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TM 5-9606

WAR DEPARTMENT TECHNICAL MANUAL

WITHDRAWN

BARRACKS, PORTABLE,  
PREFABRICATED, 20' x 48'  
STEEL (CHANNEL FRAME)  
INSULATED  
Procedure for Erecting

WAR DEPARTMENT • NOVEMBER 1944



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TM 5-9606, Barracks, Portable, Prefabricated, 20' x 48' Steel (Channel Frame) Insulated—Procedure for Erecting, is published for the information and guidance of all concerned.

[AG 300.7 (7 Oct 44).]

BY ORDER OF THE SECRETARY OF WAR:

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*Chief of Staff.*

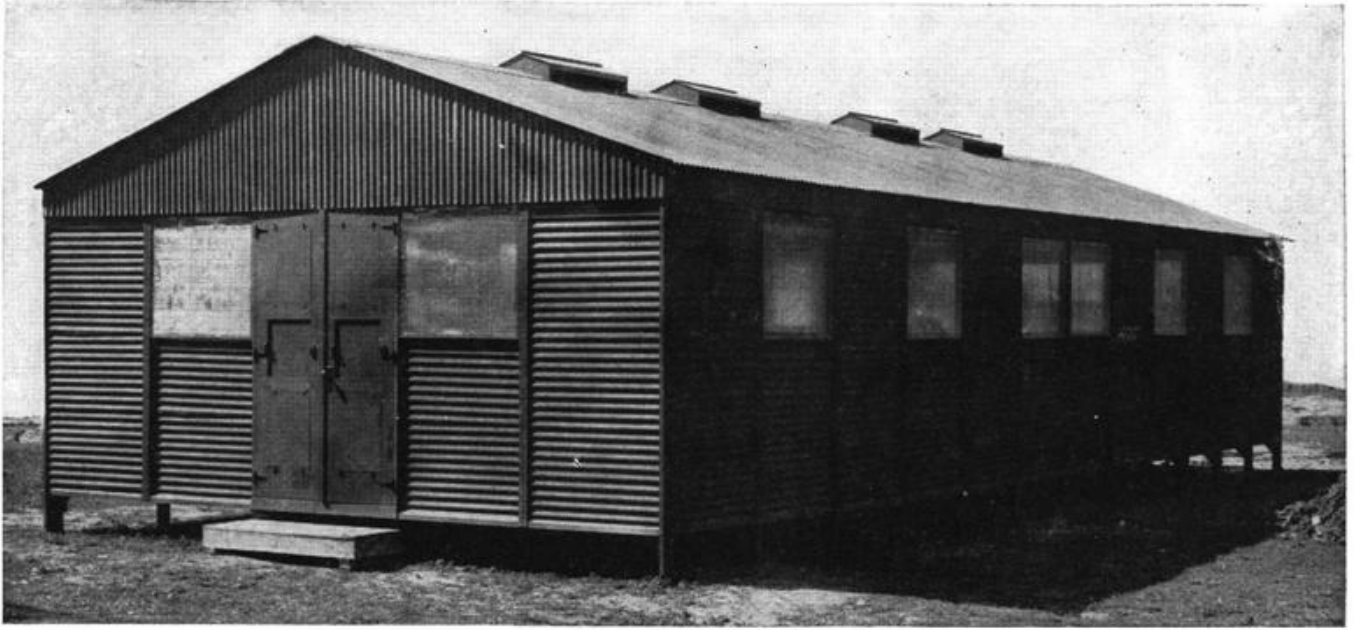
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For explanation of symbols, see FM 21-6.



