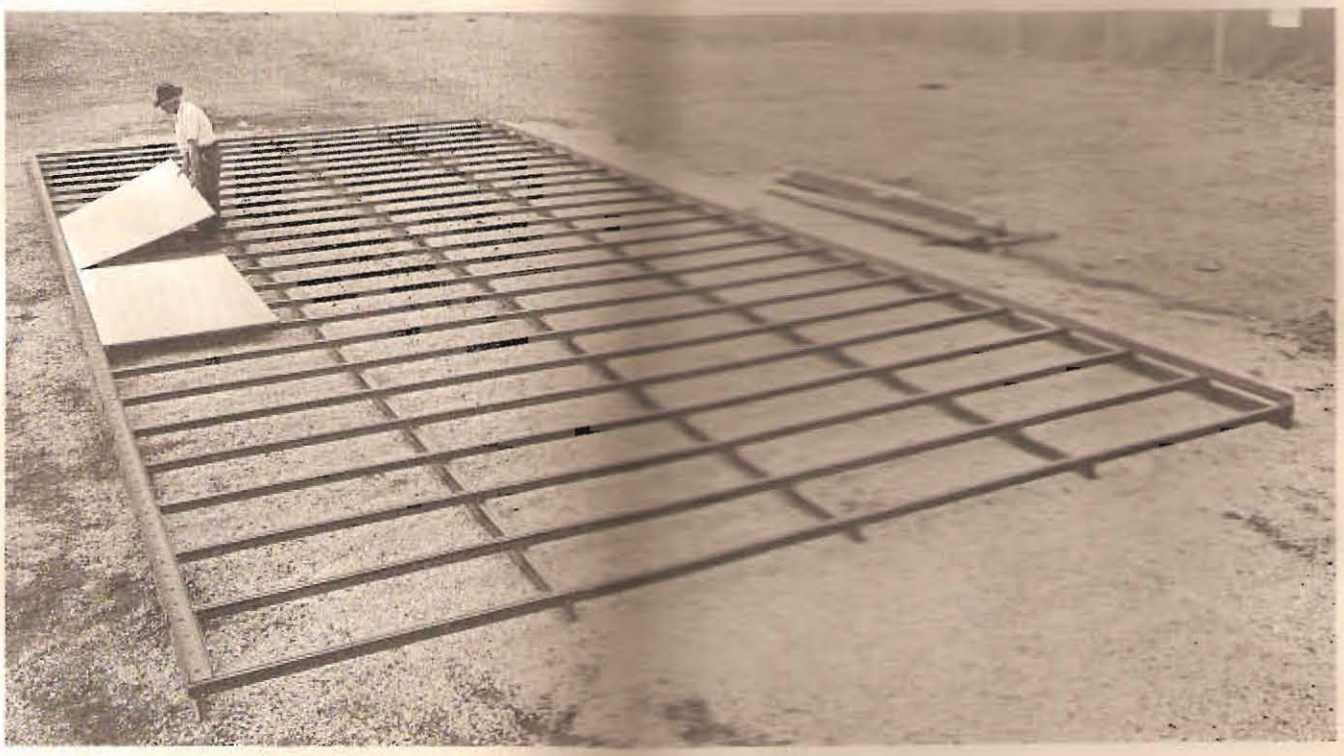
SECTION "B-B"



SECTION "C-C"

PANEL FITTED INTO SPLINE

PLYWOOD FLOOR COMPLETED



INSTALL PANELS

HOOK NAILS

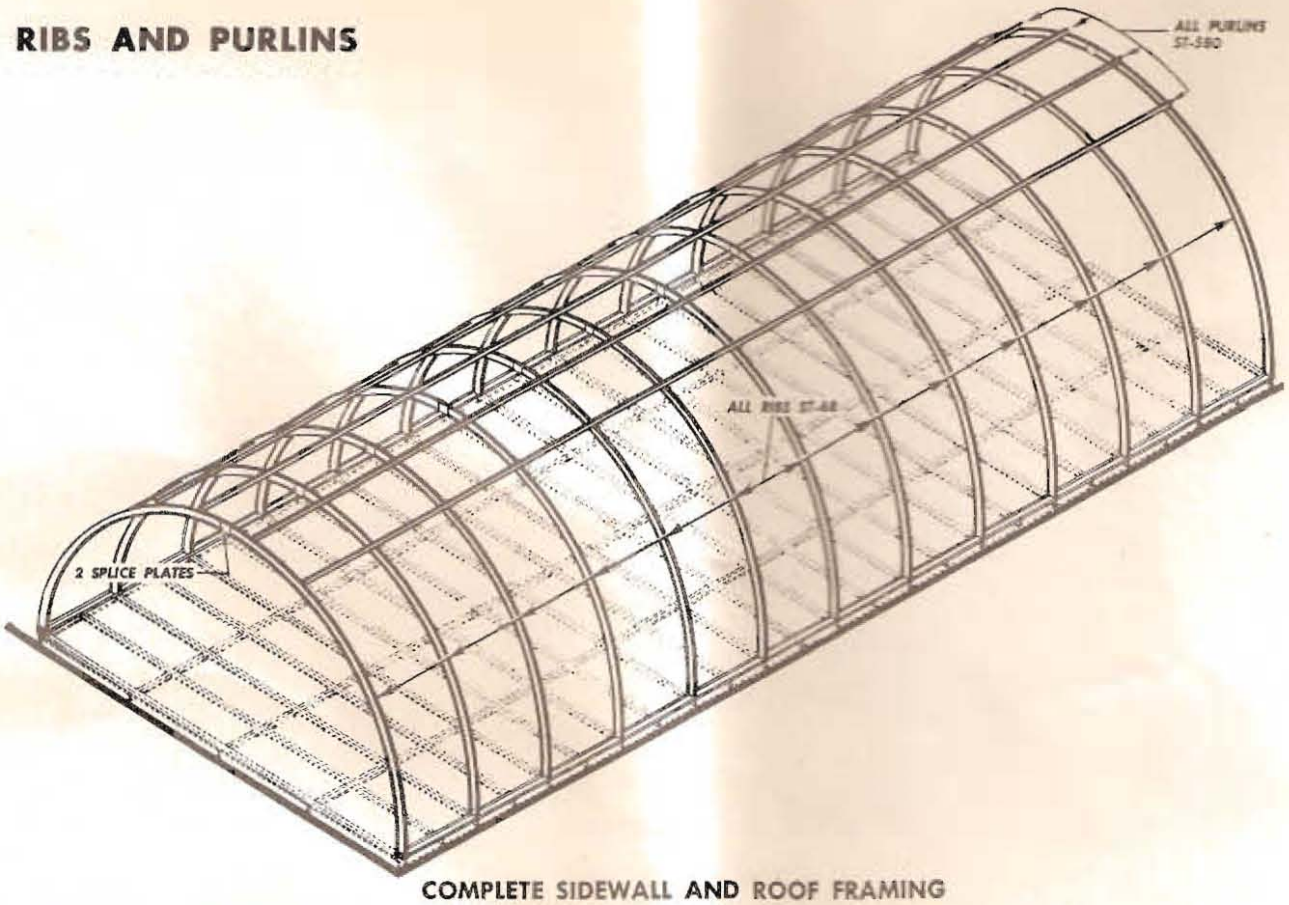
NAIL ON CHALK LINE

STEP 2 The floor is covered with 4' 0" x 8' 0" plywood panels nailed to the floor joists. Metal splines fit between the lengthwise joints.

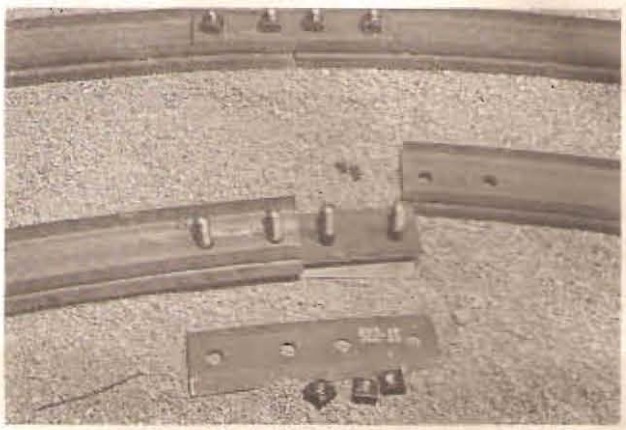
Procedure:

(a) Lay out all the plywood panels (clear side up) starting with row "A" and proceeding to rows "B," "C," "D" and "E" fitting the metal splines between the rows as each is laid. (See Sect. B-B.) The ends of the panels should butt over the center of joists.

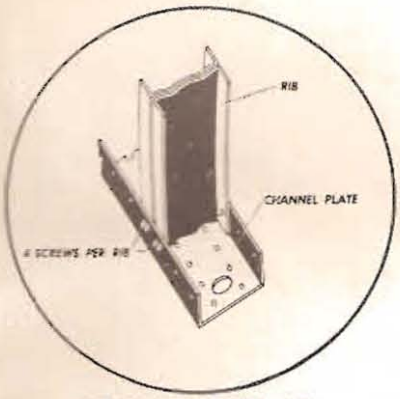
(b) Nail the panels in place, starting with middle two panels in row "A". First drive 6d common nails at intermediate joists (see Sect. B-B), and then hook nails at the ends of the panels (see Sect. C-C and A-A). To establish a nailing line for the intermediate rows of nails, take a chalk line, hold each end over the center of the joist, pull the line taut and snap. This will leave a guide line on the panel. Do not use more nails than the sketches call for. (See Sect. B-B and C-C.)



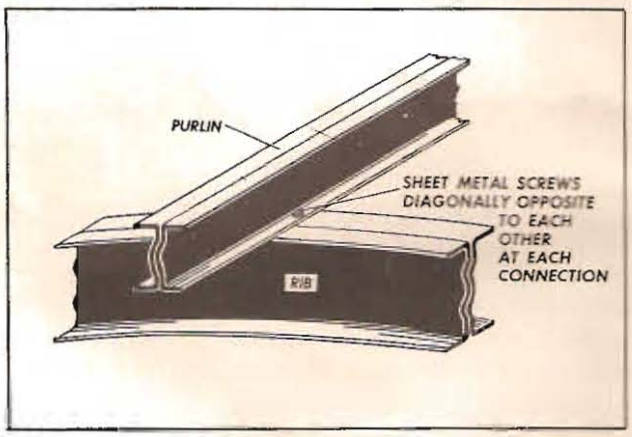
COMPLETE SIDEWALL AND ROOF FRAMING



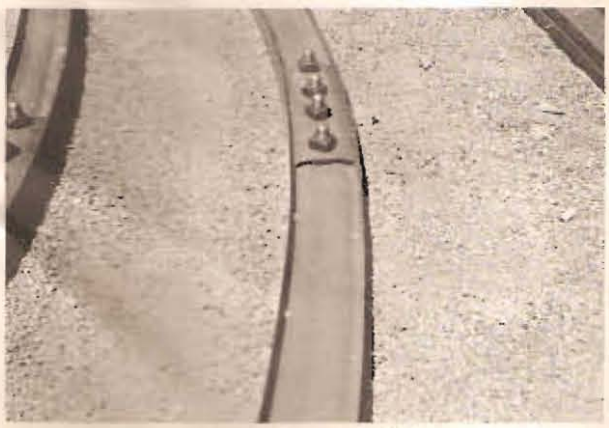
SPLICING RIB



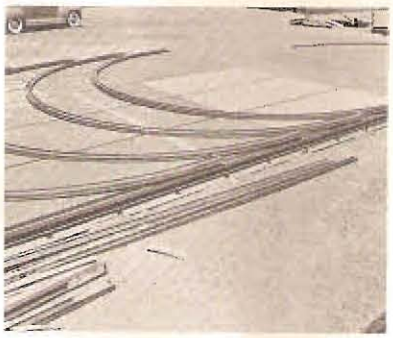
DETAIL AT CHANNEL



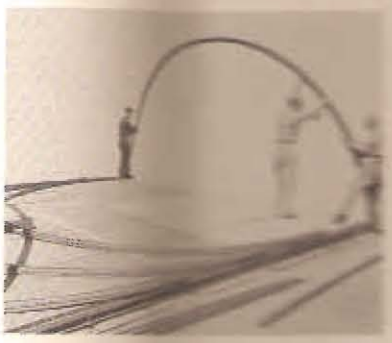
RIB AND PURLIN



COMPLETED SPLICE

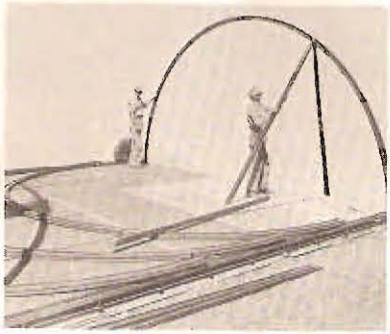


ASSEMBLE RIBS ON FLOOR



RAISE FIRST RIB

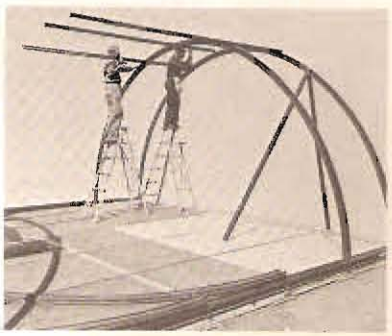
SCREW RIB TO CHANNEL



BRACE FIRST RIB

SECOND RIB GOES UP

ATTACHING FIRST PURLIN



FOURTH PURLIN FASTENED

FIRST 12' OF FRAME IS UP

PANEL USED TO PLUMB RIBS

STEP 3 Each rib assembly consists of two curved Stran-Steel sections, or "half ribs," which are joined together at the top and whose ends fasten to the channels above every other joist beginning with the end joist. On top of the ribs are four rows of purlins for attachment of exterior covering sheets. Construct a scaffold out of crate lumber other than from Crates No. 6, No. 7, and No. 9, to use for attaching purlins to ribs.

Procedure:

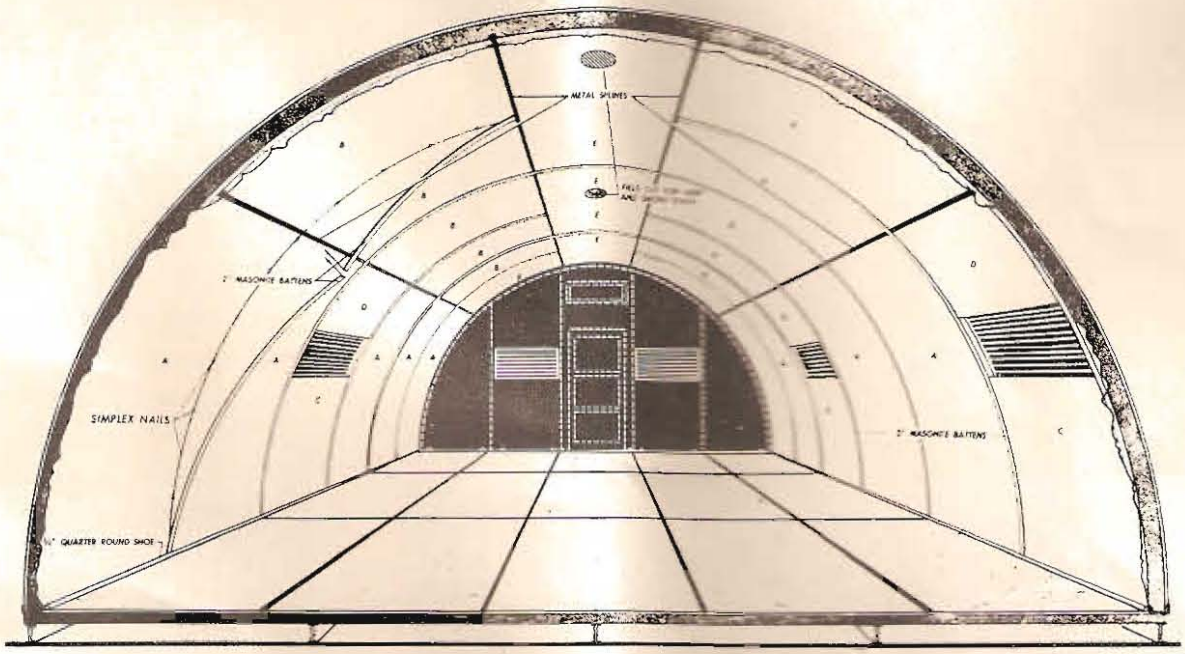
(a) Assemble all ribs on the ground (see photograph) before raising any. The ribs are joined at the top with two splice plates (ST-726) and four ¾" x 2½" bolts. (See photo.) In assembling the end ribs take care to have the bolts point toward interior of building so that later work will clear. Raise end rib first and secure it into the channel, using 2 screws. Nailing groove of first rib must line up with nailing groove of first joist underneath. Brace this rib temporarily with purlins. (See photo.)

(b) When second rib is raised, attach purlins placing end of first purlin at nailing groove of first rib. This automatically spaces the ribs 4' 0" on center. Raise next rib and repeat this operation for each successive rib. Use 4 screws at base of all interior ribs.

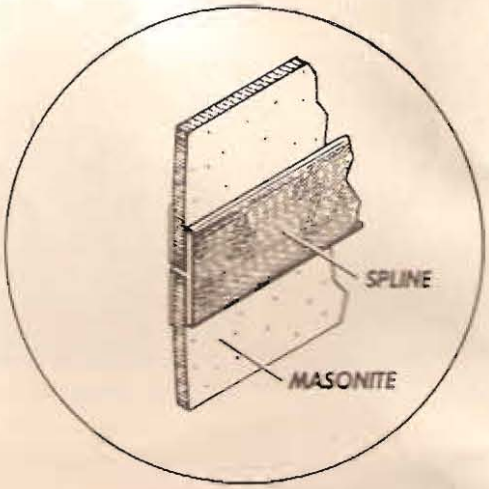
(c) Fasten each purlin in place to each rib with 2 screws, diagonally opposite each other except at each end of purlin where 2 screws are directly opposite each other.

(d) **Make certain ribs are plumb.** This is done by using a Masonite "A" sheet (3' 11⅞" x 8' 0"), for squaring up center nailing groove of ribs with floor level. Place end of panel level on floor and against channel. Line up centers of first and second ribs with vertical edges of panel and fasten to the ribs with Simplex nails. (See photo.) (Crating lumber may be used to fasten outer side of rib for bracing until the bottom row of Masonite sheets has been installed.)

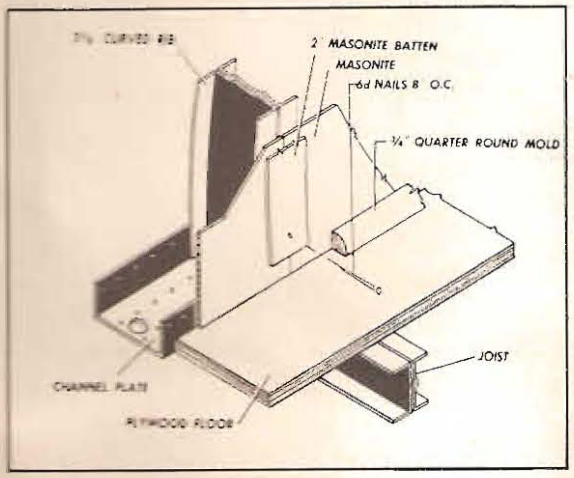
INSIDE COVERING



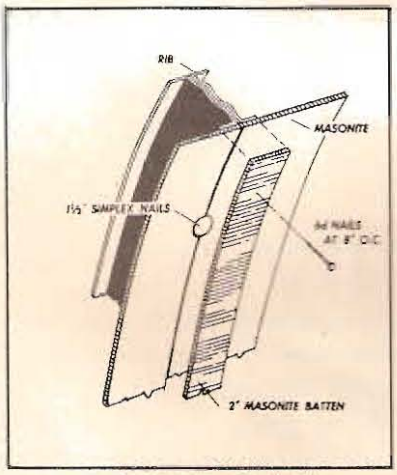
CUTAWAY VIEW



METAL SPLINE



DETAIL AT FLOOR



MASONITE BATTEN

INSTALL WOOD WINDOW SILLS AND HEADERS

"E" SHEET

SECOND "B" SHEETS

SECOND "A" SHEET

STEP 4 The inside of the Quonset building is lined with ⅛" thick Masonite sheets, nailed to ribs, smooth side facing inside the building. The application of sheets is started with a bottom row on one side and then continuously applying sheets up around the arch to the other side of building.

Procedure:

(a) Start on one side of building with "A" sheets (3' 11⅞" x 8' 0") continuing from panel used to plumb ribs in Step 3. Omit "A" sheets where windows on sidewalls are desired. The suggested arrangement for windows is shown in sketch on opposite page and on Erection Drawing Sheet No. E-5.

(b) Fasten sheets in place with Simplex nails, approximately 24" apart. Place row of splines at upper edge of "A" sheets.

(c) Insert twelve (12) "B" sheets (3' 11⅞" x 6' 0") into splines and nail to ribs.

(d) Place splines at upper edge of "B" sheets.

(e) Insert six (6) "E" sheets (3' 4" x 7' 11⅞") into splines above "B" sheets and nail to ribs with Simplex nails on ends.

(f) Place splines over outer edge "E" sheets.

(g) Insert twelve (12) "B" sheets into splines and nail to ribs with Simplex nails.

(h) Place splines on bottom edge of "B" sheets.

(i) Balance of "A" sheets are applied by snapping into place between splines and floor at channel plate (see photo). Fasten with Simplex nails. Apply "A" sheets only where windows are not intended.

(j) The window headers and sills are now installed. Sidewall window headers and sills are 1¼" x 3⅝" lumber from the battens of Crate No. 6 or 1⅝" x 3⅝" lumber from sides of Crate No. 9. The headers and sills must be cut to 3' 11¾" lengths.

The top edge of the sill is located even with the top edge of Masonite "C" sheets (3' 11⅞" x 3' 10⅝") placed against ribs. The bottom side of the header is located 1' 9½" from top of sill. (See enlarged section on Drawing Sheet E-6.)