*Exterior view completed building.*



*Interior view completed building.*

BARRACKS, PORTABLE, PREFABRICATED, 20' x 48'  
STEEL (CHANNEL FRAME) INSULATED

Procedure for Erecting

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WAR DEPARTMENT • NOVEMBER 1944

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## 1. General

The complete basic building, 20' x 48' is shipped in packages ready for assembly and erection into a building. The building is of metal, the component parts of which are channel shaped posts, ribs and floor joists, with metal purlins spanning between the ribs and joists, all factory shaped and punched to permit bolting and fastening with sheet metal screws. The finished floor is of plywood and the interior finish of wall board is applied and covered by metal strips. The erection is simple when precaution is taken that the various parts are placed in proper position and all the holes of pieces are aligned before inserting the screws. This building is expandable by the insertion of additional units, packaged separately and containing windows, Unit "B" or doors Unit "C" whichever may be required.

## 2. Procedure for Erecting

a. The erection of the Barracks, Steel (Channel Frame), Insulated, can be expedited if some of the component parts are pre-erection assembled, but in general the parts must be erection assembled.

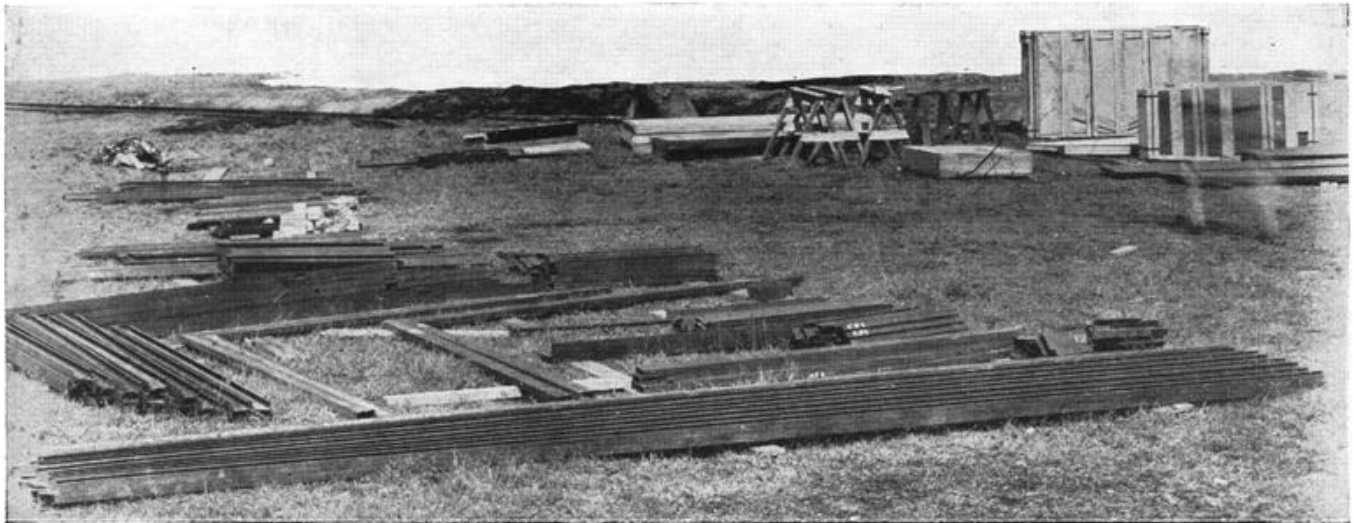


Figure 1. Material segregated into groups according to markings.

b. It is suggested, that as the various packages are uncrated, the contents be segregated into groups comprising all material and parts bearing similar markings to facilitate locating them as required. (See lists, par. 28.) Each part of the building has a code number stamped on it. These numbers are referred to throughout the Erection Manual. Care should be used in uncrating the packages so that the crating lumber is not destroyed as this material is used for the step construction, temporary bracing and scaffolding. It is recommended that where

pre-erection assembly is possible the sections be so assembled that the exterior or outside face is up or towards the workers. When right and left hand are hereinafter mentioned, it means looking at the building from the outside except when applying the interior finish.  $\frac{1}{2}$ " bolts and sheet metal screws are used mostly for assembly and erection and can be installed with wrenches, screw drivers, drift pins and hammers. Caution should be exercised that all nuts are started so that the slightly round head will be against the metal and that the nut rather than the head of the bolt be tightened sufficiently to bring the parts together without damage. When punching of metal for holes is required or necessary it is suggested that a piece of wood be held behind the metal being punched to prevent bending. The  $1\frac{1}{2}$ " drive screws with smooth pilot point should be driven in by hammer only sufficiently to pierce the metal and then driven home by means of a screw driver.