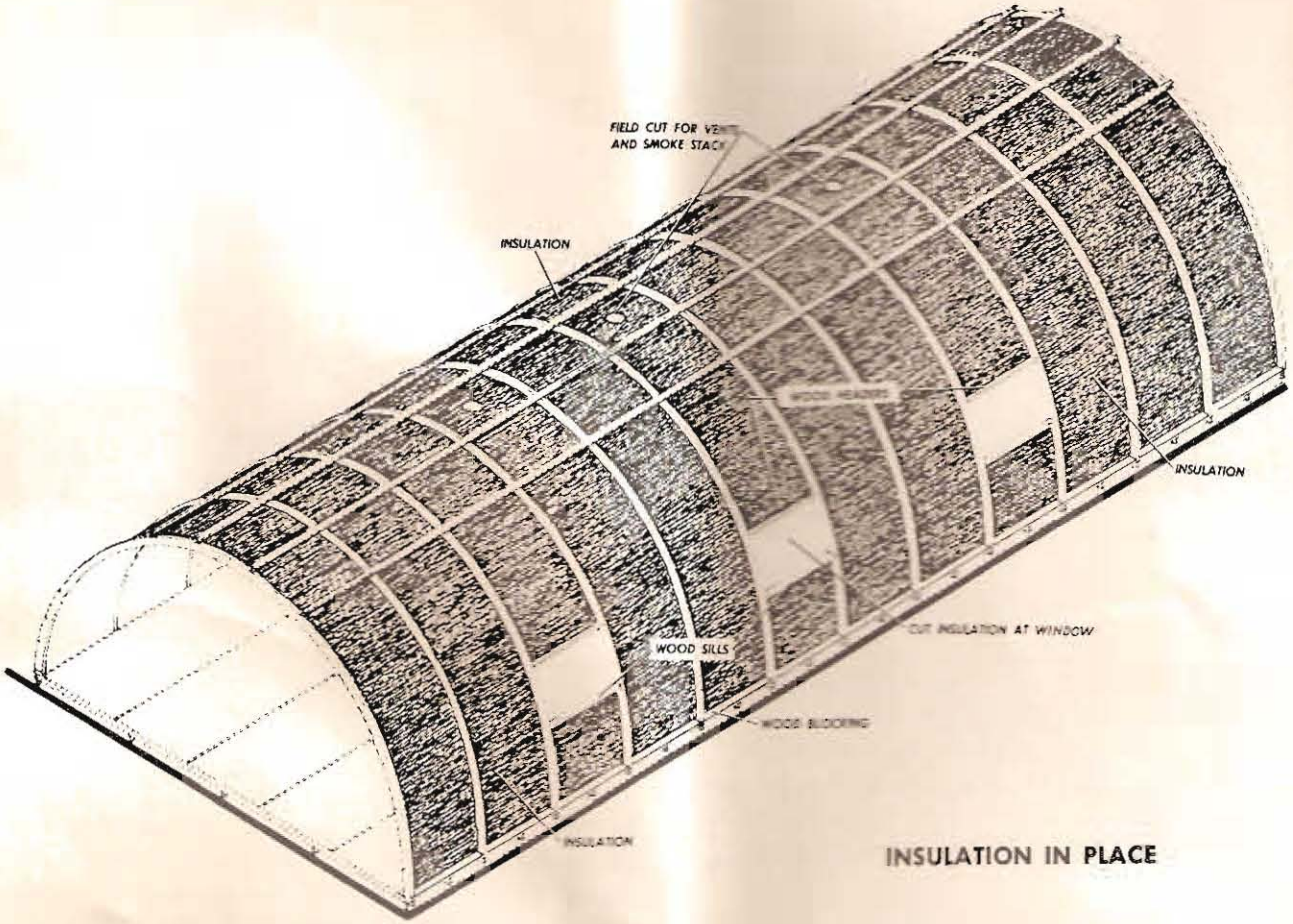
Both sill and header are fastened between ribs by first piercing rib flanges with punch and then nailing through flange into wood, on inside and outside at both ends.

(k) Attach six (6) "C" sheets under windows by fastening to ribs with Simplex nails and to sills with 6d nails.

(l) Attach six (6) "D" sheets (3' 11⅞" x 2' 3⅞") over windows by inserting into splines above and fastening to ribs with Simplex nails and to headers with 6d nails.

(m) After all lining sheets are installed, nail sheets "E" to intermediate ribs with 6d common nails, spaced 8" apart.

(n) Fasten 2" Masonite battens over joints between sheets directly over nailing groove of ribs. Nail to ribs with 6d nails spaced 8" apart.



INSULATION IN PLACE

INSULATION IN PLACE OVER INSIDE COVERING

INSULATION APPLIED OVER MASONITE

FASTENING INTO CHANNEL

NAILING TO WINDOW SILL

STEP 5 Insulation is furnished for each building in strips to fit exactly between ribs (4′ apart) and in lengths to reach around the entire arch frame.

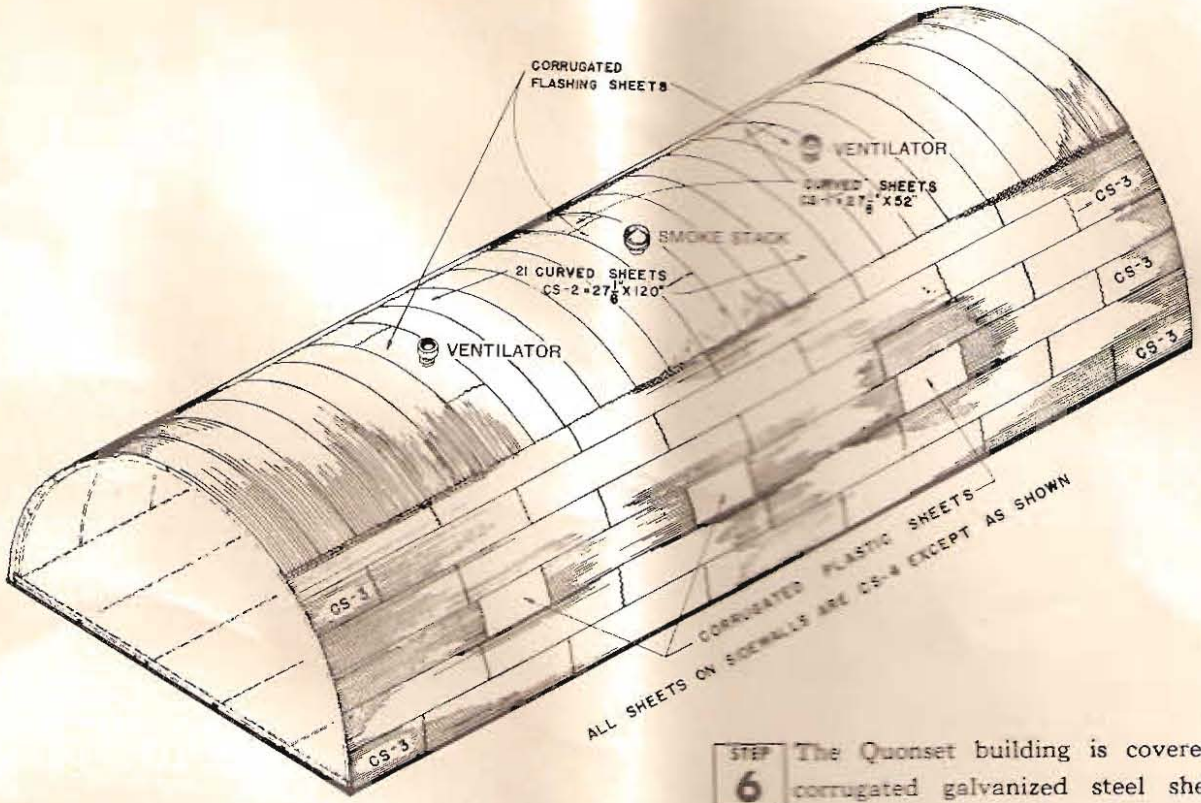
Procedure:

(a) Roll up each strip of insulation and place a roll on ground between each two ribs.

(b) Draw end of rolls up and over the Masonite lining so as to fit snugly between ribs and under four purlins at top.

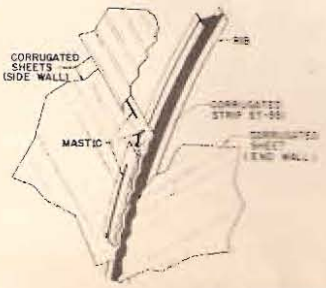
(c) Fasten insulation on each end at base channel by wrapping around a crating lumber stick cut to fit snugly between ribs. (See photo.)

(d) Cut insulation at windows. Fold cut edge to double thickness and nail to wooden headers and sills with Simplex nails.

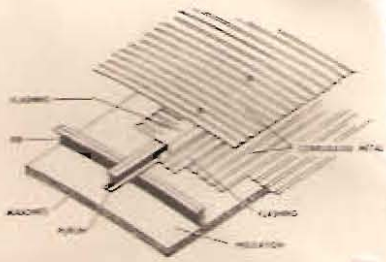


LAYOUT OF CORRUGATED SHEETS

STEP 6 The Quonset building is covered with corrugated galvanized steel sheets or corrugated plastic sheets (at windows). Straight sheets are nailed to the ribs, and curved sheets are nailed to the purlins.



DETAIL AT END RIB



DETAIL AT RAISED ROOF

FLASHING BETWEEN HORIZONTAL AND CURVED SHEETS

IMPORTANT

(a) Seal all vertical and horizontal laps of sheets with a bead of mastic 1/4" to 5/16" in diameter. Good insurance against leaks is to apply the bead of mastic WITHOUT breaks. Corrugated and flat rubber or asphalt strips, used around windows and door frames, flashing, etc., must have a continuous bead of mastic on both sides. Mastic must be applied on clean surfaces.

(b) Side laps of corrugated sheets between purlins and between ribs are stitched with sheet metal screws and lead washers (with 1/4" hole) spaced 12" apart.

(c) Secure sheets to purlins and ribs with double headed galvanized nails and washers (with .16" hole) spaced 8" apart.

(d) Make all end laps of corrugated sheets 4" in length. Make side laps of straight sheets 2", and side laps of curved crown sheets 3½".

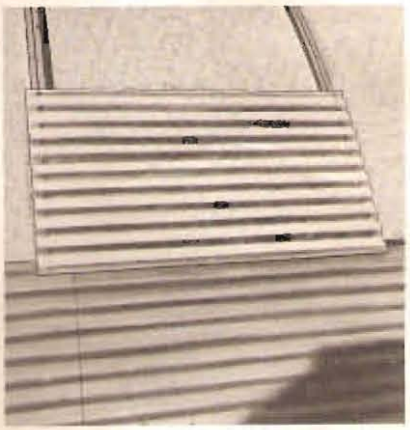
FIRST SHEET APPLIED
1½" BELOW TOP OF JOIST

END SHEET LOCATED
1½" FROM CENTER OF RIB

APPLYING MASTIC TO
VERTICAL LAP

END LAPS ARE 4"

APPLY RUBBER OR ASPHALT
STRIPS AROUND WINDOW FRAME



ATTACH PLASTIC WINDOW

Procedure:

(a) Start straight corrugated sheets 1½" below top of joist, using 52" sheet (CS-3) at end rib. Locate end of sheet 1½" beyond nailing groove of end rib. Continue horizontal row with 100" sheets (CS-4). Finish row with 52" sheet (CS-3). Attach sheet to ribs with double-headed nails and washers (with .16" hole) spaced 8" apart.

(b) Before proceeding with second row of sheets, nail flat rubber or asphalt strips to wooden window sills with 6d nails. Then attach second row of sheets, which are all 100" sheets (CS-4).

(c) Nail flat rubber or asphalt strips to window headers and apply corrugated rubber or asphalt strips at sides of windows. All strips must have a continuous bead of mastic both sides. Do not nail corrugated strips to ribs until sheets are attached so that strips may be shifted to match the corrugations of the sheets. (The mastic will hold the strips temporarily.) Start third row of sheets by first applying three 52" corrugated plastic window sheets. Fill in with 100" (CS-4) steel sheets, except at one end where a 52" (CS-3) sheet is nailed on.

(d) Continue applying straight steel sheets as shown in sketches, photographs and drawings until six rows are completed.

(e) At this point, flashing (F-7) is attached to ribs.

(f) Fasten flashing F-7 by nailing to ribs and by stitching with sheet metal screws and lead washers, spaced 12" apart to straight corrugated sheet below.

(g) Apply sheets on other sidewall according to above procedure.

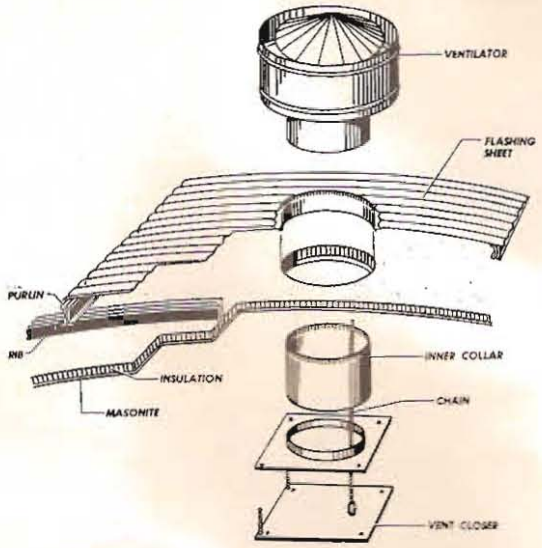
(h) Start curved roof sheets with a 120" sheet (CS-2). The side of sheet with corrugated edge pointing downward should project 2-3/16" beyond nailing groove of end rib. Install flashing (F-6) to purlin as you proceed with installation of curved roof sheets. Stitch flashing F-6 to F-7 with sheet metal screws.

(i) When six (6) 120" curved sheets have been applied, two 52" curved sheets (CS-1) and flashing sheet with ventilator collar attached are nailed to purlins.

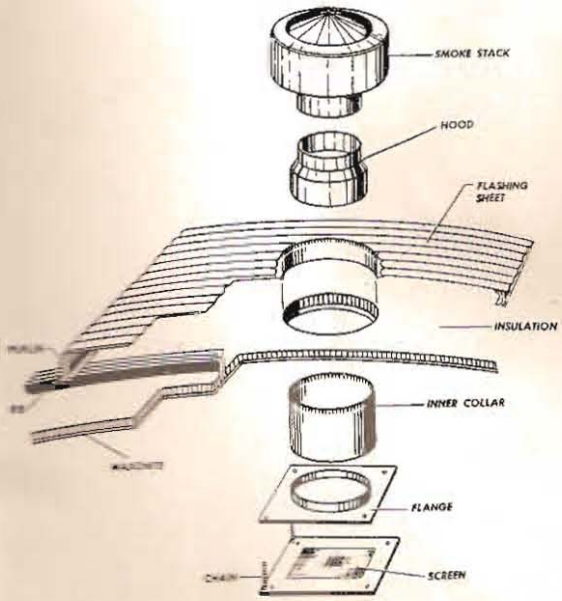
(j) Continue applying curved sheets (CS-2) and (CS-1) and flashing sheets where indicated on sketch and drawing.

(k) Fasten together side laps of corrugated sheets between ribs and between purlins with sheet metal screws and lead washers spaced 12" apart.

VENTILATORS AND SMOKE STACK



EXPLODED VENTILATOR

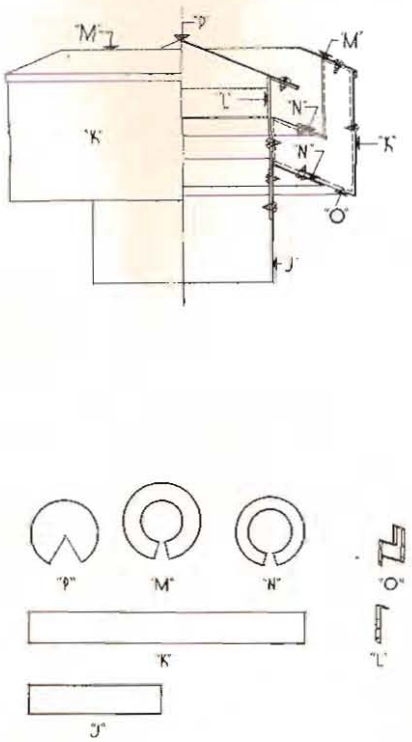


EXPLODED SMOKE STACK

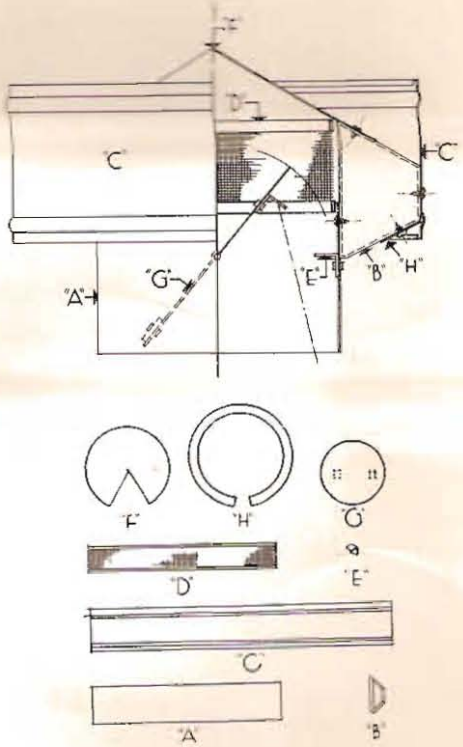
CUT MASONITE

FIT INNER COLLAR

FLASHING SHEET



KNOCKED DOWN SMOKE STACK



KNOCKED DOWN VENTILATOR

INSTALL VENTILATOR

STEP 7 Two ventilators and one smoke stack are furnished for each building. These are shipped knocked down with special curved flashing sheets for installing them. (Curved flashing sheets installed in Step 6 with curved roof sheets.)

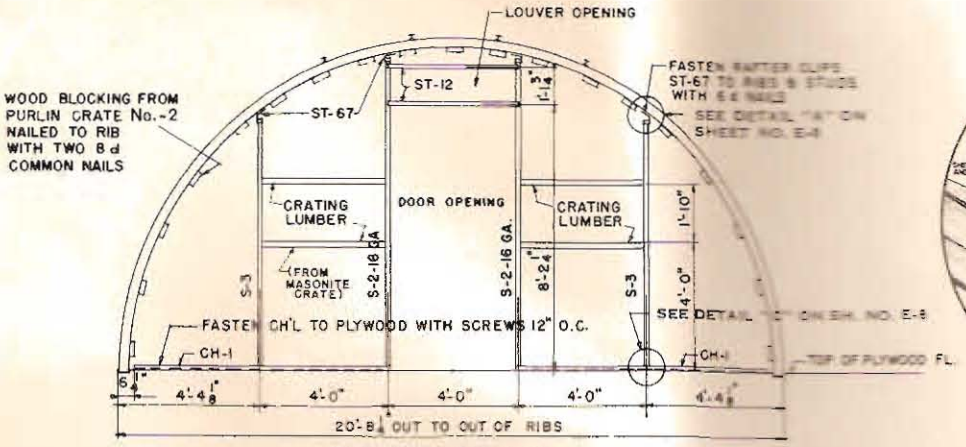
Procedure:

(a) Assemble the smoke stack and ventilators. (See drawings.)

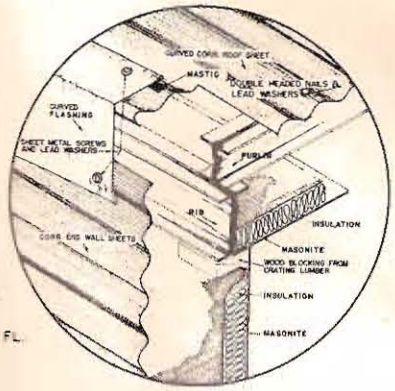
(b) Cut round holes through Masonite and insulation to line up with those in special sheets.

(c) Fit inner sleeve through this hole and screw the flange to the Masonite. Slip ventilator over the collar on flashing sheet and secure it by screws. On the smoke stack the adapter ring or hood must first be placed over the collar on the flashing sheet and screwed to it. Then slip the smoke stack over the hood and fasten it with screws.

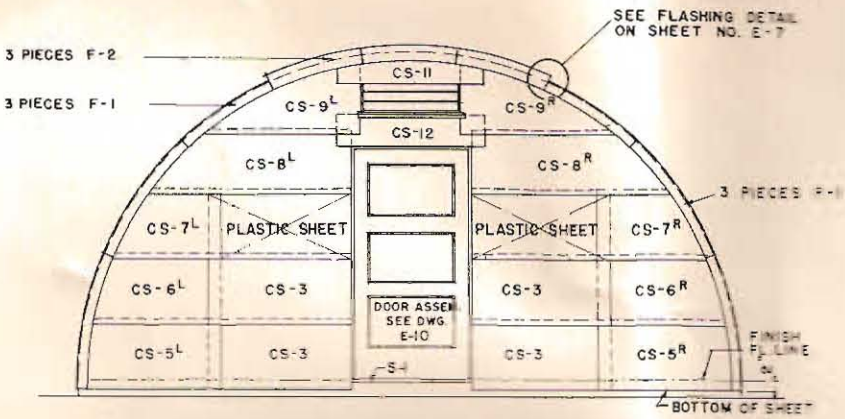
ENDWALLS



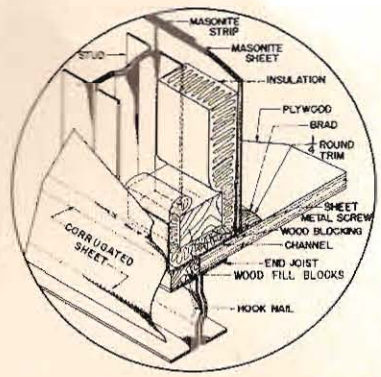
END WALL FRAMING



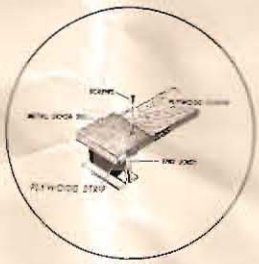
CUT-AWAY VIEW OF ENDWALL AT ROOF SHEETS

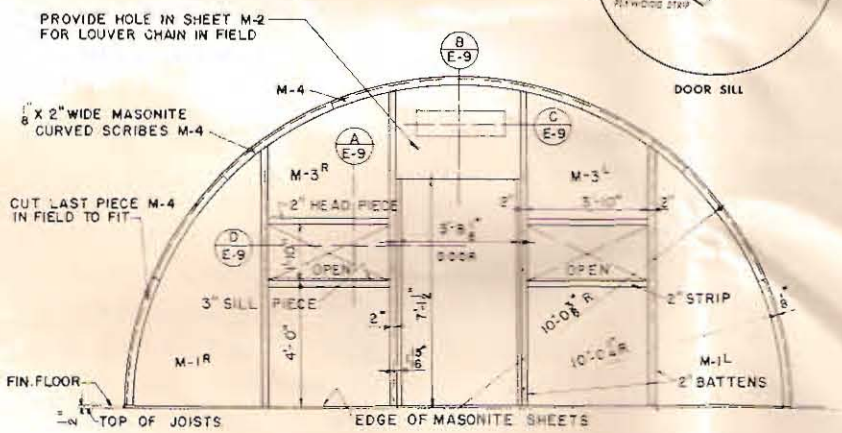


EXTERIOR END ELEVATION



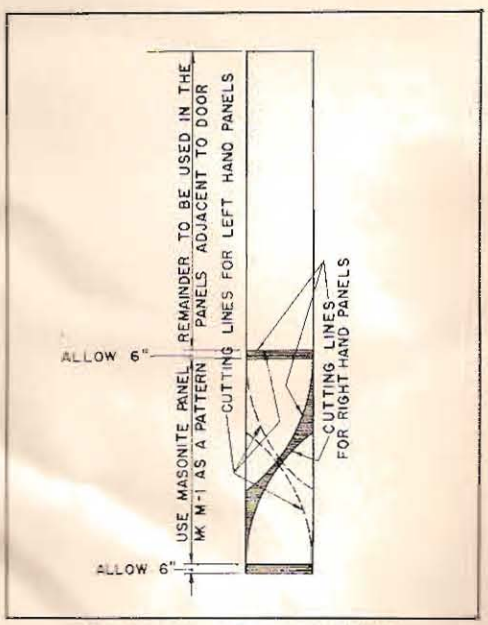
CUT-AWAY VIEW OF ENDWALL AT FLOOR JOIST



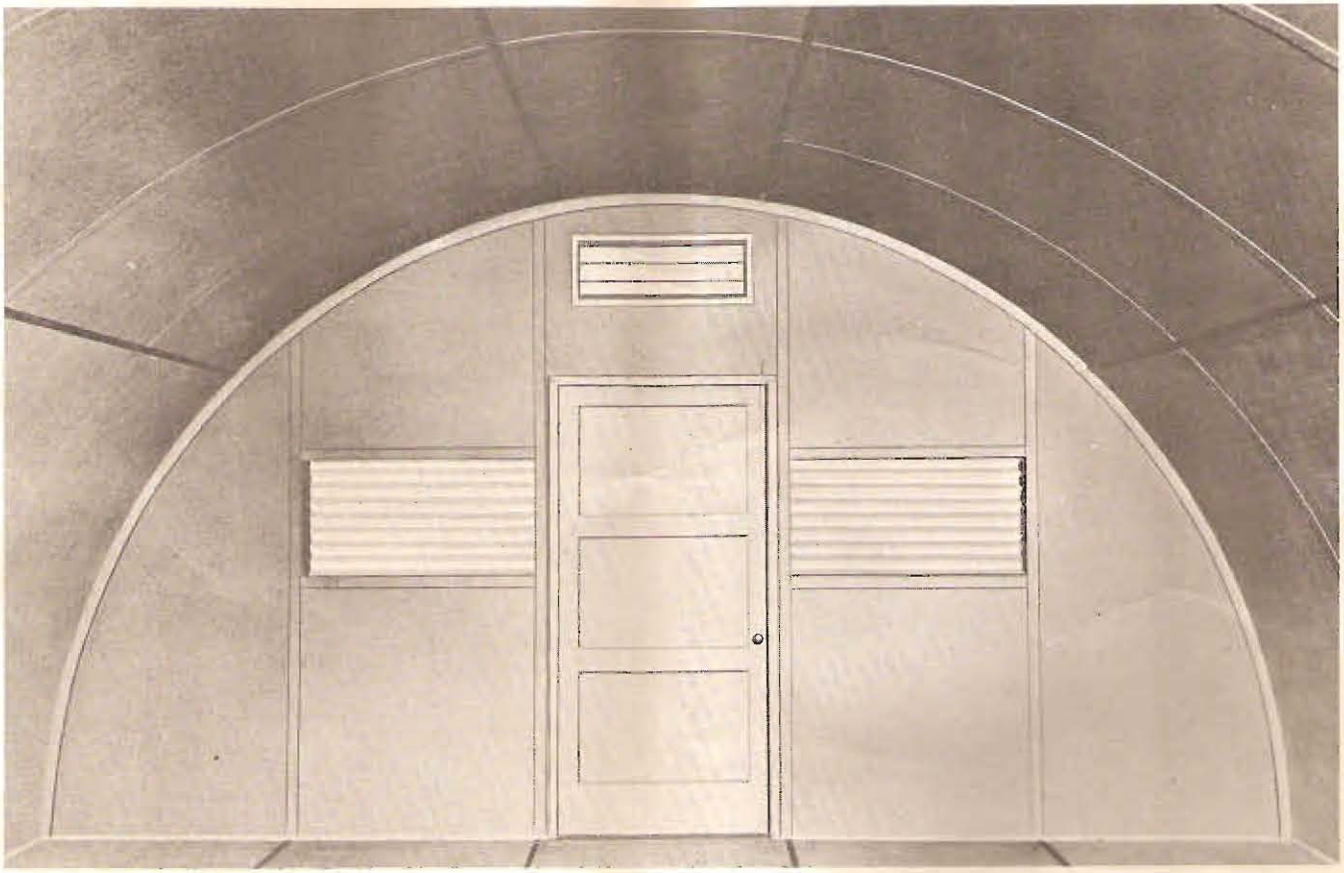


INTERIOR END ELEVATION (MASONITE)

(FOR SECTIONS INDICATED SEE ERECTION DRAWINGS, SHEET NO. E-9.)



CUTTING DIAGRAM FOR ENDWALL INSULATION



ASSEMBLED ENDWALL

STEP 8 Endwall erection consists of putting up frame, applying Masonite interior lining, insulation, and exterior corrugated sheets, and installing screened louver and door.

Procedure:

(a) Lay channel (CH-1) on each side of door opening in middle of endwall with channel ends 1′ 11″ from middle point. Centerline of channel should be directly over nailing groove of first joist. Fasten channel to edge of plywood flooring with sheet metal screws spaced 12″ apart. Insert ½″ x ⅞″ plywood filler blocks under edge of channel. Channel and filler blocks are fastened together with screws.

(b) Erect four endwall studs. S-2 studs are placed in the channel with nailing groove 2′ 0″ from middle point. S-3 studs are placed 6′ 0″ from the middle point or 4′ 0″ from the S-2 studs. Connect each stud to channel with four (4) sheet metal screws. Plumb each stud and fasten to rib by means of a rafter clip (ST-67). See photos for detail on this operation. **Be sure ears of clip are bent properly around flanges of rib.**

(c) Attach ⅞″ x 1¾″ wooden blocks from Crate No. 2 with 8d nails to end rib over edge of Masonite sidewall and roof sheets. Side of blocks facing into building should be 1⅛″ in from nailing groove of end rib. (See photos and sketch.)

(d) Erect half studs (ST-12) with nailing groove to outside of building between center studs by attaching with screws in holes provided. Wedge wood blocking (⅞″ x 2¼″ x 3′ 11¾″), cut from crating lumber (Crate No. 7), between studs under top half-stud and above lower half-stud.

(e) Install louver with flashing (F-3) by nailing to lower half-stud through holes provided using 6d nails and by tacking at corners to top half-stud if necessary to hold in place.

(f) Attach metal sill (S-1) over edge of plywood floor and plywood strip (½″ x ⅞″ x 4′) at door by sheet metal screws (see sketch).

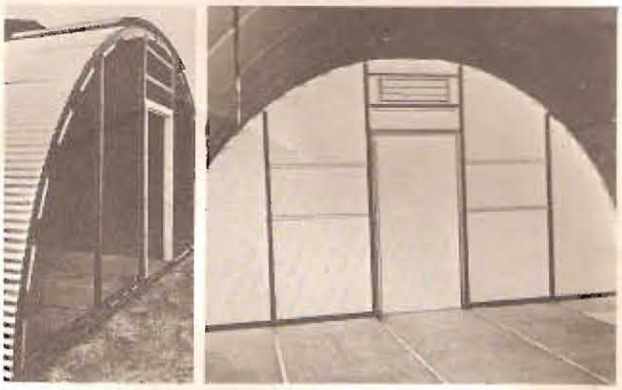
(g) Assemble door frames and install in endwalls. Each door frame consists of two jamb bucks, head buck, two jamb sections and head piece. Insert jamb bucks inside of studs (S-2) and place head buck on top. Fasten bucks to studs by nailing through stud flanges with 6d nails 18″ apart. Nail door frame pieces together and attach frame to door bucks with 8d finishing nails, wedging to plumb.

(h) Install wooden headers and sills for windows. These are 1¼″ x 2-5/16″ lumber from battens of Crate No. 6 and must be cut to lengths of 3′ 11¾″. The sill pieces are placed with upper edge 4′ 0″ above the finished floor. The head piece is located above to provide an opening of 1′ 10″. Headers and sills are attached to studs with 6d nails after piercing stud flanges with punch.

(Continued on Page 21)

ENDWALLS

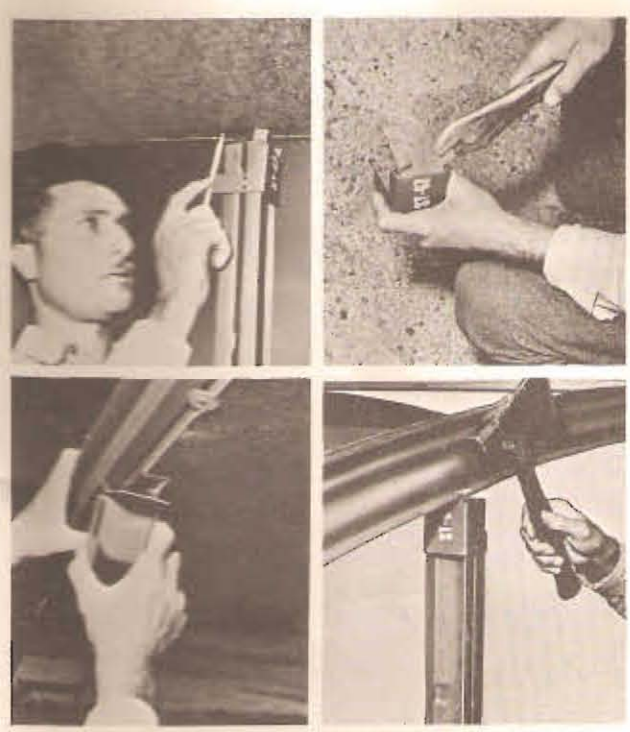
STUD SCREWED TO CHANNEL



ENDWALL FRAME ERECTED. DOOR AND WINDOW FRAMES INSTALLED. BLOCKS NAILED TO RIB. LOUVER IN PLACE.

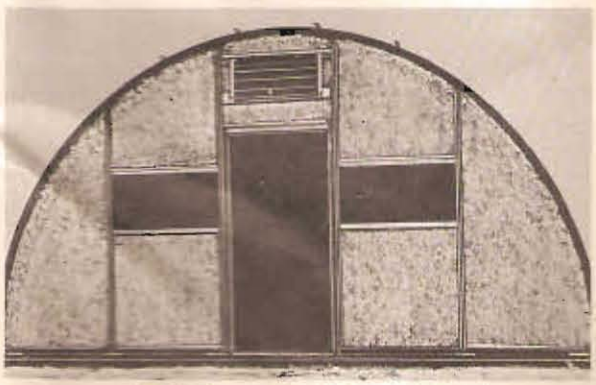
FIRST SPECIAL PRECUT MASONITE PANEL NAILED TO STUD AND WOOD BLOCKS.

IMPORTANT — BEFORE THIS OPERATION, PANELS ARE USED AS TEMPLATES FOR CUTTING INSULATION TO SIZE

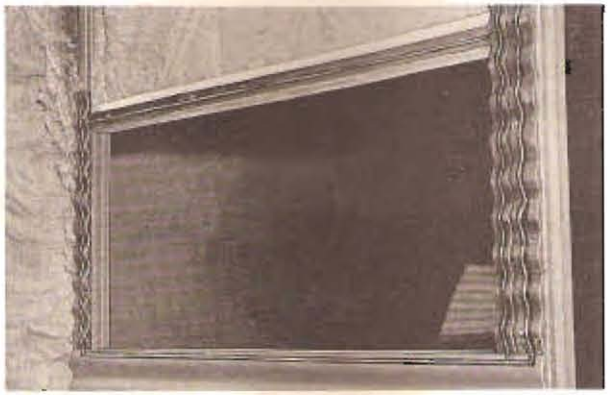


(Upper Left) Marking cutout on Masonite for rafter clip. (Upper Right) Ears bent for easy installation. (Lower Left) Clip inserted between rib flange and panel. Ear on left is bent over rib flange. (Lower Right) Rafter clip ear bent over rib flange.

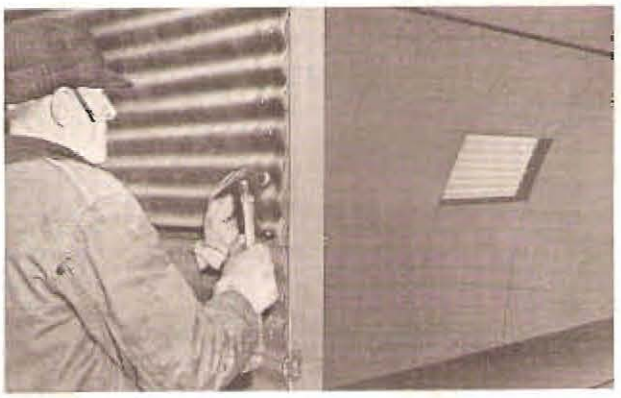
MASONITE ENDWALL PANELS INSTALLED



INSULATION NAILED IN PLACE

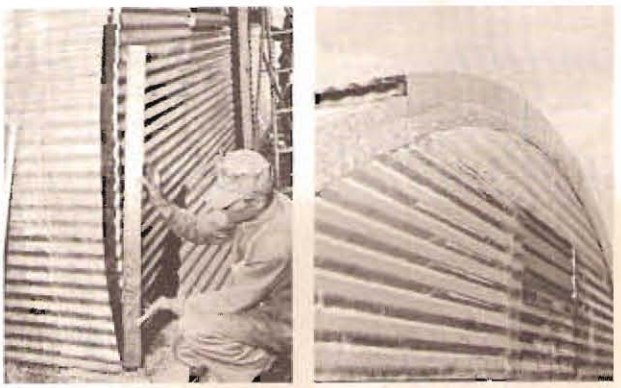


MASTIC APPLIED TO WINDOW STRIPS



PLASTIC WINDOW SHEET NAILED INTO PLACE

CORRUGATED SHEET OVER DOOR FITTED UNDERNEATH LOUVER FLASHING



FLASHING FASTENED OVER EDGE OF ENDWALL AND SIDEWALL. (Right) FLASHING ON CROWN IS ATTACHED

(Continued from Page 19)

At this time, the pieces of insulation for endwall are cut to special size and shape by using precut Masonite endwall panels as templates (see sketch page 18.)

(i) Apply special precut Masonite panels (smooth side facing interior) to endwall studs and to wooden blocking. Fasten to studs with Simplex nails 24″ apart and to wooden blocking with 6d common nails.

(j) Apply 2″ batten strips over joints of Masonite panels on both endwalls. Fasten with 6d nails about 8″ apart by driving into nailing grooves of studs. Apply 2″ curved Masonite scribes (M-4) around arch at endwalls by nailing to wood blocking. Apply Masonite trim around windows and Masonite sill as shown in sketch.

(k) Install plywood drop panel on the door according to drawing E-10.

(l) Hang door with hardware provided.

(m) Apply one-quarter round shoe mold around entire building interior by nailing to plywood floor with brads 12″ apart.

(n) Fasten with Simplex nails the insulation pieces that were cut for the endwall to wood blocking on end rib, wooden door head, wooden head and sills at windows and wooden blocks above and below louver. Fasten at base channel by wrapping insulation around a crating lumber stick cut to fit snugly between studs and between stud and rib.

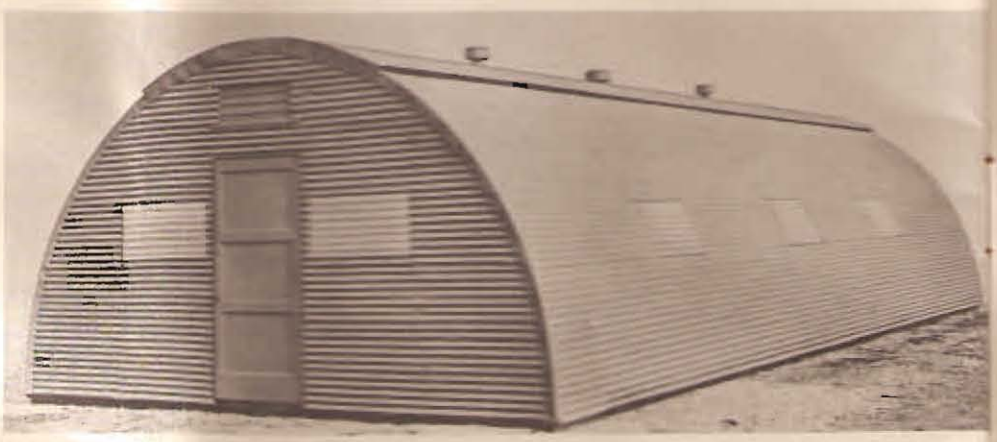
(o) Apply corrugated rubber or asphalt strips to door jambs and studs at sides of window openings and louver. Do not nail corrugated strips until sheets are attached so that strips may be shifted to match the corrugations of the sheets. (The mastic will hold the strips temporarily.) Nail flat rubber or asphalt strips to head piece of door frame, to head and sill pieces of window frames, and to top of louver. All these strips must have a continuous bead of mastic on both sides.

(p) Start corrugated galvanized steel sheets 1½″ below top of joists and apply in this order on each side of door: CS-3, CS-5, CS-6, CS-3, plastic window sheet, CS-7 and CS-8. Along sides of arch, CS-5, 6, 7, 8 and 9 sheets are cut special for left and right sides. Apply CS-12 over door, CS-9L and CS-9R at sides of louver and CS-11 over louver. Attach sheets to studs with double-headed nails and washers (with .16″ hole) 8″ apart and to wood blocking around arch with 6d nails. Fasten together side laps of corrugated sheets with sheet metal screws and lead washers (with ¼″ hole) 12″ apart.

(q) Attach six pieces of flashing (F-1) and three pieces of flashing (F-2) as shown in sketches on page 18 and photos above.

ALTERNATE ERECTION SEQUENCE

FLOOR FRAME



RIBS AND PURLINS

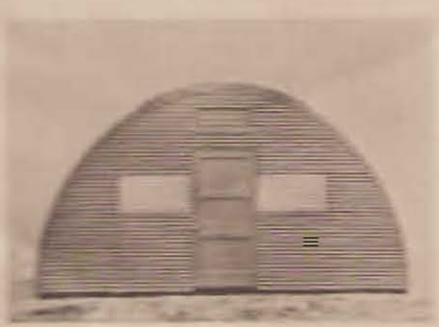
EXTERIOR COVERING

INSULATION

Extended periods of bad weather may make it desirable to put on the outside covering as soon as possible to avoid possible damage to Masonite interior lining and insulation by rain, snow and ice or by wind. In this alternate erection sequence, therefore, the outside covering and windows are nailed to ribs and purlins as Step 4 instead of Step 6. All other operations are very much the same.

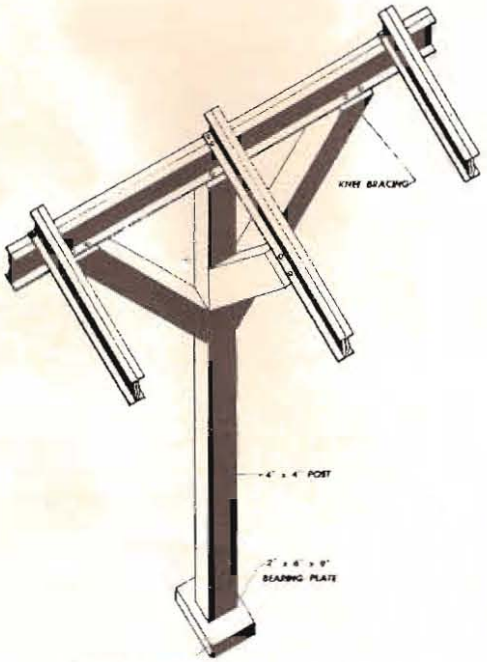
1. **Floor Framing.** Lay the sills first, then the joists, then the sidewall channels. Level and square the whole assembly. (See pages 4 and 5.)
2. **Floor Panels.** Lay out plywood floor panels on the joists. Install metal splines at longitudinal joints, and nail the panels to the joists. (See pages 6 and 7.)
3. **Ribs and Purlins.** Fasten the half-ribs together with splice plates, raise into position and screw to channel plates. Erect purlins and plumb entire assembly. (See pages 8 and 9.)
4. **Outside Covering and Windows.** Nail straight corrugated sheets including plastic window sheets on sides to ribs and nail curved corrugated sheets on top to purlins. (See pages 14 and 15.)
5. **Ventilators and Smokestack.** Assemble ventilators and smokestack and install at center line of roof. (See pages 16 and 17.)
6. **Insulation.** Install insulation between ribs. Hold insulation in place with sticks of crating lumber wedged in place between ribs. (See photo below.)
7. **Inside Covering.** Nail Masonite sheets to ribs. Install metal splines at horizontal joints and nail Masonite battens over joints at ribs. (See pages 10 and 11.)
8. **Endwalls.** Fasten down endwall channels and erect studs. Install door and louver. Nail corrugated sheets including plastic window sheets to studs and wood blocks on end rib. Attach flashing around arch. Cut insulation to special size pieces using Masonite panels as templates. Attach insulation between studs and end rib. Nail Masonite endwall panels into place. (See pages 18 to 21 incl.)