c. The sizes of screws and bolts furnished are as follows:

- (1) All screws fastening plywood to steel floor construction are  $1\frac{1}{2}$ " No. 12 drive screws.
- (2) All screws in ridge ventilators are  $\frac{1}{2}$ " No.

14 sheet metal type except those holding ventilators to roofing which are 1" No. 14.

- (3) All bolts for purlin clips are  $\frac{1}{4}$ " x  $1\frac{1}{4}$ ".
- (4) All bolts for fastening corrugated sheets together are  $\frac{1}{2}$ " No. 14 S.M. type.
- (5) All screws for fastening corrugated sheets to framing members are 1" No. 14 S.M. type.
- (6) Screws for fastening battens over interior finish in gable ends are  $1\frac{1}{2}$ " No. 12.
- (7) All screws for fastening metal members together are  $\frac{5}{8}$ " No. 14 S.M. type unless otherwise noted herein.

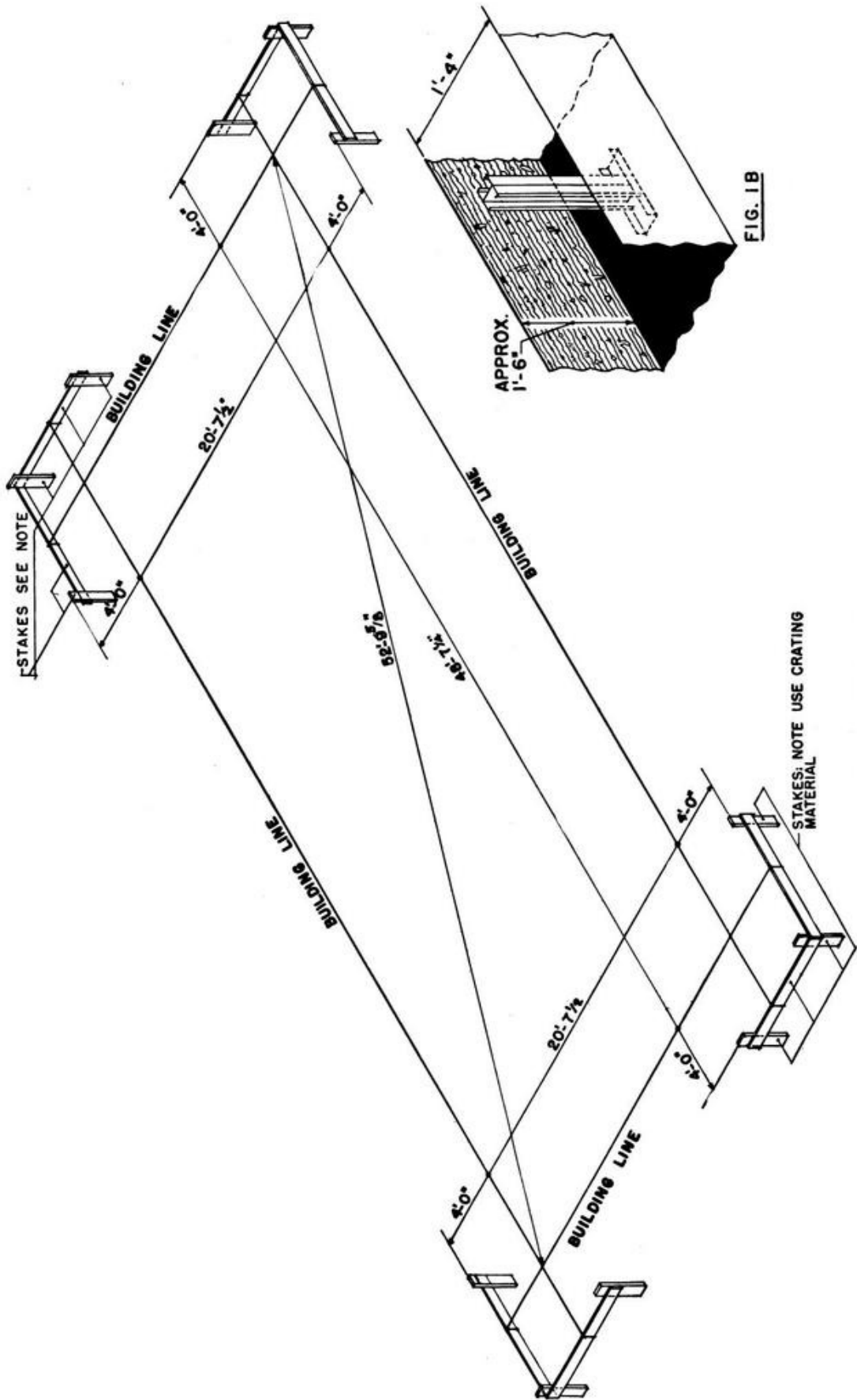


Figure 2. Site layout.



(8) All screws in corrugated roof sheets shall have lead washers.

(9) Bolts for SP-2 splice plate are  $\frac{1}{2}$ " x 1".

(10) All other bolts are  $\frac{1}{2}$ " x  $\frac{3}{4}$ ".

d. Platforms constructed of crating material approximately 4' x 4' and 4' high will be of assistance in erecting the roof purlins and later for installing the interior finish.