INTERIOR COVERING

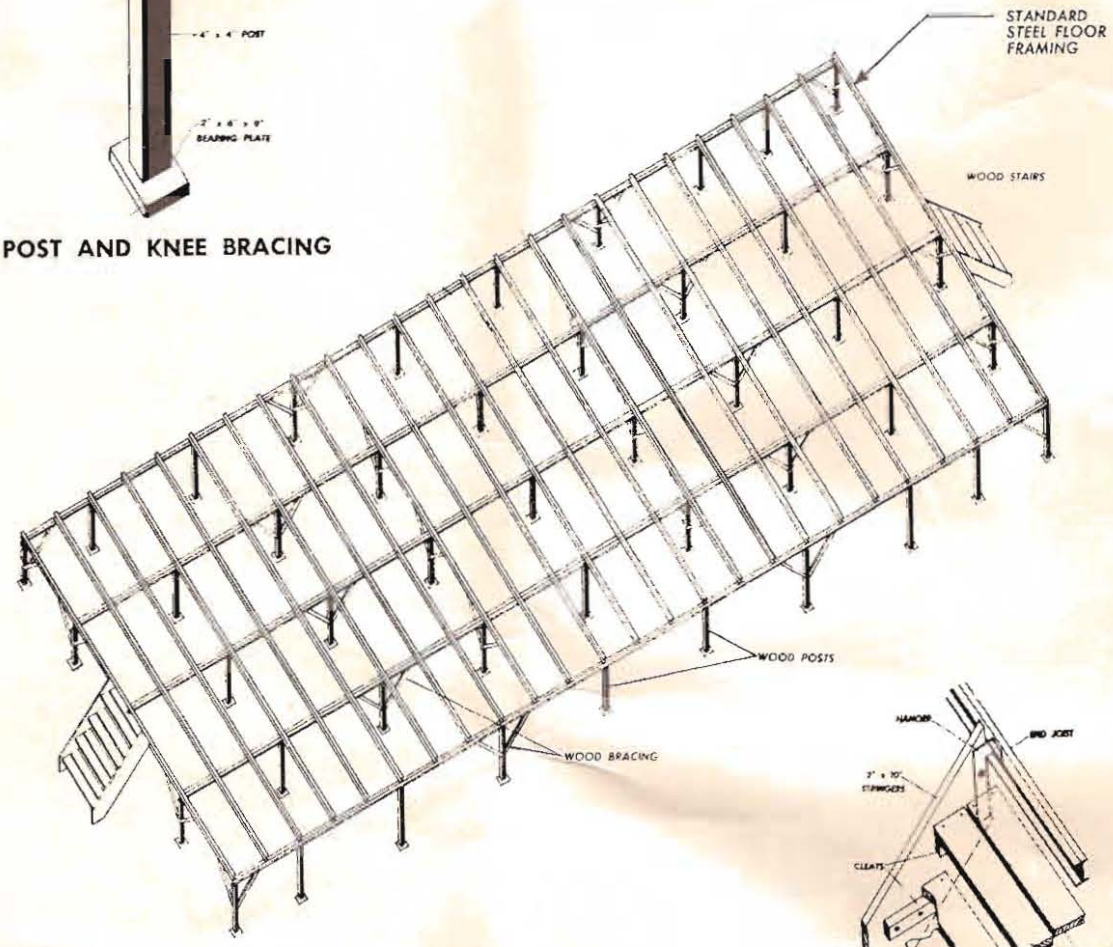


ENDWALLS

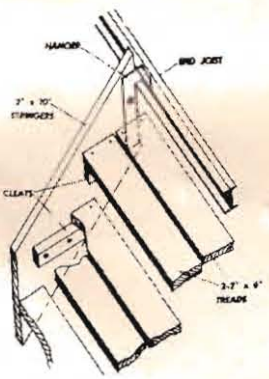
ADAPTATION
WOOD POST FOUNDATION



POST AND KNEE BRACING



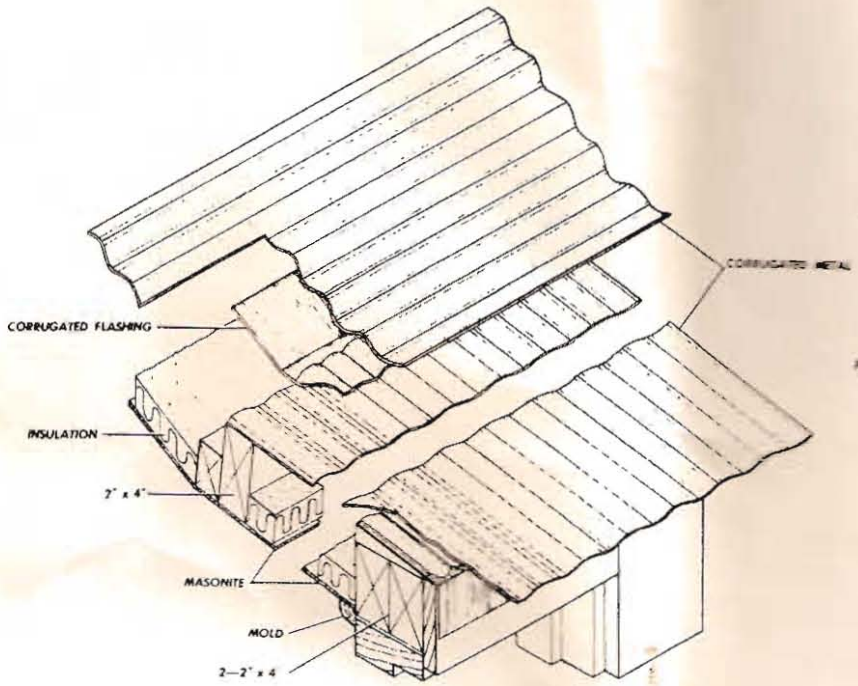
SUPPORTED FLOOR FRAMING



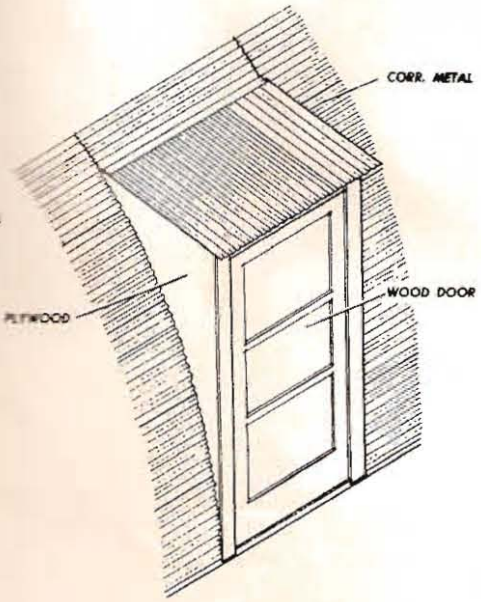
DETAIL OF STAIR

Although materials for this work are not furnished it is suggested that for conditions under which the ground cannot be conveniently levelled, wood posts may be used to level the building. See sketches on this sheet for suggestions.

ADAPTATION – SIDE DOOR



DOOR HEAD



COMPLETE DOOR

Determine location of side door.

Remove (or omit) channel, corrugated sheets, insulation, inside covering, shoe mold and window, if door replaces a window.

Carefully cut the corrugated sheets along the inside edge of each rib to provide for nailing the sheets to the ribs. Before nailing the corrugated siding, install the flashing sheets between the corrugated building siding and the plywood siding of the doorway.

Erect the 2 x 4 framing for the door opening and roof. Bend two (2) 2 x 4's along the ribs each side of opening. This can be accomplished by making saw cuts across the 2 x 4, 2" apart and ¾" deep, then bend to radius.

Nail Masonite to frame, using salvaged Masonite—cut to fit.

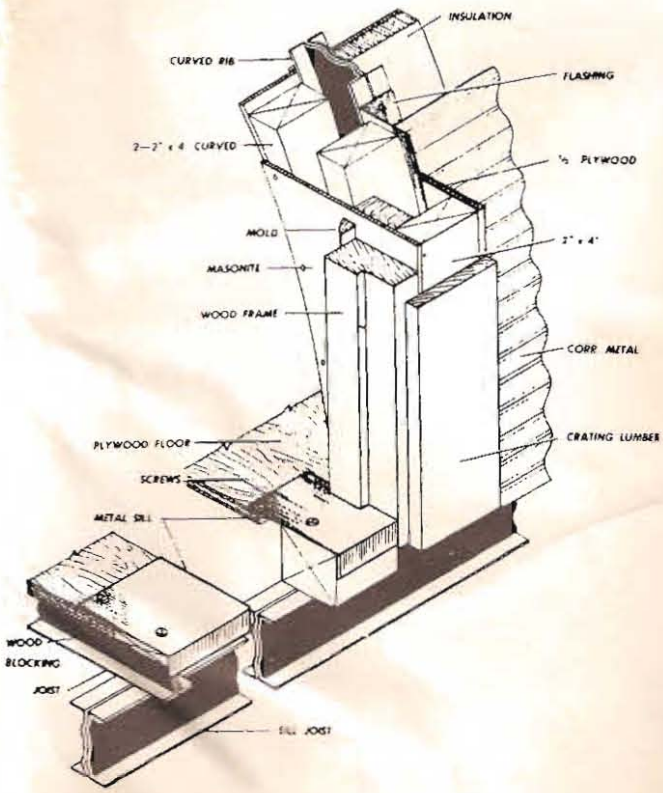
Install sill (see detail) using crating lumber blocks nailed to the floor joists. Screw sill to blocks and floor.

Place insulation over ceiling and sidewalls, using salvaged insulation.

Nail plywood sides, door trim and trim along edge of roof at each side, using crate lumber.

Install the corrugated flashing pieces over the door and along the joint between the building siding and the doorway roofing. Cut and bend the building siding, corrugated sheet in order to give the proper slope to the doorway roof. (See drawing.)

Install the corrugated roof sheets, using salvaged sheets.



DOOR SILL

JOB 52–1470
SEPTEMBER 15, 1952

MIPR–R–53–7004–ENG–P
ITEM #1, CONT. N160–249s–10446

PACKING LIST AND CRATE SCHEDULES FOR THE STRAN-STEEL VERTICAL WALL 20′ x 48′ BUILDING (FRIGID)

Produced by Great Lakes Steel Corporation, Stran-Steel Division

NOTE: This PACKING LIST AND CRATE SCHEDULE is applicable to all crates and is attached and inserted in all crates. The particular crate to which a particular Schedule is attached is indicated by an arrow.

Crate No.	No. of Pieces	Crate Contents	Item Mark	Crate Size			Cubic Feet	Weight			Remarks
				Length	Width	Depth		Net	Crate	Gross	
SS-1R	1	Erection Drawings and Erection Instructions		4′ 10 3/4″	2′ 11 3/4″	1′ 5 1/4″	20.97	767	189	956	
	48	Splice Plates	C-1								
	24	Flat Strips	ST-320								
	32	Corr. Strips	ST-551								
	8	Rafter Clips	ST-67								
	1820	6d Common Nails, Galv.									
	100	8d Common Nails, Galv.									
	120	10d Box Nails, Galv.									
	70	8d Finishing Nails									
	360	1-1/2″ Simplex Nails, Galv.									
	4 oz.	#16 1-1/4″ Wire Brads									
	1190	Double Headed Nails	ST-530								
	1190	Comb. Washers	ST-538								
	950	Lead Washers	ST-527								
	1690	#14 3/8″ Sheet Metal Screws	ST-510								
	6	Gal. Mastic									
	2	Tubular Mortise Latch Sets Comp. with Screws									
	3 pr.	3-1/2″ x 3-1/2″ Loose Pin Butts									
	40	1″ x #9 Wood Screws, Flat Head, Plated									
	8	Splice Plates	SP-1								
	152	3/4″ x 1-1/2″ M. Bolts w/Nuts									
	227	2″ O.D. x 13/16″ I.D. Steel Washers									
	1	Roll 54″ Wide Reflective Insulation, 250′									
	200	2″ Lg. Roofing Nails, Galv.									
ERECTION INSTRUCTIONS IN THIS CRATE		ELECTRICAL CARTON 5—Reflectors Steber Assembly #X-156 or equal 1—Circuit Breaker Enclosure NEMA Type or equal 1/4 Lb.—Tape, Rubber 3/4″ Width 1/4 Lb.—Tape, Friction 3/4″ Width 5—Lamp, Incandescent, 75 Watt, medium screw base 1/2 Pt.—Caulking Compound (Flintkote #11948-AW or equal) 60—Tacks #10 5/8″ Lg. Upholsterer type 60—Screws #8 5/8″ Lg. R.H. Self Tapping 6—Clamps (to fasten service cable)									
	1 Carton	1—Box Connector (No. 160V Rattan or equal) 1—Box Connector (No. 6215 Rattan or equal) 1—Street Elbow, 3/4″ – 90° Corr. Res. Steel 1—Nipple 3/4″ x 4-1/2″ Lg. (thd. 2″ each end) 2—Locknuts 2—3/4″ Bushing – Female with insulating insert 1—Single Pole Circuit Breaker 1—Ground Wire Clamp to take #8 AWG Wire. Bronze 1—#8 Bare Copper Ground Wire. Copper 6′-0″ Lg. 1—Entrance Cable #8 AWG. (Parkway RR or equal) Rubber Covered Copper, 10′-0″ Lg. 2—Wire Connector for No. 8 Wire. Bronze 1—Service Grip (Kellems SDS or equal). Bronze 1—J-Bolt, 2 Lock Washers & Nuts to be incl. 15—Screw, Wood R.H. #8, 3/4″ Lg. Steel 10—Screw, Wood R.H. #8, 1″ Lg. Brass 1—Overhead Assembly for Electric Light. Each Assembly to consist of 5 Lampholders, one Duplex Receptacle, and Wire. 47′-0″ Lg.	These Items packed in separate carton								
SS-2A	25	2″ 18 Ga. 20′ 8-1/4″ Joists	J-10	21′ 2″	0′ 11″	0′ 11 1/2″	19.03	1114	66	1180	
	18	2″ 18 Ga. 15′ 11-7/8″ Purlins	PR-1								
	8	20 Ga. Floor Splines 12′ 0″ Long	FS-2								
	24	24 Ga. Wall Splines 12′ 0″ Long	WS-1								
	10	24 Ga. Wall Splines 0′ 6-1/8″ Long	WS-2								
	4	24 Ga. Wall Splines 3′ -11″ Long	WS-3								
SS-3A	26	3-5/8″ 14 Ga. 8′ 10-1/2″ Studs	S-2	16′ 5 1/2″	1′ 3 3/4″	0′ 11 1/4″	20.35	1086	42	1128	
	12	2-5/16″ 16 Ga. 15′ 11-7/8″ Joist Sills	J-14								
	6	3-13/16″ 16 Ga. 15′ 11-7/8″ Channel Plate	P-2								
	4	2-1/2″ x 16 Ga. x 7′ 10-3/4″ Channels	P-1								
	2	Door Sills	S-1								
	4	2-5/16″ x 16 Ga. x 9′ -10″ Studs	S-3								
	4	2-5/16″ x 16 Ga. x 9′ -0″ Studs	S-4								
	1	5/8″ x 6′ -0″ Rd. Rod									
SS-4R	13	3-5/8″ 14 Ga. 21′ 4-1/4″ Rafters	R-2	21′ 5 1/4″	0′ 4″	1′ 6″	*10.72	774	36	810	
SS-5	30	Sheets of Plywood 4′ 0″ x 8′ 0″ x 1/2″		8′ 0″	4′ 0″	1′ 7 3/8″	51.67	1533	70	1603	
	2	Exterior Doors w/Lumapane Panel									
	2	Left Side Jambs, 3-5/8″ x 1-5/8″ x 7′ 0-3/8″	For Doors								
	2	Right Side Jambs, 3-5/8″ x 1-5/8″ x 7′ 0-3/8″									
	2	Head Jambs, 3-5/8″ x 1-5/8″ x 3′ 8-1/8″									
	4	Bucks, 1-1/4″ x 2-1/4″ x 7′ 1-5/8″									
	2	Bucks, 1-5/8″ x 2-1/4″ x 3′ 11-1/2″									
SS-6	30	1/8″ x 3′ 11-7/8″ x 8′ -0″ Masonite Sheets		8′ 7″	4′ 3 3/4″	1′ 0 1/2″	38.56	1480	210	1690	
	22	1/8″ x 3′ 11-7/8″ x 7′ -0″ Masonite Sheets									
	10	1/8″ x 3′ 11-7/8″ x 3′ 11-1/2″ Masonite Sheets									
	12	1/8″ x 0′ 7-1/4″ x 8′ -0″ Masonite Sheets									
	63	1/8″ x 0′ 2″ x 8′ -0″ Masonite Strips									
	6	1/8″ x 3′ 11-7/8″ x 0′ 11-3/4″ Masonite Strips									
	2	1/8″ x 3′ 11-7/8″ x 3′ 9-11/16″ Masonite Strips	M2R								
	2	1/8″ x 3′ 11-7/8″ x 3′ 9-11/16″ Masonite Strips	M2L								

Continued On Reverse Side

Crate No.	No. of Pieces	Crate Contents	Item Mark	Crate Size			Cubic Feet	Weight			Remarks
				Length	Width	Depth		Net	Crate	Gross	
SS-6 (Cont.)	2	1/8" x 3'11-7/8" x 2'10" Masonite Sheets	M-1								
	2	1/8" x 3'11-7/8" x 1'11-15/16" Masonite Sheets	M3R								
	2	1/8" x 3'11-7/8" x 1'11-15/16" Masonite Sheets	M3L								
	10	1/8" x 0'-2" x 4'-0" Masonite Strips	M4								
	12	3/4" x 8'-0" Quarter Rd. Shoe Mold									
	6	3/4" x 6'-0" Quarter Rd. Shoe Mold									
SS-7R	12	4'-0" x 1-5/8" x 36'-6" Mineral Wool Insulation		4'10"	4'9"	2'9"	63.14	325	270	595	
	2	4'-0" x 1-5/8" x 40'-0" Mineral Wool Insulation									
SS-8R	21	27-1/8" Wide x 144" Lg. x 26 Ga. Corr. Galv. Sheets Curved	CS-47	12'6"	2'7 1/4"	0'4 1/4"	*11.53	1199	85	1284	
	6	27-1/8" Wide x 56" Lg. x 26 Ga. Corr. Galv. Sheets Curved	CS-48								
	48	27-1/8" Wide x 62" Lg. x 26 Ga. Corr. Galv. Sheets Curved	CS-49								
SS-9	44	26" Wide x 52" Lg. x 26 Ga. Corr. Galv. Sheets	CS-3	9'1"	2'6"	0'4 3/4"	8.99	1108	90	1198	
	24	26" Wide x 100" Lg. x 26 Ga. Corr. Galv. Sheets	CS-4								
	2	15-3/8" Wide x 60" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-32R								
	2	15-3/8" Wide x 60" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-32L								
	2	26" Wide x 52" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-31R								
	2	26" Wide x 52" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-31L								
	28	13" Wide x 52" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-173								
	2	13" Wide x 100" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-1773								
	4	26" x 3-3/4" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-24								
	2	18" x 52" x 26 Ga. 2-1/2" Corr. Galv. Sheets	CS-33								
SS-10R	1	K.D. 20" Dia. Ventilator, Complete		5'6 1/2"	3'2"	1'5 1/2"	25.59	278	150	428	
	2	K.D. 6" Dia. Smokestacks, Complete									
	1	27-1/2" x 44" x 26 Ga. Curved Corr. Galv. Sheets with Collars attached (For Vent)									
	2	27-1/2" x 44" x 26 Ga. Curved Corr. Galv. Sheets with Collars attached (For Stacks)									
	24	26 Ga. Galv. Flashing	F-13								
	10	26 Ga. Galv. Flashing	N-1367								
	8	26 Ga. Galv. Flashing	F-12								
SS-11R	6	Storm Windows		4'4 1/4"	2'5"	1' 3 1/8"	13.26	307	101	408	
	4	Storm Windows									
	6	Window Sills									
	6	R.H. Jambs									
	6	L.H. Jambs									
	6	Window Heads									
	6	Sash Assemblies, glazed									
	6	Screen Assemblies									
	4	Window Sills									
	4	R.H. Jambs									
	4	L.H. Jambs									
	4	Window Heads									
	4	Sash Assemblies, glazed									
	4	Screen Assemblies									
	20	Sash Fastener Brackets (B1-10841)									
	10	Sash Fastener Arm Assemblies R.H. (B2-3105RH)									
	10	Sash Fastener Arm Assemblies L.H. (B2-3105LH)									
	22	Screen Fastener Buttons (B1-10843)									
	22	Compression Springs for Buttons (B1-10844)									
	264	#8 x 1/4" Sheet Metal Screws (3978)									
	22	10 - 32 x 3/4" Machine Screws for Buttons (3386)									
	44	10 - 32 Locking Nuts (B1-10845)									
	44	Tinnerman Clips (B1-10846)									
	10	Screen Frame Handles (B1-10857)									
	22	Window Stop Adjusters (B1-10842)									
	22	10-32 x 5/8" R.H. Machine Screws for Handle (3374)									
	22	3/16" Flat Steel Washers									
	22	Spring Washers (B1-10045)									
	20	Window Lock Handles (B2-3271)									
	273	Clips (B1-11029)									

CRATES REQUIRED TO MAKE 1 - 20' x 48'
VERTICAL WALL BUILDING (FRIGID)

1 Crate SS-1R
1 Crate SS-2A
1 Crate SS-3A
1 Crate SS-4R
1 Crate SS-5
1 Crate SS-6
1 Crate SS-7R
1 Crate SS-8R
1 Crate SS-9
1 Crate SS-10R
1 Crate SS-11R

Total Cu. Ft. 283.71
Gross Wgt. 11280#
Net Weight 9971#

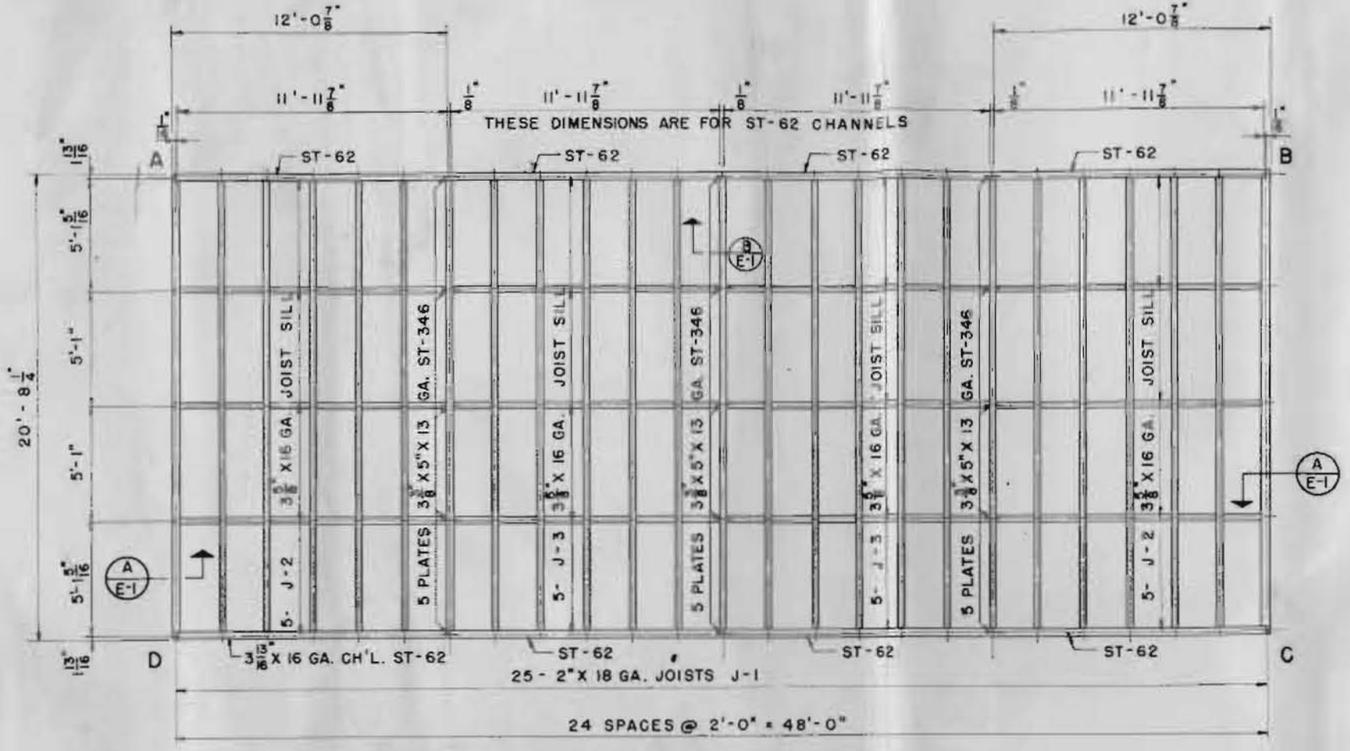
*NOTE: Cube of packages shown with an asterisk (*) are computed on a net basis. These packages contain the curved ribs and curved sheets. For the purpose of storing and shipping, these packages can be nested and the number of packages to be nested will determine the cubic space required for storing and shipping. Computed on the basis of nesting the curved ribs and curved sheets for ten (10) buildings, the total cube of one (1) building would be increased by 11.93 cubic feet.

20' x 48' U.S. NAVY QUONSET BUILDING

NORTHERN DESIGN
FEBRUARY, 1951

ARTCRAFT

5M 5551-400

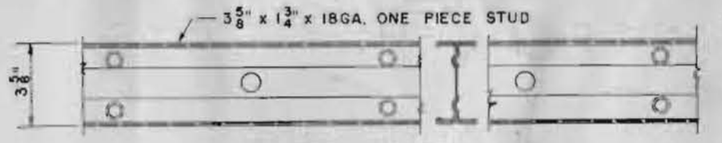


FLOOR FRAMING PLAN

0 5 10
FEET

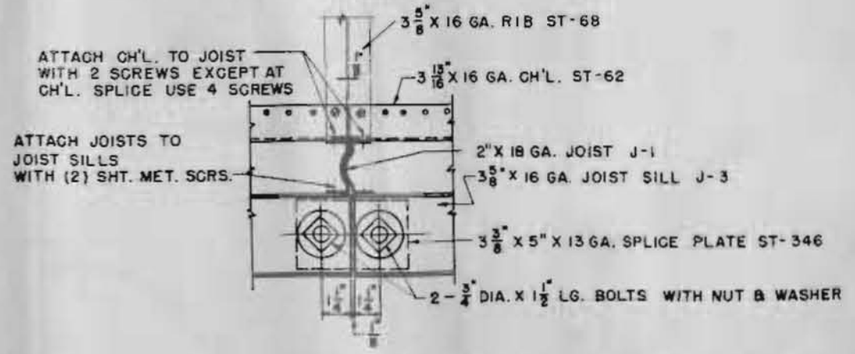
LIST OF MATERIAL			
NO REQ'D	MK	DESCRIPTION	LENGTH
10	J-2	3 5/8" X 16 GA. JOIST SILL	12'-0 7/8"
10	J-3	3 5/8" X 16 GA. JOIST SILL	11'-11 7/8"
25	J-1	2" X 18 GA. JOIST	20'-8 1/4"
8	ST-62	3 13/16" X 16 GA. CHANNEL	11'-11 7/8"
15	ST-346	3 5/8" X 5" X 13 GA. SPLICE PLATE	
30		3/4" DIA. X 1 1/2" LG. BOLT & SQ. NUT	
30		13/16" I.D. X 2" O.D. STEEL WASHER	
362	ST-510	#14 X 5/8" LG. SHT. MET. SCR.	

NOTE:
QUANTITIES ABOVE DO NOT INCLUDE ANY EXTRA MATERIAL.

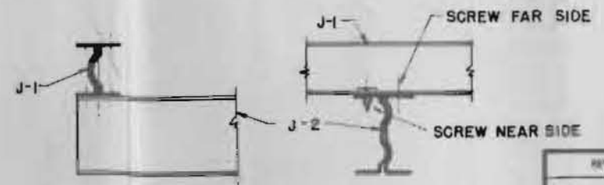


ALTERNATE SECTION FOR J-2 & J-3

0 1 2 3 4 5 6 12
INCHES



SECTION B / E-1



SECTION A / E-1

0 1 2 3 4 5 6 12
INCHES

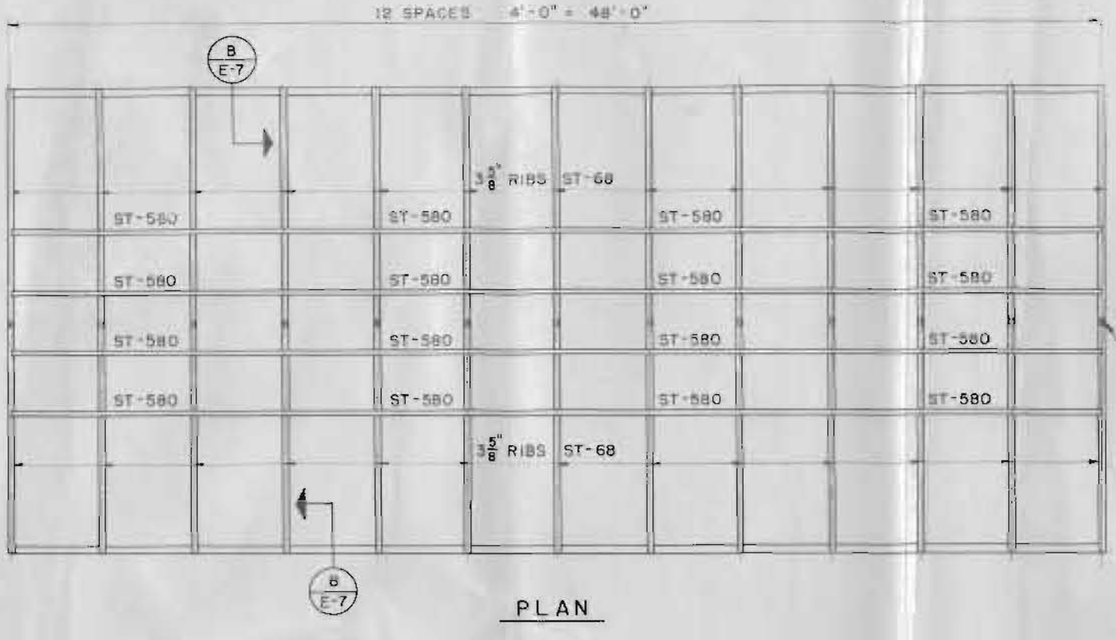
REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN
	QUONSET "20" BUILDING NORTHERN DESIGN
	FLOOR FRAMING PLAN
DATE 2-15-51	DRAWN D.S.W. / CHECKED W.O. / JOB NO. 51-400
SCALE AS SHOWN	CUSTOMER'S ORDER N-160s-4079 / DESIGNATE BY ORDER

PRINTED

LIST OF MATERIAL

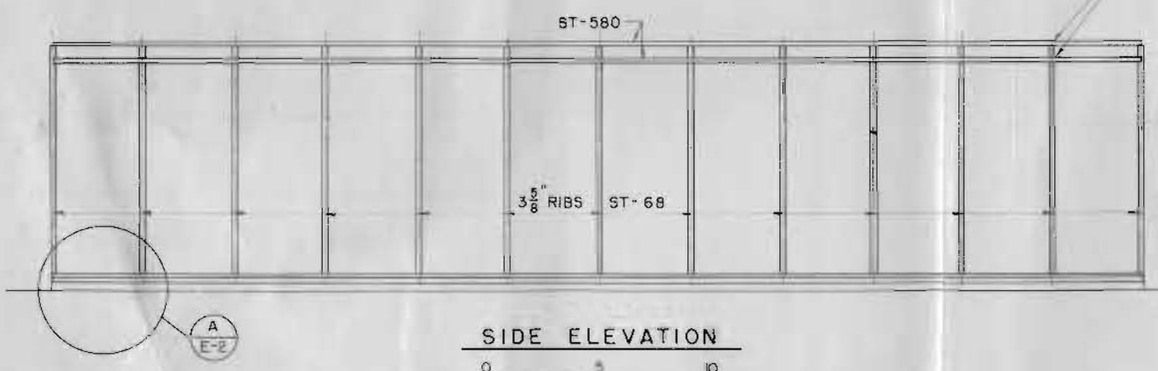
NO. REQ'D	MK.	DESCRIPTION	LENGTH
26	ST-68	$3\frac{5}{8}$" X 16 GA. CURVED RIB	
16	ST-580	2" X 18 GA. PURLINS	11'-$11\frac{7}{8}$"
26	ST-726	12 GA. SPLICE PLATE	1'-0"
52		$\frac{3}{4}$" DIA. X $2\frac{1}{2}$" BOLTS WITH SQ. NUTS	
224		#14 SHEET METAL SCREWS	

NOTE:
QUANTITIES ABOVE DO NOT INCLUDE ANY EXTRA MATERIAL.



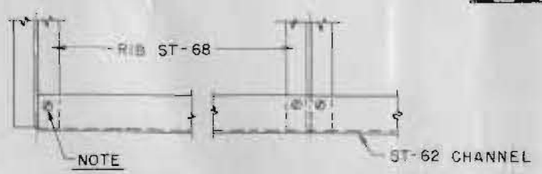
PLAN

RIB SPLICE ST-726
ONE ON EACH SIDE OF RIB
4 - $\frac{3}{4}$" DIA. X $2\frac{1}{2}$" LG. BOLTS
WITH SQ. NUTS



SIDE ELEVATION

0 5 10
FEET

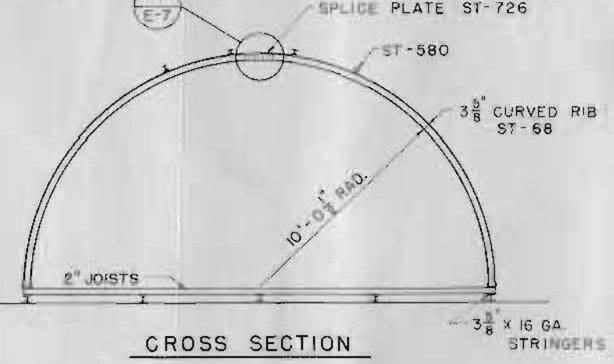


NOTE
PLACE FIRST AND LAST RIB AT EDGE OF CHANNEL AS SHOWN AND ATTACH WITH TWO SCREWS. ALL OTHER RIBS TO BE ATTACHED WITH FOUR SCREWS.

DETAIL A E-2

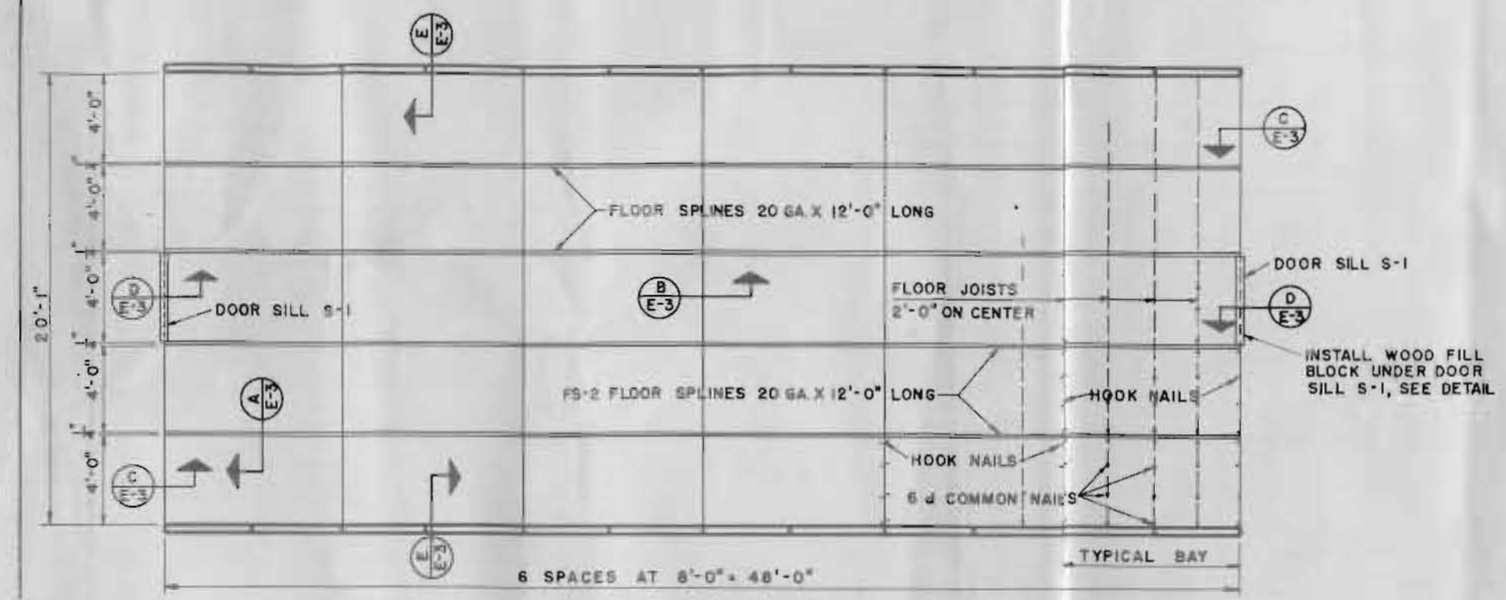
0 1 2 3 4 5 6 12
INCHES

FASTEN EACH PURLIN TO EACH RIB WITH 2 SCREWS EXCEPT AT PURLIN SPLICE USE 4 SCREWS.



CROSS SECTION

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	QUONSET "20" BUILDING NORTHERN DESIGN			
	RIB AND PURLIN FRAMING			
DATE 2-15-51	DRAWN D.S.W.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER E-2
SCALE AS SHOWN	CUSTOMER'S ORDER NO. N-160-S-4079	ESTIMATE NUMBER		

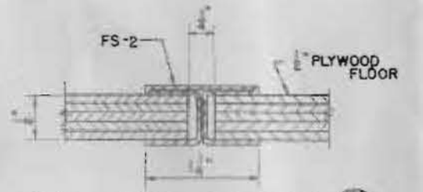


LIST OF MATERIALS

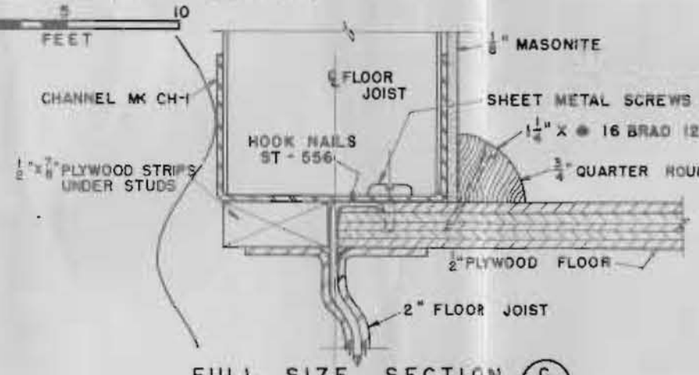
REQD	MARK	DESCRIPTION	LENGTH
30		4'-0" WIDE X $\frac{1}{8}$" PLYWOOD	8'-0"
28		LIN FT $\frac{1}{2}$"X$\frac{7}{8}$" PLYWOOD STRIPS	
2	S-1	DOOR SILL 3$\frac{5}{8}$" X 1" X 14 GA	3'-5$\frac{3}{8}$"
12		$\frac{3}{4}$" ONE QUARTER ROUND SHOE	8'-0"
240	ST-556	HOOK NAILS	
360		6 d COMMON NAILS	
130		1$\frac{1}{4}$" # 16 BRADS	
16	FS-2	METAL SPLINES	12'-0"
42		SHEET METAL SCREWS	
6		$\frac{3}{4}$" ONE QUARTER ROUND SHOE	6'-0"

NOTE:
QUANTITIES ABOVE DO NOT INCLUDE ANY EXTRA MATERIAL.

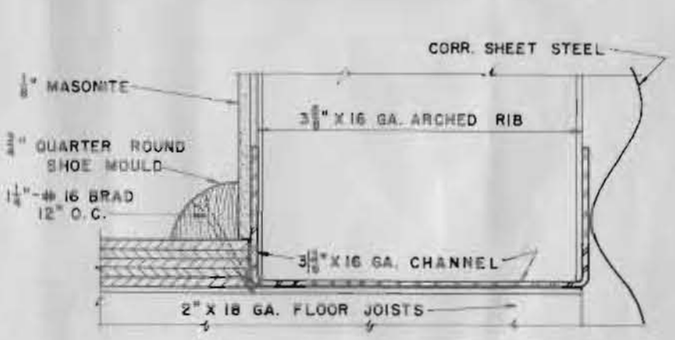
PLYWOOD FLOORING LAY OUT



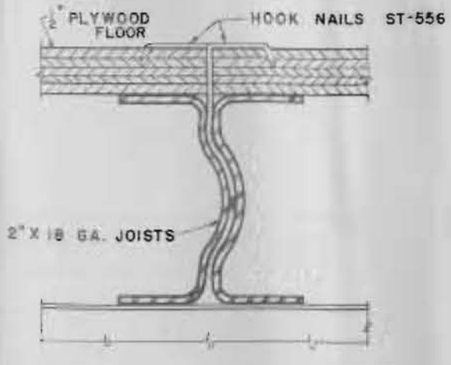
FULL SIZE SECTION AT FLOOR SPLINE (A / E-3)



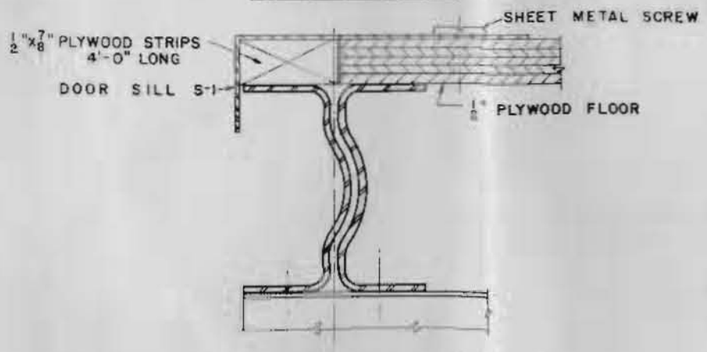
FULL SIZE SECTION AT END WALL (C / E-3)



FULL SIZE SECTION AT RIB (E / E-3)

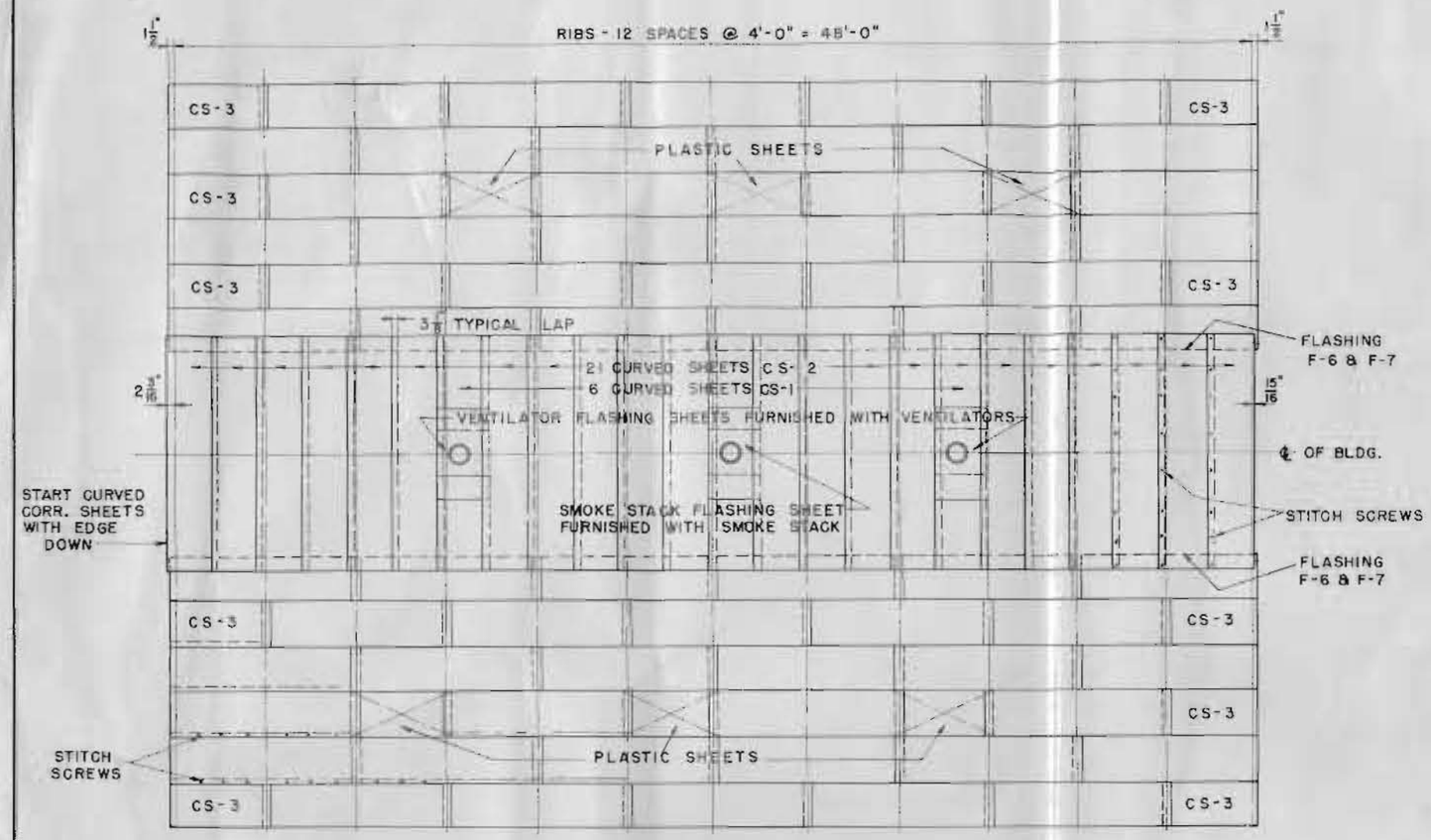


FULL SIZE SECTION AT FLOOR JOIST (B / E-3)

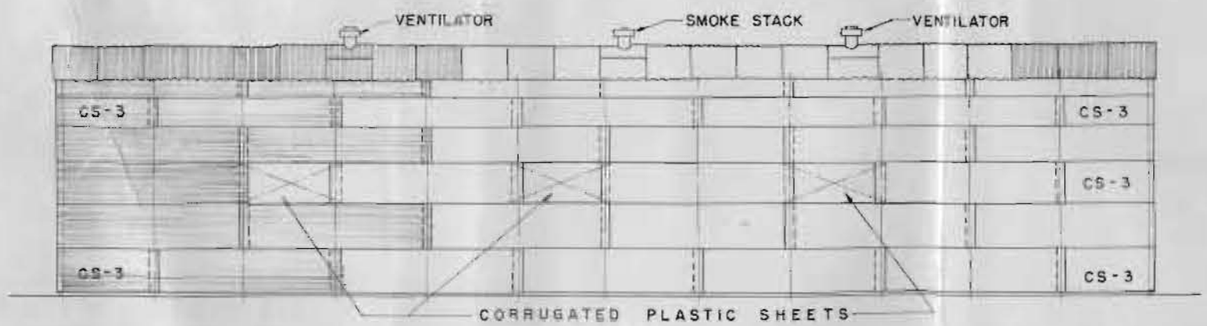


FULL SIZE SECTION AT DOOR THRESHOLD (D / E-3)

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN
	QUONSET "20" BUILDING NORTHERN DESIGN
	PLYWOOD FLOOR PLAN
DATE 2-15-51	DRAWN L.H.C. / CHECKED W.O. / JOB NO. 51-400 / SHEET NUMBER E-3
SCALE AS NOTED	CUSTOMER'S ORDER N-160-S-4079 / ESTIMATE NUMBER



DEVELOPED PLAN OF ROOF SHEETS



SIDE ELEVATION

0 5 10
FEET

NOTE:
ALL SHEETS ON SIDEWALLS ARE CS-4 EXCEPT AS SHOWN.