e. Check with the shipping list to be certain that the entire number of packages are available for immediate use. If the building to be erected is of a longer dimension than 48' the additional sections required will consist of "B" (with windows) or "C" (with doors) units. These additional units have been packaged separately.

### 3. Laying Out the Site (see fig. 2)

a. In laying out the four corners of the foundation, batter boards to which lines are tied should be made from crating material. Figure 2A shows one corner set up with batter boards and staples driven into the ground. The batter boards should be located approximately 4 feet beyond what will be the outside wall of the building.

b. Set up two parallel lines 20'-7 $\frac{1}{2}$ " apart, fastened to the batter boards. These lines represent the exterior face of the channel ribs on the sides of the building. They should be placed at a height which will represent the height of the bottom of the floor joists or top of the floor bracket FB-1 on the ribs and if leveled carefully will provide a definite point for establishing the necessary depth of the trenches. Cross these two lines with two other lines 48'-7 $\frac{1}{2}$ " apart. Check carefully for squareness by measuring the diagonal where the lines cross. Both diagonal dimensions must be exactly equal, otherwise the building will be out of square.

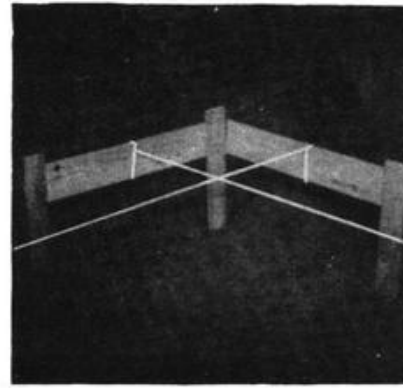


Figure 2A

It is suggested that the batter board be permanently marked to retain established position of lines for future reference.