LIST OF MATERIALS

NO. REQ'D	MARK	DESCRIPTION	LENGTH
64	CS-4	26" X 26 GA. GALV. CORR. SHEET	100"
10	CS-3	26" X 26 GA. GALV. CORR. SHEET	52"
21	CS-2	27 1/8" X 26 GA. CURVED SHEET	120"
6	CS-1	27 1/8" X 26 GA. CURVED SHEET	52"
24	F-7	GALV. FLASHING	53 1/2"
24	F-6	GALV. FLASHING	53"
6		26" WIDE CORRUGATED PLASTIC SH'TS	52"
750	ST-510	#14 X 3/8" SHEET METAL SCREWS	
850	ST-530	DOUBLE HEADED NAILS	
2		VENTILATOR, KNOCK DOWN TYPE	
1		SMOKE STACK, KNOCK DOWN TYPE	
12'	ST-551	CORRUGATED STRIP	2'-4"
750	ST-527	LEAD WASHERS 1/4" DIA. HOLE	
6 GAL.		MASTIC	
24	ST-320	1 1/2" X 1/4" RUBBER STRIP	2'-3"
850	ST-526	LEAD WASHERS .16 DIA. HOLE	

NOTE:
QUANTITIES ABOVE DO NOT INCLUDE ANY EXTRA MATERIAL EXCEPT FOR MASTIC.

NOTES:

1. SEAL ALL VERTICAL AND HORIZONTAL LAPS OF SHEETS WITH 1/4" TO 5/16" DIA. BEAD OF MASTIC.
2. LAPS OF CORR. SHEETS BETWEEN PURLINS AND RIBS TO BE STITCHED WITH #14 SHEET METAL SCREWS AND LEAD WASHERS WITH 1/4" DIA. HOLE 12" O.C.
3. SECURE SHEETS TO PURLINS AND RIBS WITH DOUBLE HEADED GALVANIZED NAILS AND LEAD WASHERS 6" O.C.
4. ALL OUTSIDE SURFACES AND EDGES TO BE OLIVE DRAB CAMOUFLAGE PAINTED.

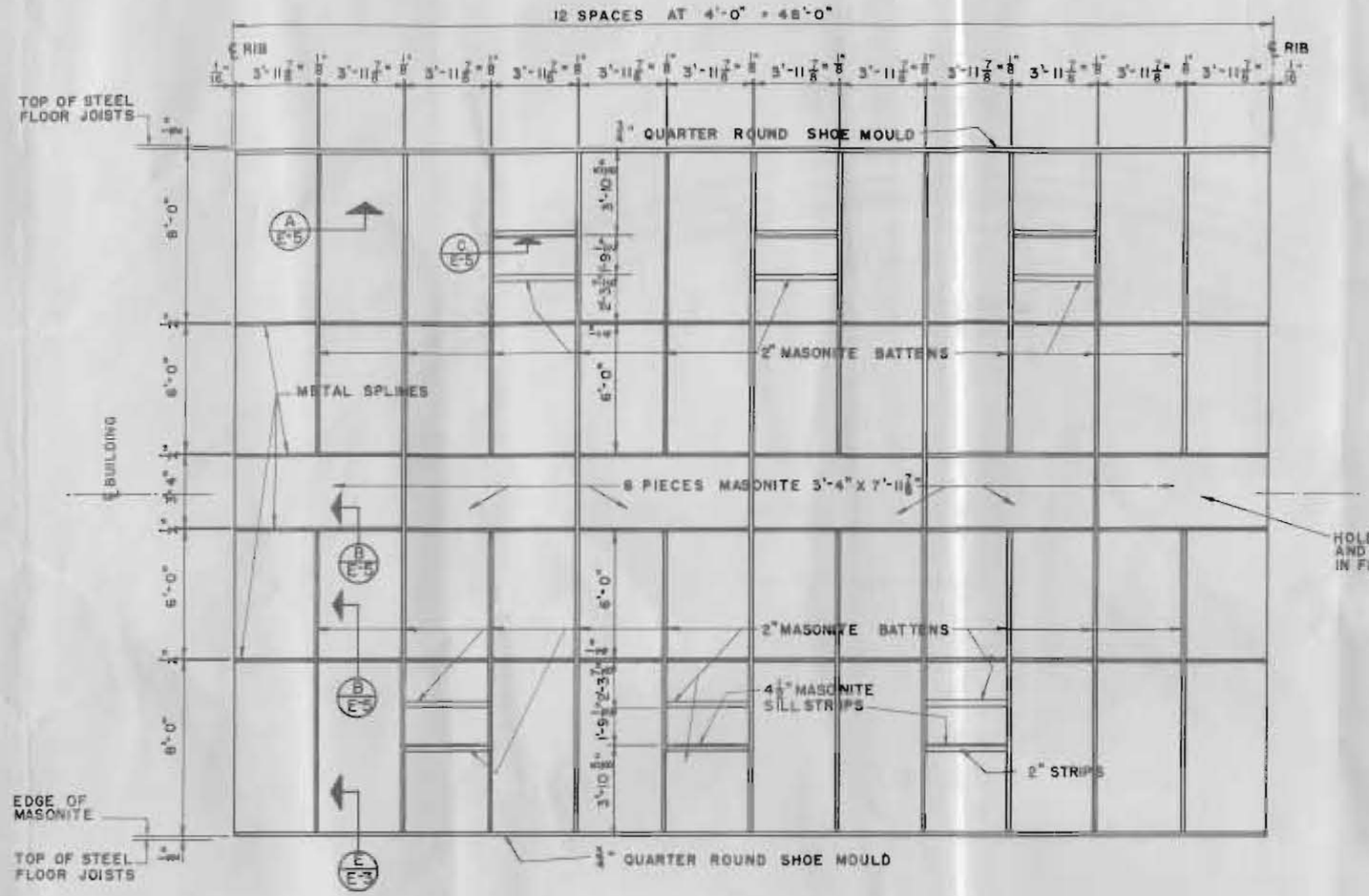
REVISIONS

STRAN STEEL DIVISION
GREAT LAKES STEEL CORPORATION
DETROIT, MICHIGAN

QUONSET "20" BUILDING
NORTHERN DESIGN

ROOF PLAN AND DETAILS

DATE	DRAWN	CHECKED	JOB NO.	SHEET NUMBER
2-15-51	D.S.W.	W.O.	51-400	E-4
SCALE: AS SHOWN	CUSTOMER'S ORDER: N-160-S-4075	ESTIMATE NUMBER		



DEVELOPED PLAN OF MASONITE LINING

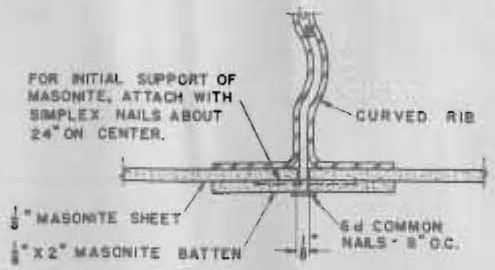
0 5 10
FEET

LIST OF MATERIALS

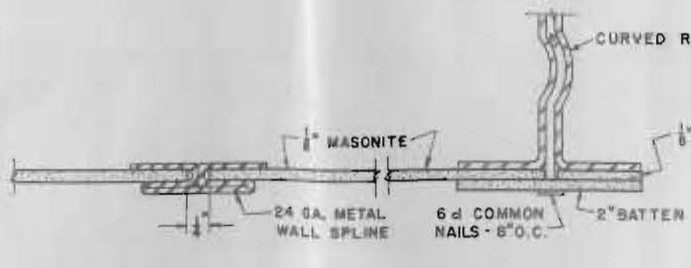
REQ'D	MARK	DESCRIPTION	LENGTH
18		⅛"X3'-11⅞" MASONITE BOARD	8'-0"
24		⅛"X3'-11⅞" MASONITE BOARD	6'-0"
6		⅛"X3'-11⅞" MASONITE BOARD	3'-10⅝"
6		⅛"X3'-11⅞" MASONITE BOARD	2'-3⅞"
6		⅛"X3'-4" MASONITE BOARD	7'-11⅞"
50		⅛"X0'-2" MASONITE STRIP	8'-0
12		⅛"X0'-0⅞" MASONITE STRIP	2'-0"
6		⅛"X0'-4½" MASONITE STRIP	3'-11⅝"
12		4'-0" WIDE INSULATION - 1" THICK	31'-6
16	WS-1	24 GA. WALL SPLINES	12'-0"
600		6d COMMON NAILS	
460		1½" SIMPLEX NAILS	

NOTE:
QUANTITIES ABOVE DO NOT INCLUDE ANY EXTRA MATERIAL.

NOTE:
MASONITE PANELS ARE TO BE FASTENED TO RIBS WITH SIMPLEX NAILS 24" O.C. THEN THE JOINT IS TO BE COVERED WITH 2" BATTENS AND HELD WITH 6d NAILS - 8" O.C.



FULL SIZE DETAIL A E-5



FULL SIZE DETAIL B E-5

FULL SIZE DETAIL C E-5

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN
	QUONSET "20" BUILDING NORTHERN DESIGN
	MASONITE SHEET LAYOUT
DATE 2-15-51	DRAWN L.H.C. CHECKED W.O. JOB NO. 51-400 SHEET NUMBER E-5
SCALE AS SHOWN	CUSTOMER'S ORDER N-160-S-4079 ESTIMATE NUMBER

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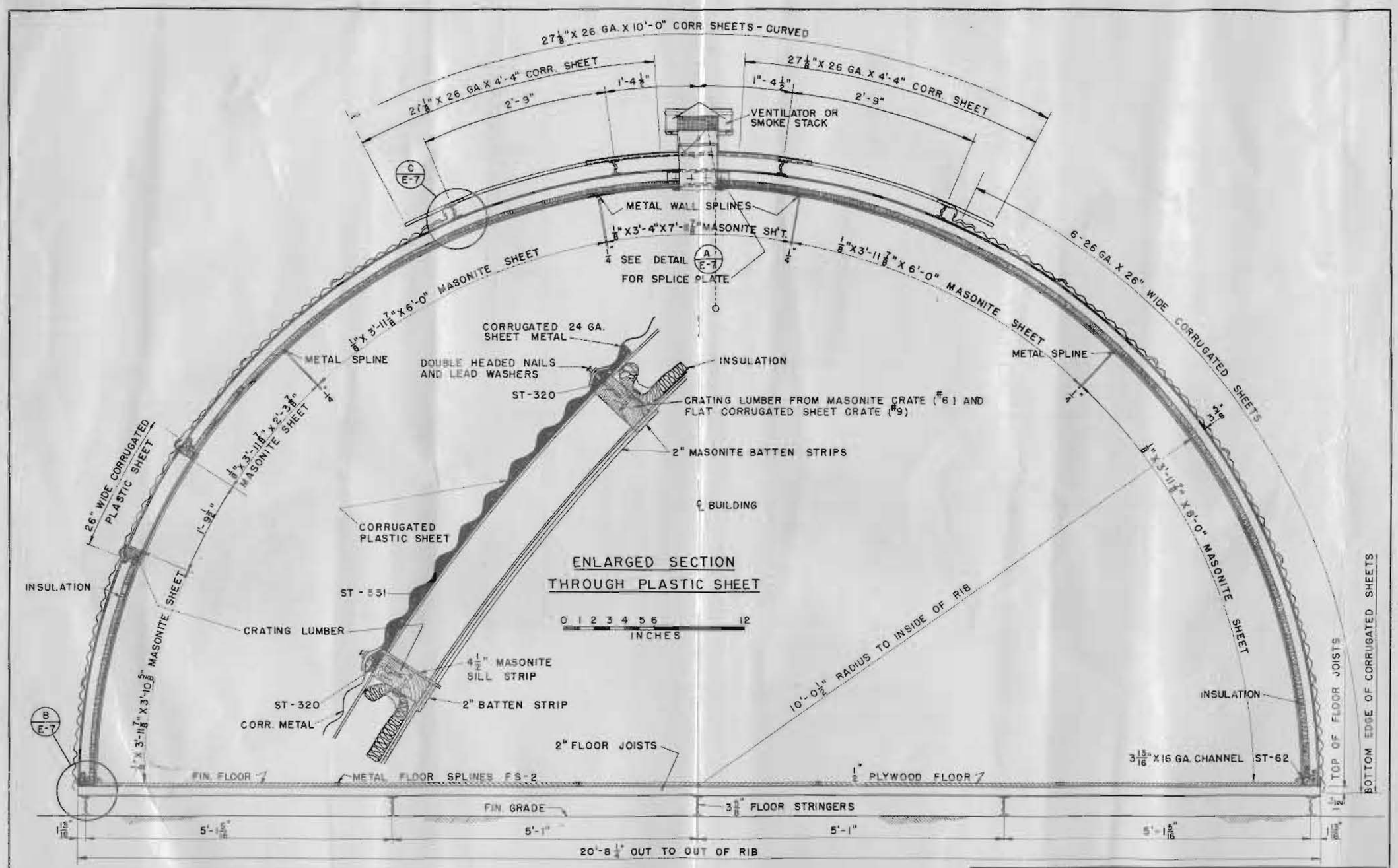


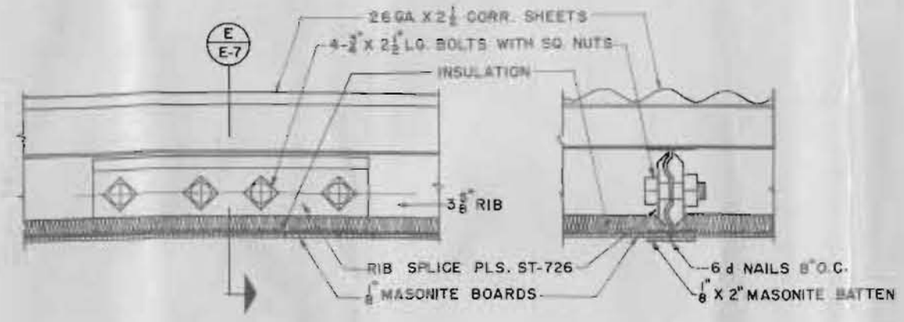
ENLARGED SECTION THROUGH PLASTIC SHEET

0 1 2 3 4 5 6 12
INCHES

CROSS SECTION

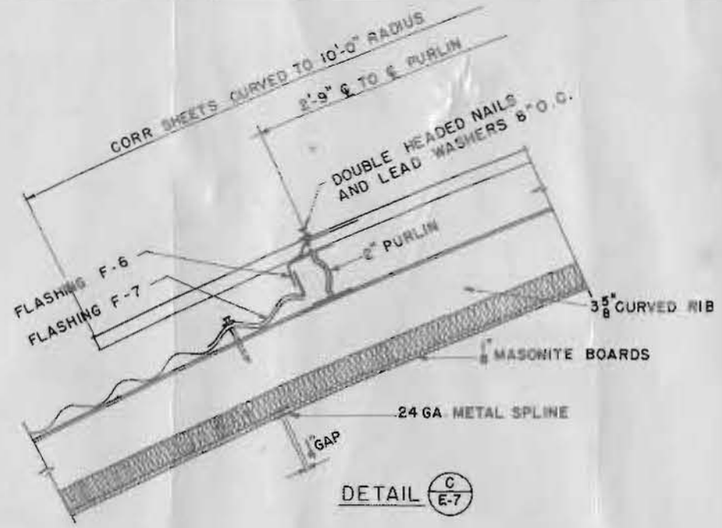
0 1 2
FEET

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	QUONSET "20" BUILDING NORTHERN DESIGN			
	TYPICAL CROSS SECTION			
DATE 2-15-51	DRAWN L.H.C.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER E-6
SCALE AS SHOWN	CUSTOMERS ORDER N-150-S-4079	ESTIMATE NUMBER		

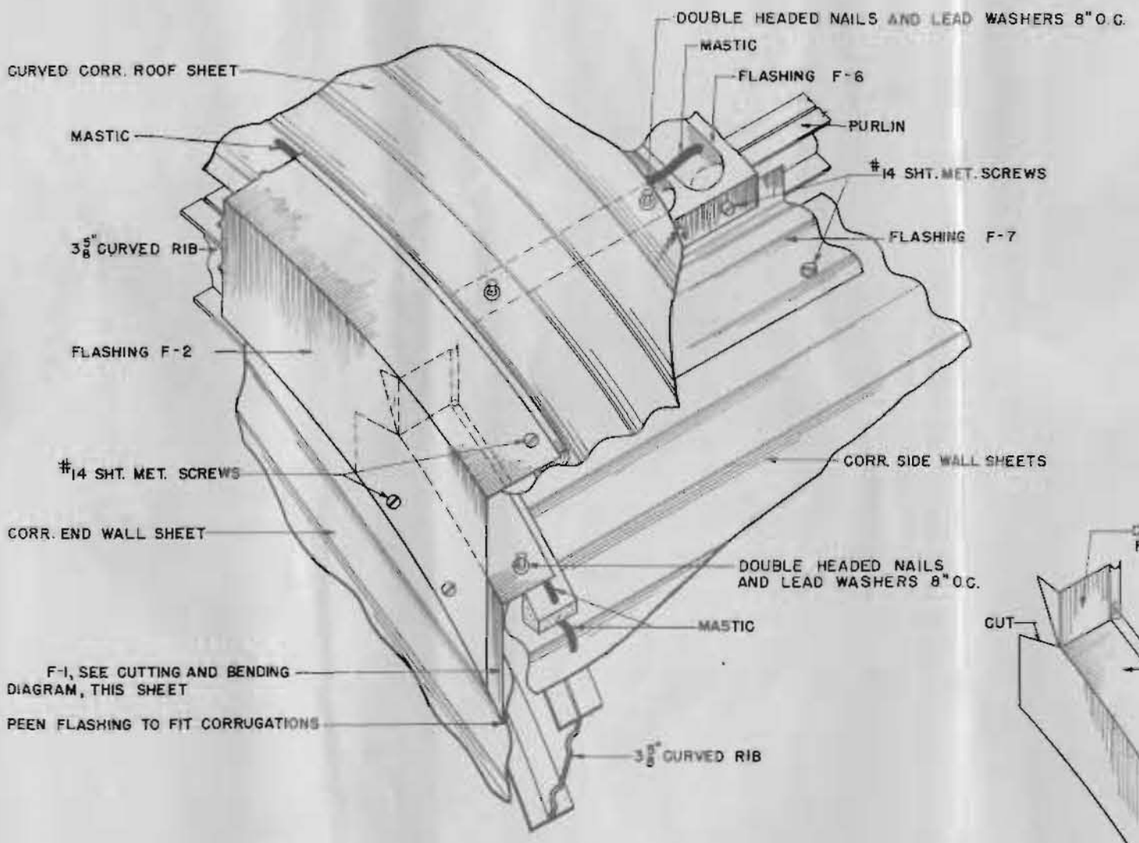


DETAIL (A / E-7)

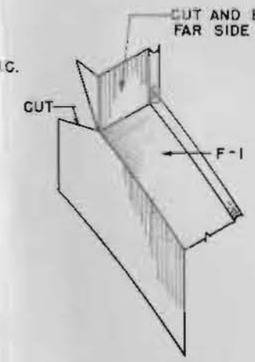
SECTION (E / E-7)



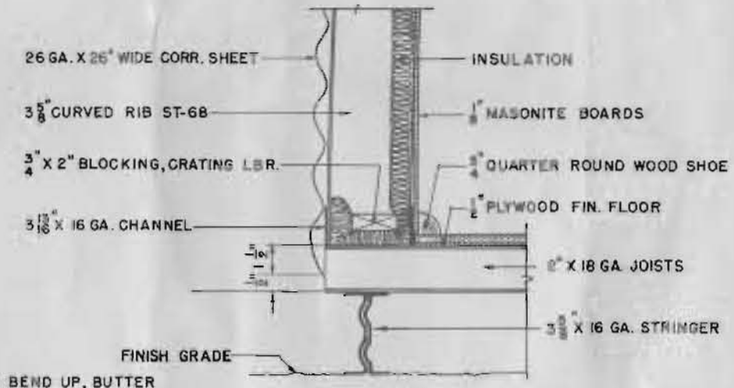
DETAIL (C / E-7)



DETAIL AT INTERSECTION OF CURVED AND HORIZONTAL ROOF SHEETS AT END WALL



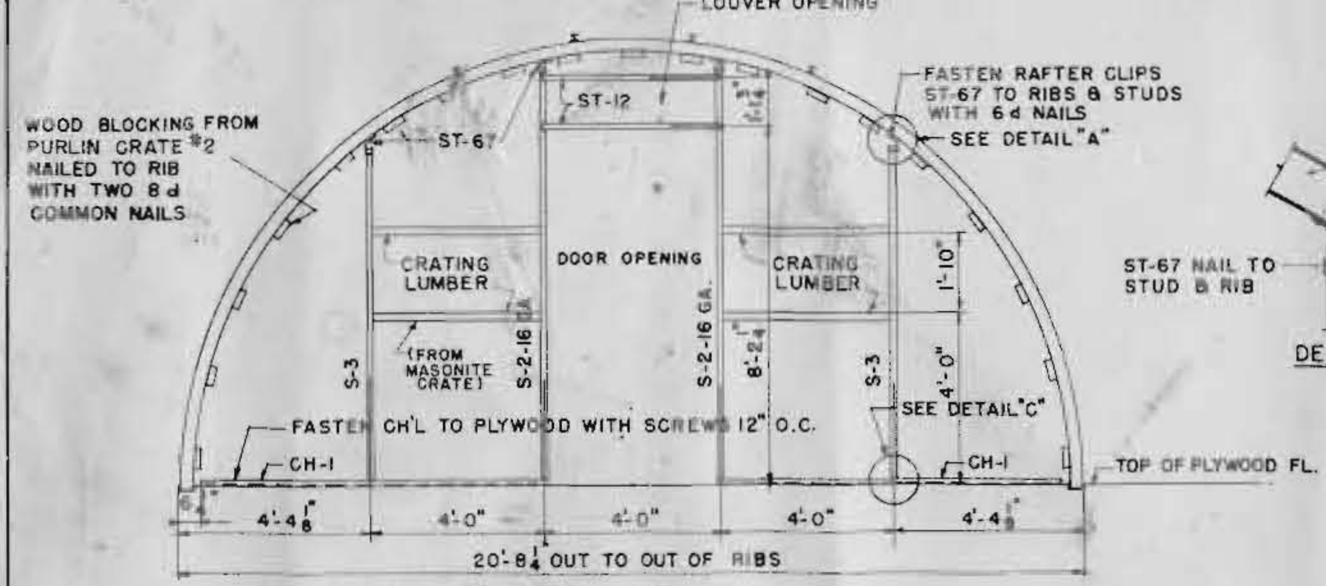
CUTTING & BENDING DIAGRAM FOR FLASHING F-1



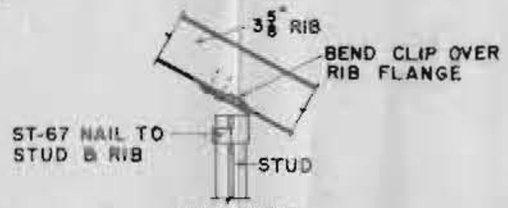
SECTION (B / E-7)

0 1 2 3 4 5 6 12
INCHES

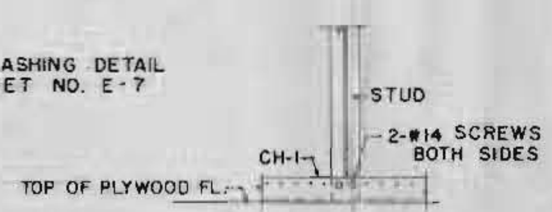
REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	QUONSET "20" BUILDING			
	NORTHERN DESIGN			
	TYPICAL DETAILS			
DATE 2-15-51	DRAWN H.R.M.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER E-7
SCALE AS SHOWN	CUSTOMER'S ORDER N-160-3-4079	ESTIMATE NUMBER		



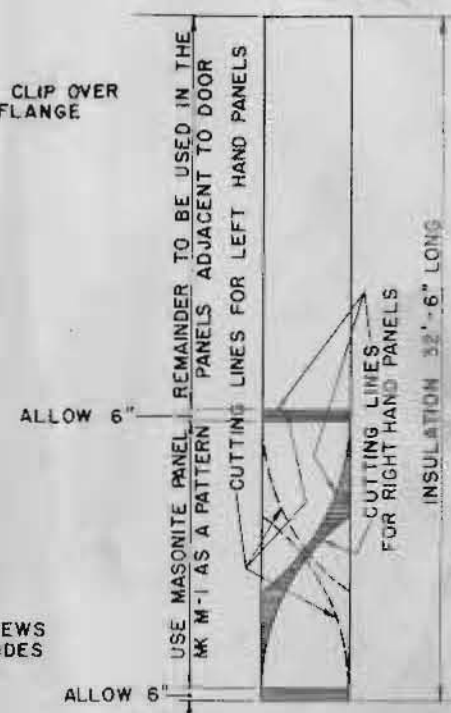
END WALL FRAMING



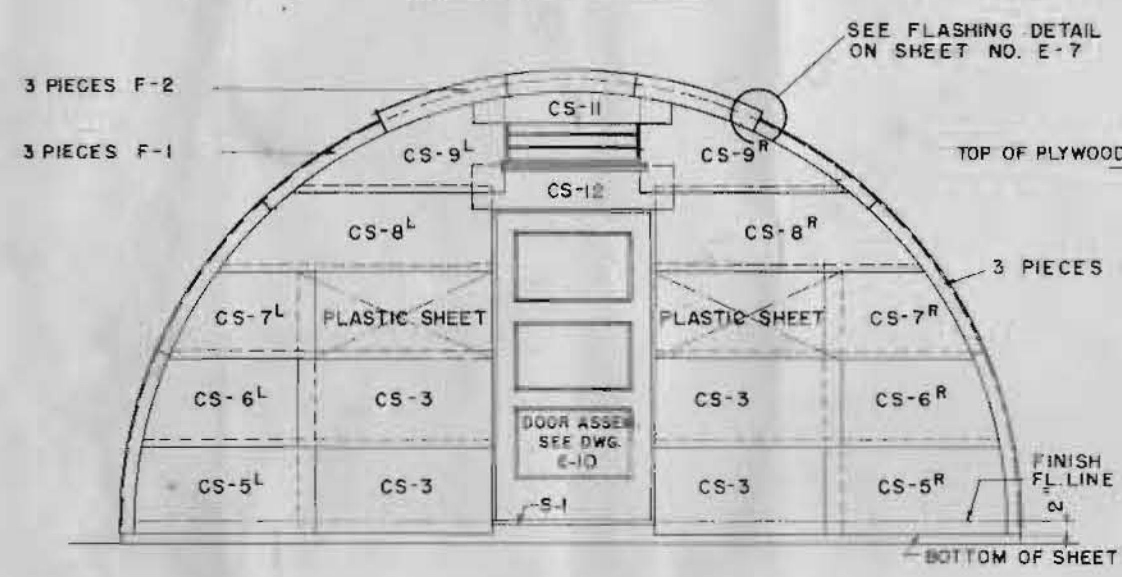
DETAIL "A"



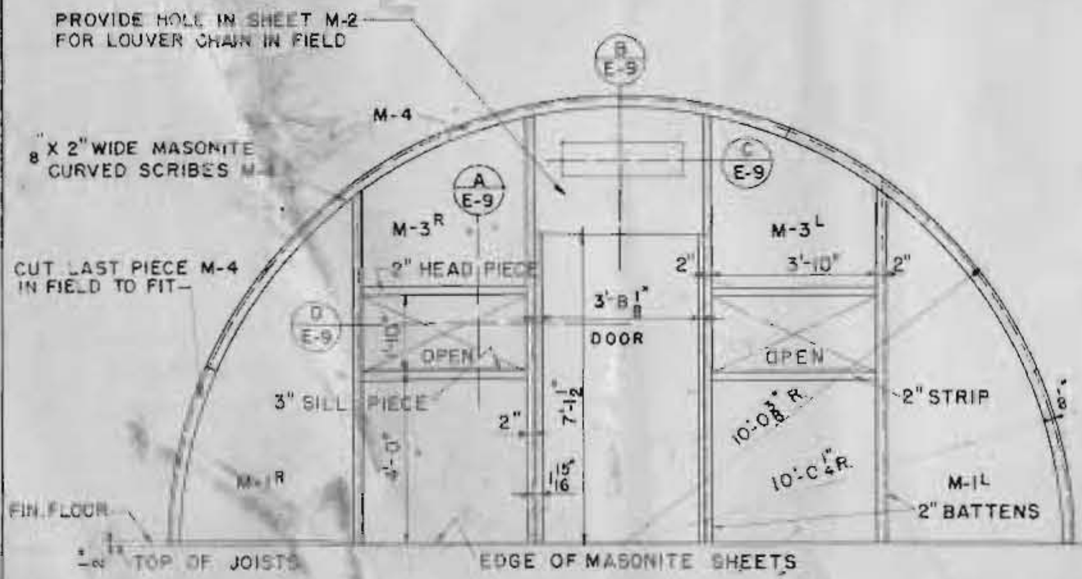
DETAIL "C"



CUTTING DIAGRAM FOR INSULATION USED BEHIND PANELS MK M-I R/L



EXTERIOR END ELEVATION



INTERIOR END ELEVATION (MASONITE)

NOTES

WOOD BLOCKING –

NAIL WOOD BLOCKS TO END RIB AFTER THE BARREL MASONITE BOARDS HAVE BEEN ATTACHED

MASONITE –

FASTEN MASONITE BOARDS TO STUDS WITH SIMPLEX NAILS 24" O.C. THEN COVER JOINTS WITH 2" BATTENS & NAIL WITH 6d COMMON NAIL 8" O.C.

CORRUGATED · SHEETS –

SEAL ALL VERTICAL & HORIZONTAL LAPS OF CORR. SHEETS WITH ¼ TO 5/16 DIA. BEAD OF MASTIC

LAPS OF CORRUGATED SHEETS BETWEEN STUDS TO BE STITCHED WITH #14 SHEET METAL SCREWS & LEAD WASHERS WITH ¼" HOLE, SPACED 12" O.C.

SECURE SHEETS TO STUDS WITH DOUBLE HEADED NAILS AND LEAD WASHERS 8" O.C.

ALL OUTSIDE SURFACES & EDGES TO BE OLIVE DRAB CAMOUFLAGED PAINTED

BILL OF MATERIAL

NO. REQ'D.	MARK	DESCRIPTION	LENGTH
2	CH-I	2½" X 16 GA. CHANNEL	7'-10¾"
2	S-2	2 5/16" X 16 GA. STUD	9'-9"
2	S-3	2 5/16" X 18 GA. STUD	7'-11"
4	ST-67	2 5/16" RAFTER CLIP	
4	CS-3	26" X 26 GA. CORR. SHEET	52"
2	CS-5	26" X 26 GA. CORR. SHEET	54"
2	CS-6	26" X 26 GA. CORR. SHEET	52"
2	CS-7	26" X 26 GA. CORR. SHEET	45½"
2	CS-8	26" X 26 GA. CORR. SHEET	79½"
2	CS-9	26" X 26 GA. CORR. SHEET	62½"
2		26" WIDE CORRUGATED PLASTIC SH'TS	52"
1	CS-11	13" X 26 GA. CORR. SHEET	52"
1	CS-12	13" X 26 GA. CORR. SHEET	52"
6	F-1	4½" X 2¾" X 26 GA. FLASHING	52"
3	F-2	6¼" X 4" X 26 GA. FLASHING	43"
20	ST-551	2" CORRUGATED STRIP	2'-4"
12	ST-320	¼" X 1½ FLAT STRIP	2'-3"
2	M-1	⅛" X 4'-0" MASONITE BOARD	7'-11 13/16
1	M-2	⅛" X 3'-11⅞" MASONITE BOARD	2'-10¼"
2	M-3	⅛" X 3'-11⅞" MASONITE BOARD	3'-11 5/16"
8	M-4	⅛" X 2" CURVED MASONITE SCRIBE	3'-11⅝"
2		⅛" X 3'-11⅞" MASONITE BOARD	4'-0"
9		⅛" X 2" MASONITE STRIP	8'-0"
4		⅛" X 3" MASONITE STRIP	3'-11¾"
2		⅛" X ⅞" MASONITE STRIP	2'-0"
150	ST-510	#14 X ⅝" SHEET METAL SCREW	
100	ST-527	⅝" O.D. LEAD WASHER ¼" DIA. HOLE	
120	ST-530	GALV. DOUBLE HEADED NAILS	
120		6d GALV. COMMON NAIL	
74		1½" LONG GALV. SIMPLEX NAIL	
120	ST-526	⅝" O.D. LEAD WASHER .16 DIA. HOLE	
1 GAL.		MASTIC	
40		8d GALV COMMON NAIL	
1		4'-0" WIDE BLANKET INSULATION	32'-6"
1		DOOR ASSEMBLY - SEE DR'WG. E-10	
1	AST-143	LOUVER WITH SCREEN	

REVISIONS

STRAN STEEL DIVISION
GREAT LAKES STEEL CORPORATION
DETROIT, MICHIGAN

QUONSET "20" BUILDING
NORTHERN DESIGN

END WALL ELEVATIONS

DATE 2-15-51	DRAWN H.R.M.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER E-8
SCALE AS NOTED	N-160-S-4079			

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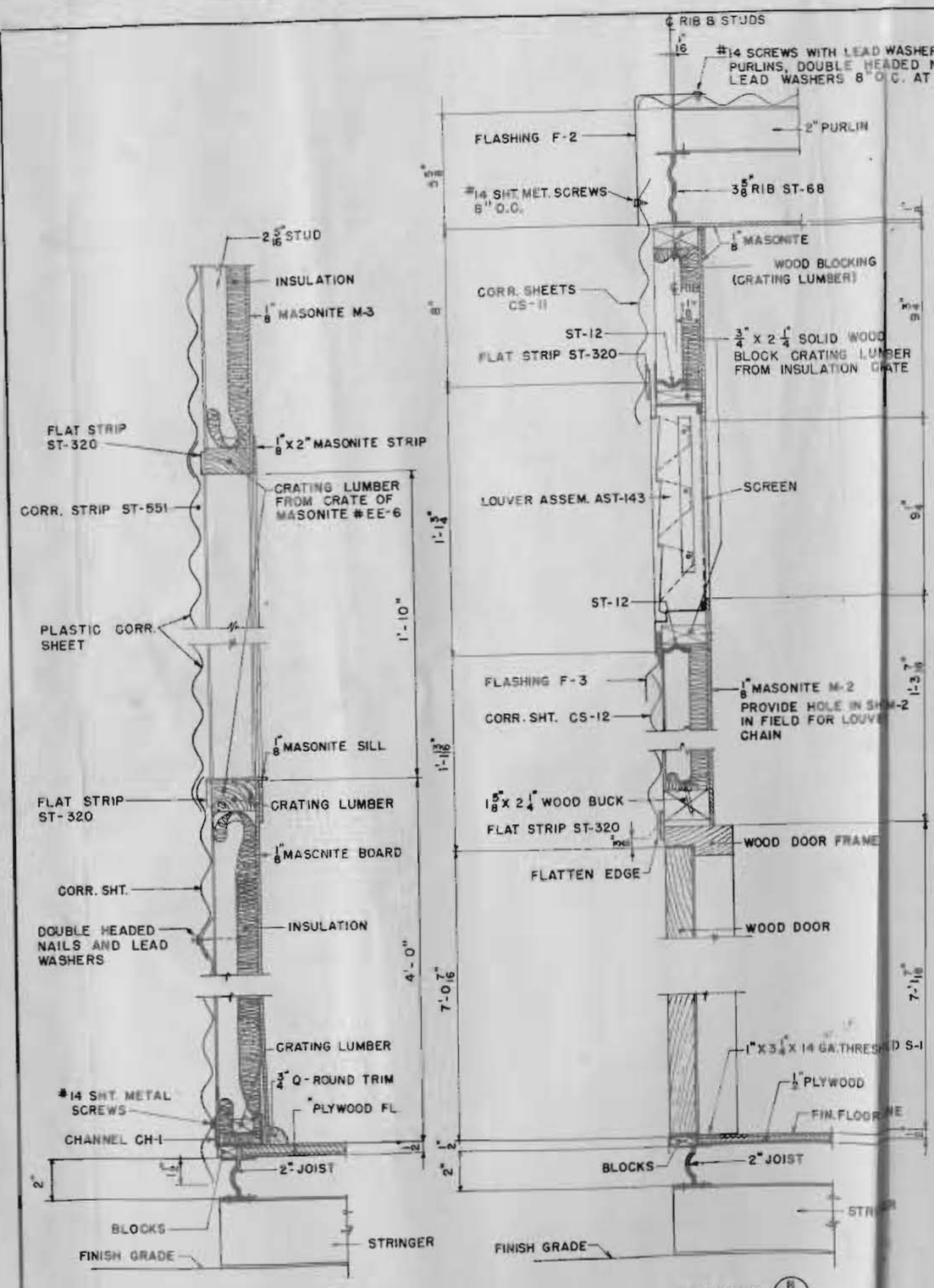

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN
	QUONSET "20" BUILDING NORTHERN DESIGN
	END WALL SECTIONS & DETAILS
DATE 2-15-51	DRAWN D.J.K. / CHECKED R.L.C. / JOB NO. 51-400 / SHEET NUMBER E-9
SCALE AS NOTED	CUSTOMER'S ORDER N-160-S-4079 / ESTIMATE NUMBER

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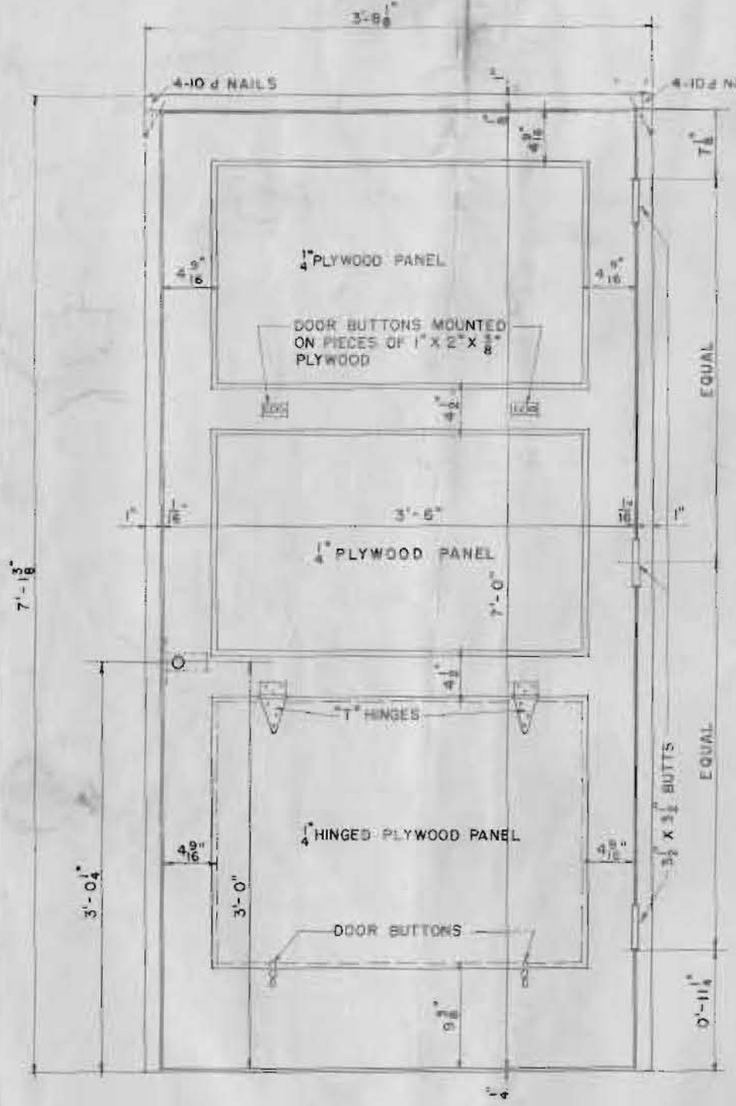
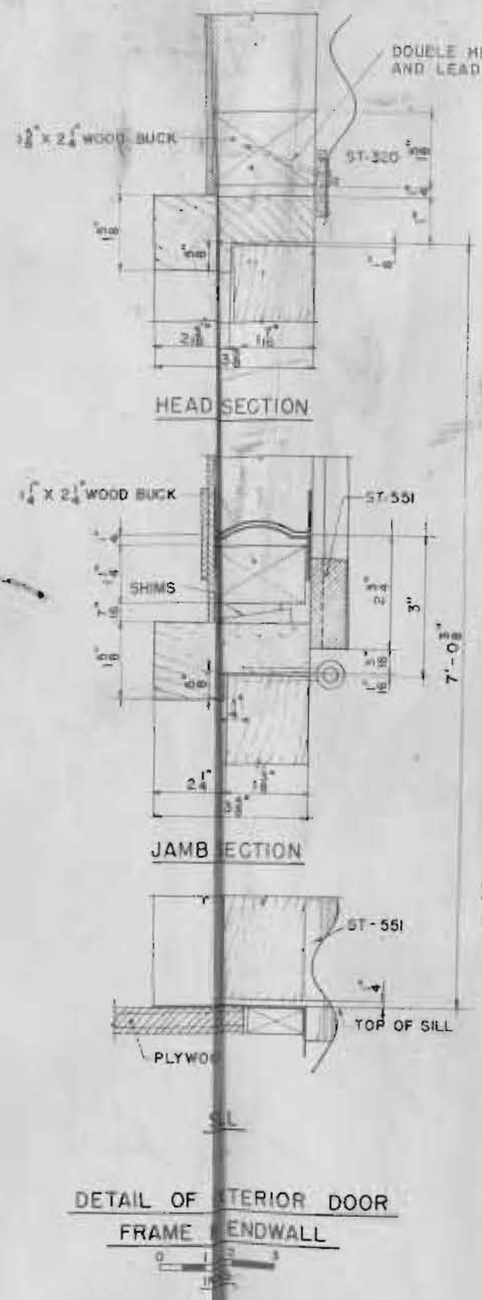


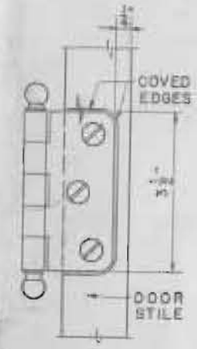
ELEVATION OF DOOR AND FRAME

0 1 2 3 6 9 12 INCHES



DETAIL OF EXTERIOR DOOR FRAME AT ENDWALL

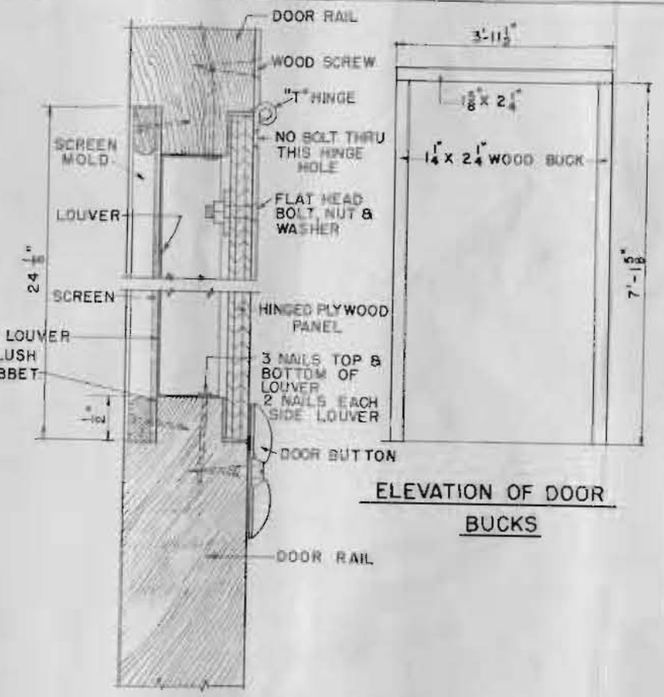
0 1 2 3 INCHES



DETAIL OF HINGE

0 1 2 3 INCHES

LIST OF MATERIALS	
NO REQ	DESCRIPTION
1	WOOD DOOR FRAME, SIZE AS SHOWN (KNOCK DOWN)
1	WOOD PANELLED DOOR, 3'-6" X 7'-0" X 1 3/8"
2	PCS. WOOD BUCK 1 1/4" X 2 1/4" X 7'-1 5/8" LONG
1	PC. WOOD BUCK 1 3/8" X 2 1/4" X 3'-11 1/2" LONG
8	10 d COMMON NAILS
30	8 d FINISHING NAILS
10	3/4" X #7 FLAT HEAD WOOD SCREWS
4	3/16" X 3/8" FLAT HEAD STOVE BOLT & NUT & WASHERS
1 1/2 PR	3 1/2" X 3 1/2" LOOSE PIN BUTTS, DEAD BLACK FINISH
18	1" #9 WOOD SCREWS FLAT HEAD CAD. PLATED
1	SAGER N80323XF19 TUBULAR MORTISE LAT. SET, BLACK
2	"T" HINGES - 3" STRAP, 2 3/8" JOINT
4	WROUGHT STEEL DOOR BUTTONS