### 4. Foundation Trench (see fig. 2B)

The bottoms of the exterior ribs and posts are approximately 2'-6" below the above established lines, therefore the trenches should be dug at such depths as will assure a level building. Caution should be exercised that the trenches are not dug deeper than necessary and if they should be dug too deep, a suitable hard soil or gravel should be used to bring the bottom up to the proper level. It is suggested that the metal channels forming the crating edge of some of the packages be placed with the sides up and continuously in the bottom of the side wall trenches. In the center trench, space the channels to support two footings on each section.

### 5. Assembly of Posts and Building Ribs

(see fig. 8)

a. The interior foundation posts CP-1 are approximately 2'-6" long and are on the longitudinal center of the building. A foot piece FC-1 should be fastened to the bottom and two

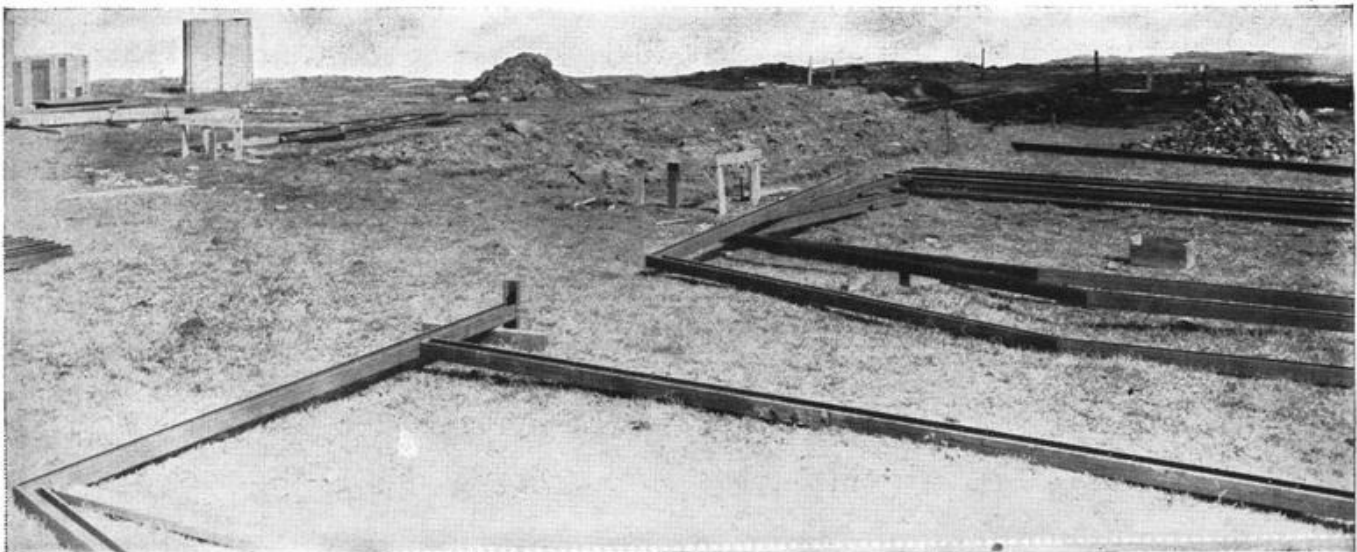


Figure 3. View showing site with trenches dug and rib material ready for assembly.

angles CA-1 at the top of each post with  $\frac{5}{8}$ " S.M. metal screws.

b. The building ribs are formed by bolting a splice plate SP-2 on each side of a CR-3 and CRR-3 (figs. 5 and 6). Two of these ribs are fastened together at the ridge by a channel splice SP-1 (figs. 7 and 8). Caution should be exercised that the exterior edges of the members are absolutely align.

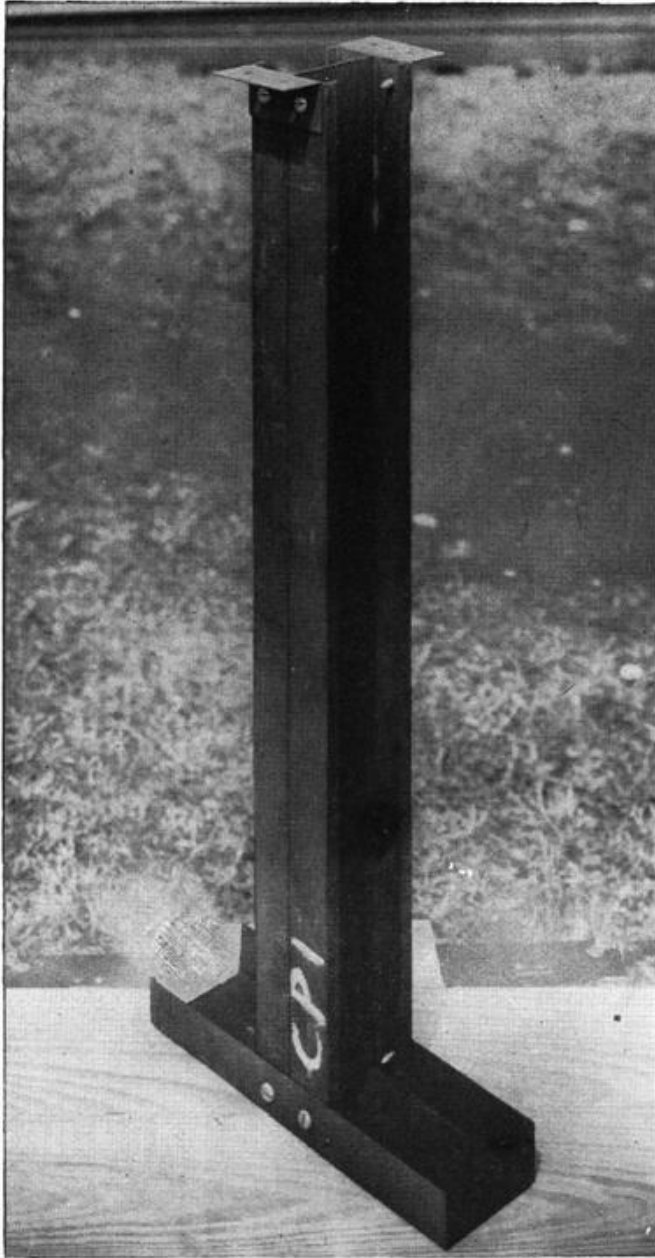


Figure 4. Assembled center post.

c. On the bottom of each rib leg, fasten a footing FC-1 (figs. 8c and 8k). At a point approximately 2'-6" from the bottom of each leg fasten with  $\frac{5}{8}$ " sheet metal screws the floor bracket FB-1 (figs. 8B and 8J).

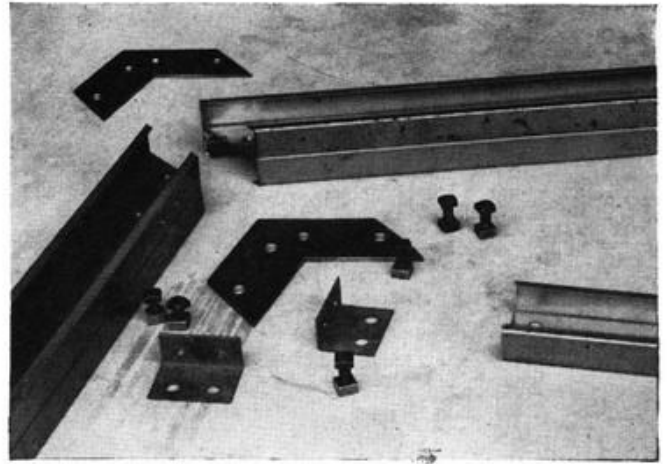


Figure 5. Parts required for rib joint at eaves.