ELEVATION OF DOOR BUCKS

FULL SIZE DOOR DETAILS

NOTE

ALL RECESSING ETC. FOR HARDWARE TO BE MADE IN ACCORDANCE WITH HARDWARE SET WHICH IS FURNISHED FOR TEMPLATE

DOOR AND FRAME TO RECEIVE ONE COAT OF WOODLIFE OR EQUAL

DOOR TO HAVE SCREEN AND STEEL LOUVER INSTALLED

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	DETAILS OF WOOD DOOR & FRAME FOR 2 5/16" STUD END WALL SINGLE DOOR 3'-6" X 7'-0" X 1 3/8"			
REDRAWN				
DATE 2-15-51	DRAWN H.R.M.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER E-10
SCALE AS NOTED	CUSTOMER'S ORDER N1605-4079			

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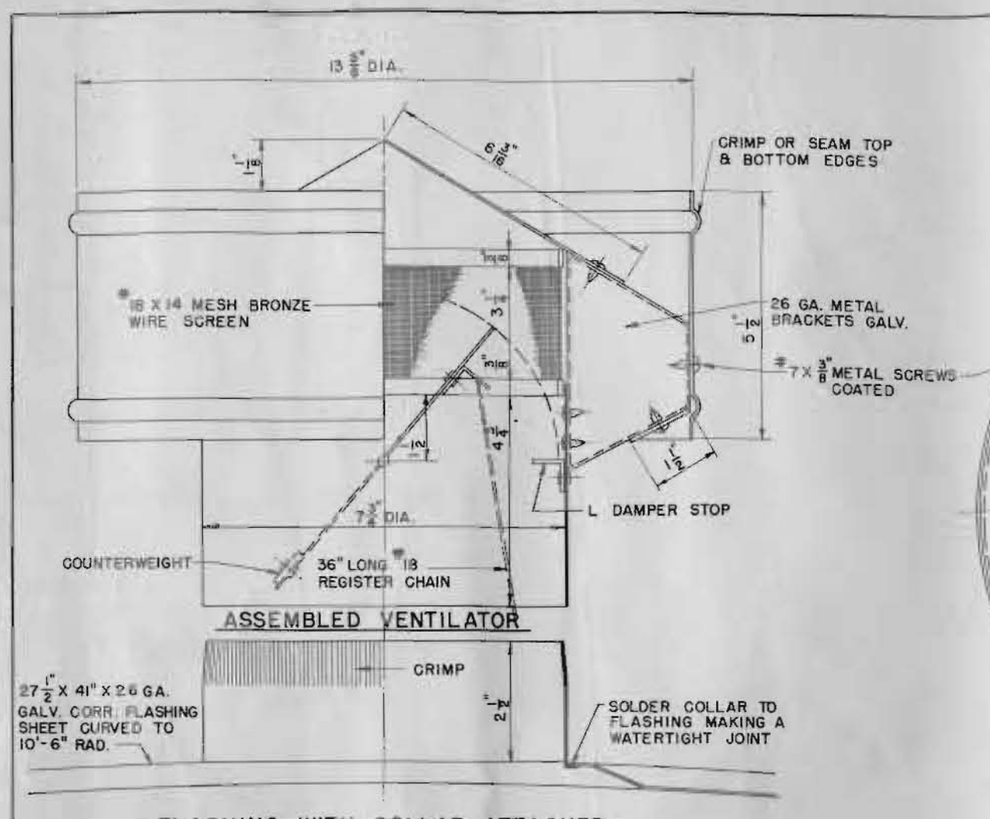

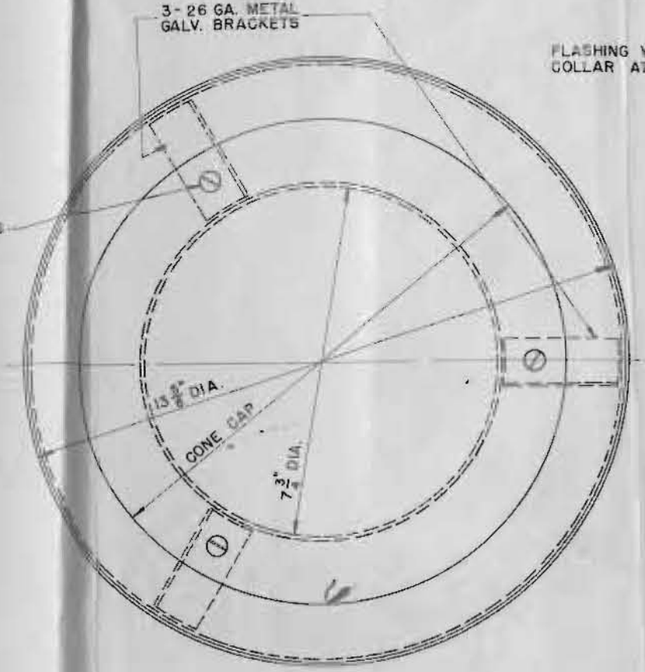

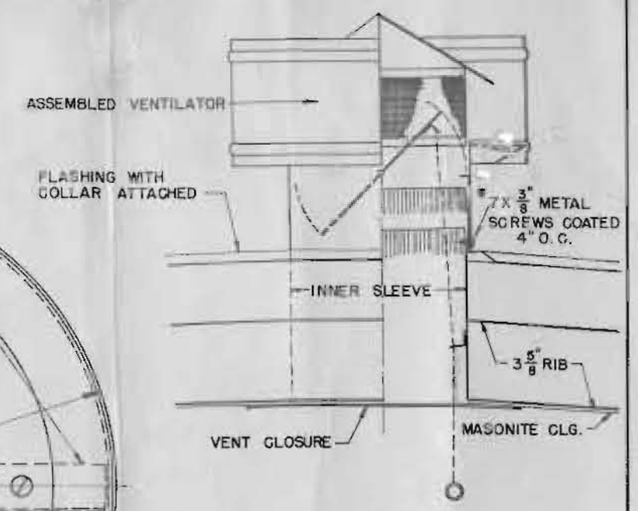

NOTE:

ALL METAL TO BE 26 GA. DULLKOTE GALV. UNLESS OTHERWISE NOTED.
PAINT ALL EXTERIOR AND INTERIOR SURFACES WITH ONE (1) COAT OF INFRA RED REFLECTING PAINT AS SPECIFIED IN Y & D SPECIFICATIONS #P-1 OF COLOR EQUAL TO OLIVE DRAB #2-A OF YARDS AND DOCKS STANDARD CAMOUFLAGE COLORS.
VENTILATORS SHALL BE COMPLETELY KNOCKED DOWN, BUT FURNISHED COMPLETE WITH SCREWS, BOLTS, NUTS, ETC. HOLES FOR ALIGNMENT IN BRACKETS SHEETS ETC. SHALL BE PUNCHED IN SHOP.
CHAINS SHALL BE SPOTWELDED TO SHEETS IN SHOP.
FURNISHED KNOCK DOWN SCREEN INCLUDING METHOD FOR ATTACHING BRACKETS.
LOCKING SEAMS ON ALL ROUND MEMBERS.

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	QUONSET "20" BUILDING NORTHERN DESIGN			
	KNOCK DOWN VENTILATOR			
DATE 2-15-51	DRAWN D.S.W.	CHECKED W.O.	JOB NO. 51-400	SHEET NUMBER 13
SCALE AS NOTED	CUSTOMERS ORDER N-160-S-4079	ESTIMATE NUMBER		

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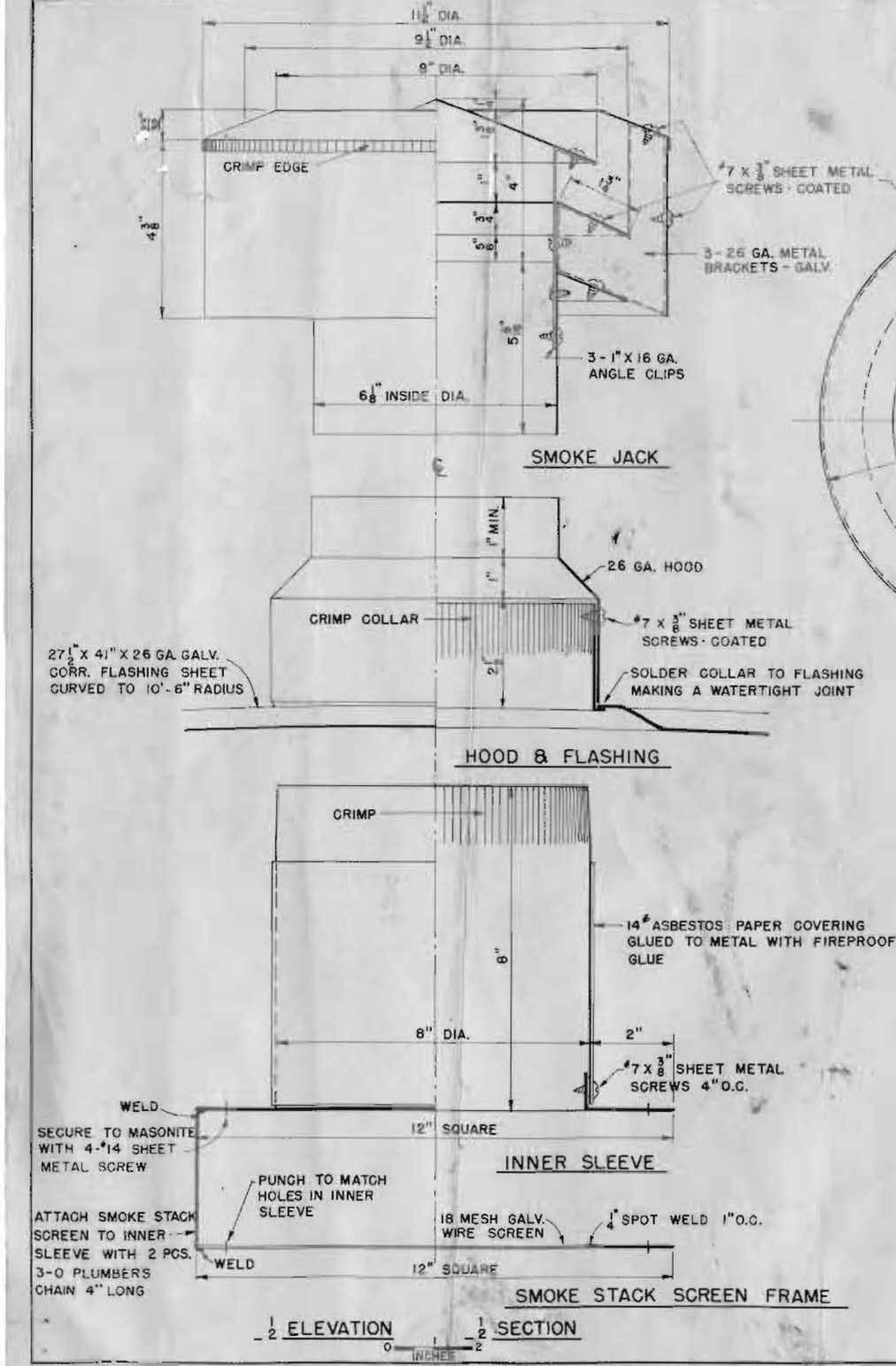

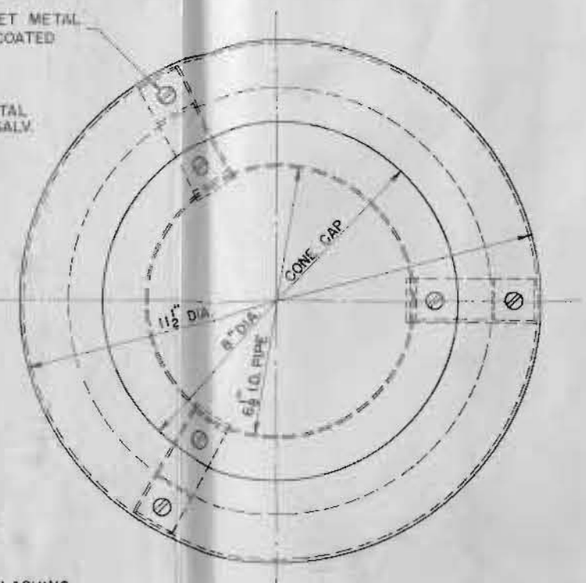

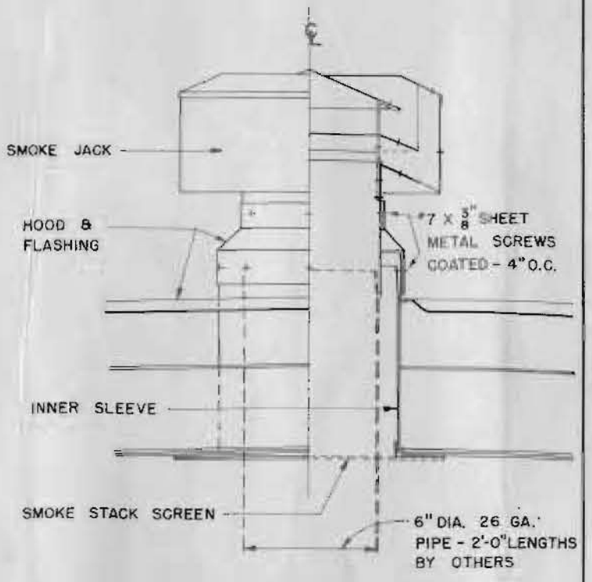

NOTE

ALL METAL TO BE 26 GA GALV DULLKOTE UNLESS OTHERWISE NOTED

PAINT ALL EXTERIOR AND INTERIOR SURFACES WITH ONE COAT OF INFRA-RED REFLECTING PAINT AS SPECIFIED IN Y. & D. SPECIFICATIONS #P-1 OF COLOR EQUAL TO OLIVE DRAB #2-A OF Y. & D. STANDARD CAMOUFLAGE COLORS

SMOKE STACKS SHALL BE COMPLETELY KNOCKED DOWN BUT FURNISHED COMPLETE WITH SCREWS, BOLTS, NUTS, ETC. HOLES FOR ALIGNMENT IN BRACKETS, SHEETS, ETC. SHALL BE PUNCHED IN SHOP

CHAINS SHALL BE SPOT WELDED TO SHEETS IN SHOP

LOCKING SEAMS FOR ALL ROUND MEMBERS

REVISIONS	STRAN STEEL DIVISION GREAT LAKES STEEL CORPORATION DETROIT, MICHIGAN			
	QUONSET "20" BUILDING NORTHERN DESIGN			
	KNOCKED DOWN SMOKE STACK			
DATE 2-15-51	DRAWN D.J.K.	CHECKED R.L.C.	JOB NO. 51-400	SHEET NUMBER 14
SCALE AS NOTED	CUSTOMER'S ORDER N-160-S-4079	ESTIMATE NUMBER		

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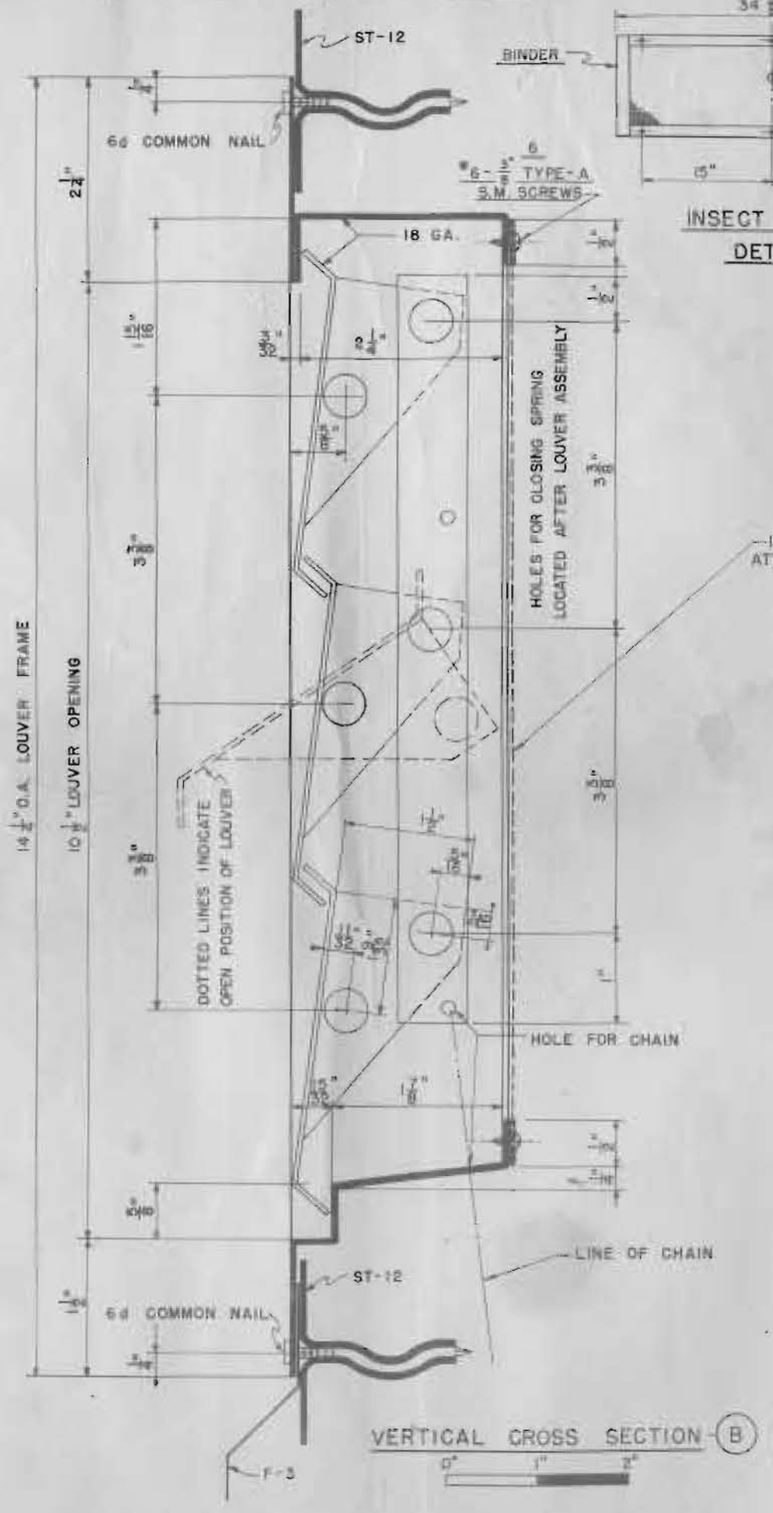
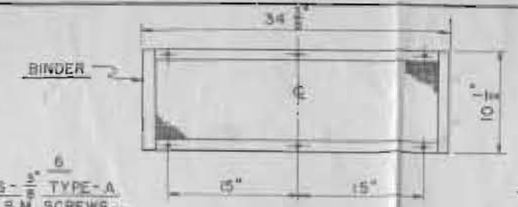
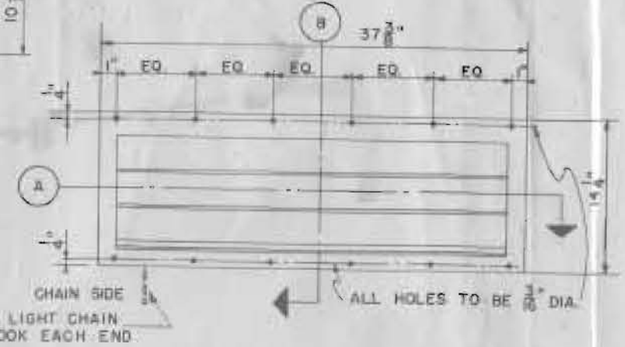


VERTICAL CROSS SECTION (B)

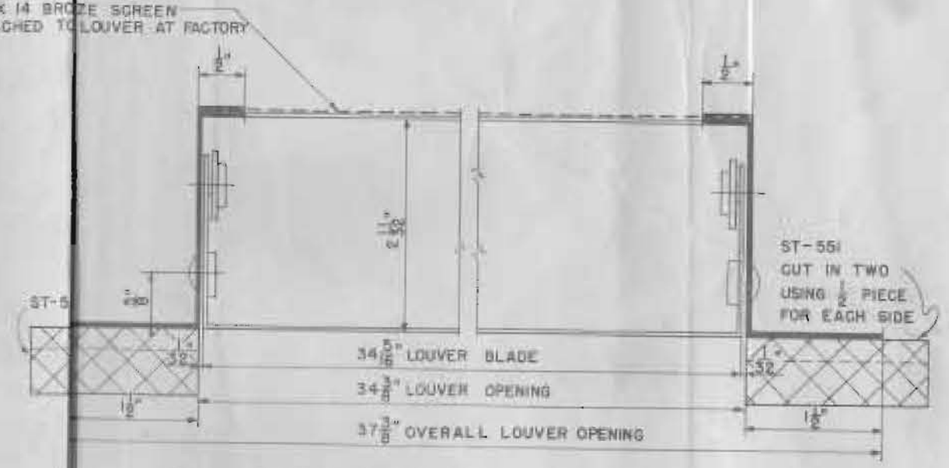


INSECT SCREEN DETAIL



EXTERIOR ELEVATION OF LOUVER

0" 3" 6" 9" 1' 2'



HORIZONTAL CROSS SECTION (A)

0" 1" 2"

BILL OF MATERIAL		
NO. REQ.	PIECE MK.	DESCRIPTION
1		LOUVER FRAME COMPLETE
1	F-3	28 GA. GALV. FLASHING
1	ST-55I	CORR. STRIP 2'-4" LG.
2	ST-12	16 GA. X 3'-11½" HALF STUD

SPECIFICATIONS

ALL STEEL 18 GA.

PAINT ALL SURFACES WITH ONE COAT OF OLIVE DRAB CAMOUFLAGE PAINT.

ALL PARTS THAT ARE TO BE GALVANIZED SHALL BE DULCOTE GALVANIZED OR BRIGHT GALVANIZED TREATED WITH "GALVAPREP" BEFORE PAINTED.

REVISIONS	STRAN STEEL DIVISION
	GREAT LAKES STEEL CORPORATION
	DETROIT, MICHIGAN
	LOUVER ASSEMBLY
	37"X 14" STEEL LOUVER
① 2-21-51	WITH SCREEN ATTACHED

DATE	DRAWN	CHECKED	JOB NO.	SHEET NUMBER
2-15-51	D.S.W.	V.A.R.	51-400	AST-143
SCALE AS SHOWN	STANDARD ORDER NO. R-160-B-4079	DRAWING NUMBER		

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