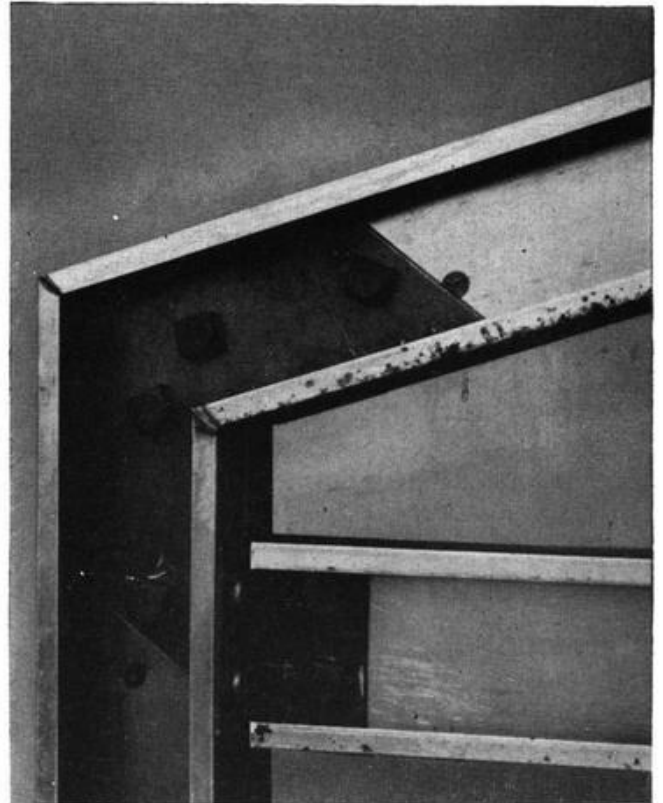


Figure 6. Assembled joint at eave.

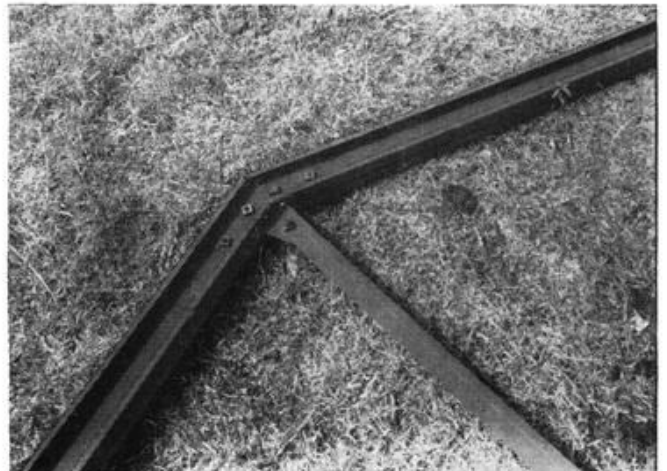


Figure 7. Detail of ridge splice plate connection.

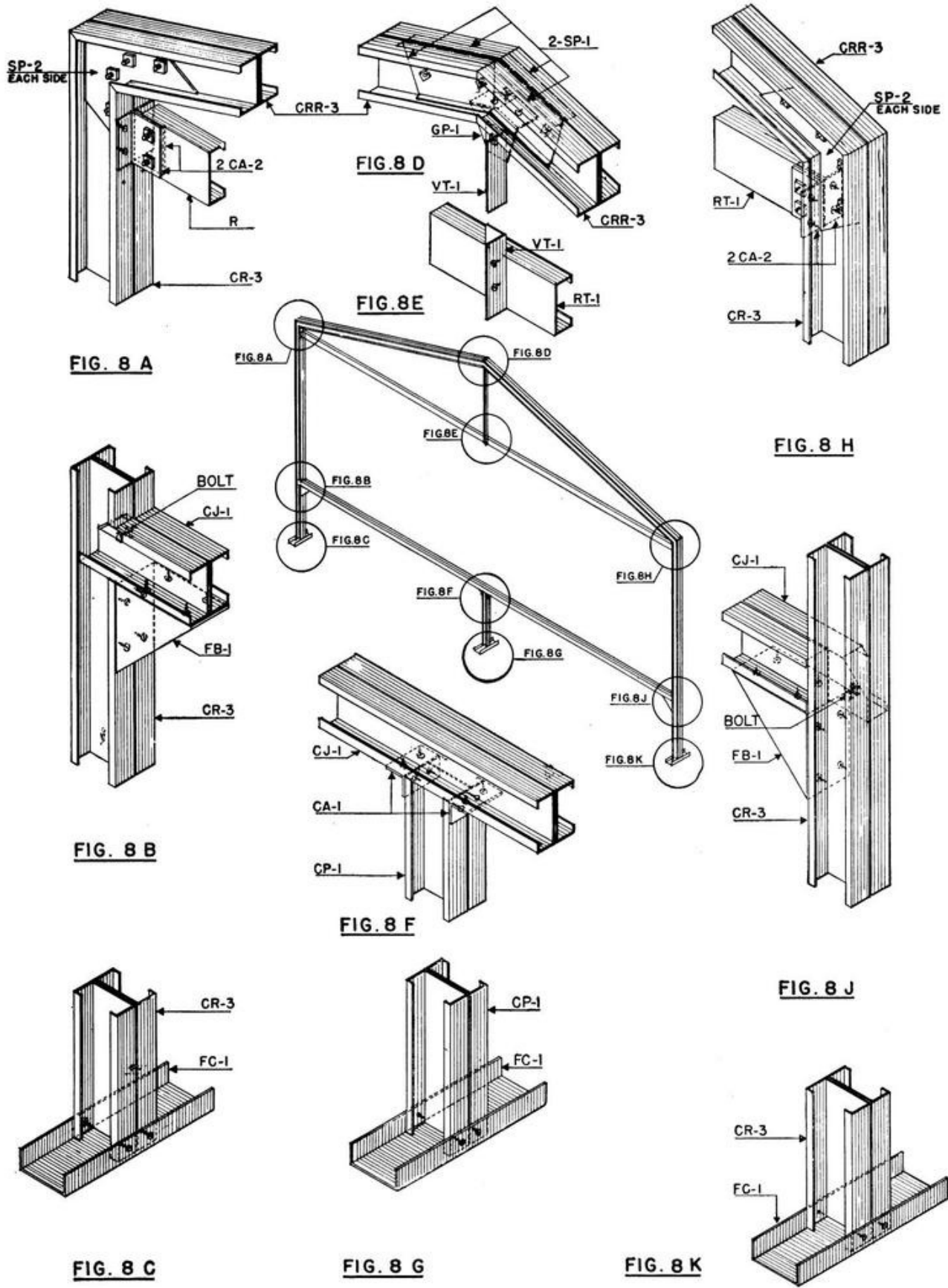


Figure 8. Assembly of building ribs.

d. On the floor bracket, fasten the floor joist CJ-1 with four  $\frac{5}{8}$ " S.M. screws and with a bolt through each rib (figs. 8B and 8J).

e. At a point approximately 7'-0" from the floor joists fasten two clip angles CA-2 to each rib with four 1" S.M. screws. When these CA-2's are fastened, span a roof tie RT-1 from rib to rib, bolted to the CA-2's with two bolts. The roof ties should be so placed that the legs will all face in the same direction in the completed building and that the four holes at the

center are down or towards the floor joist (figs. 8A and 8H).

f. At the center of the tie RT-1, place a vertical tie VT-1 with two  $\frac{5}{8}$ " S.M. screws. On the underside of the spliced rib fasten with two  $\frac{5}{8}$ " S.M. screws the gusset plate GP-1 and fasten the VT-1 to the GP-1 with a  $\frac{3}{4}$ " bolt (figs. 8D and 8E).

g. Place eighteen IBC-1's on the assembled ribs at approximately the point where they will be required (fig. 32).

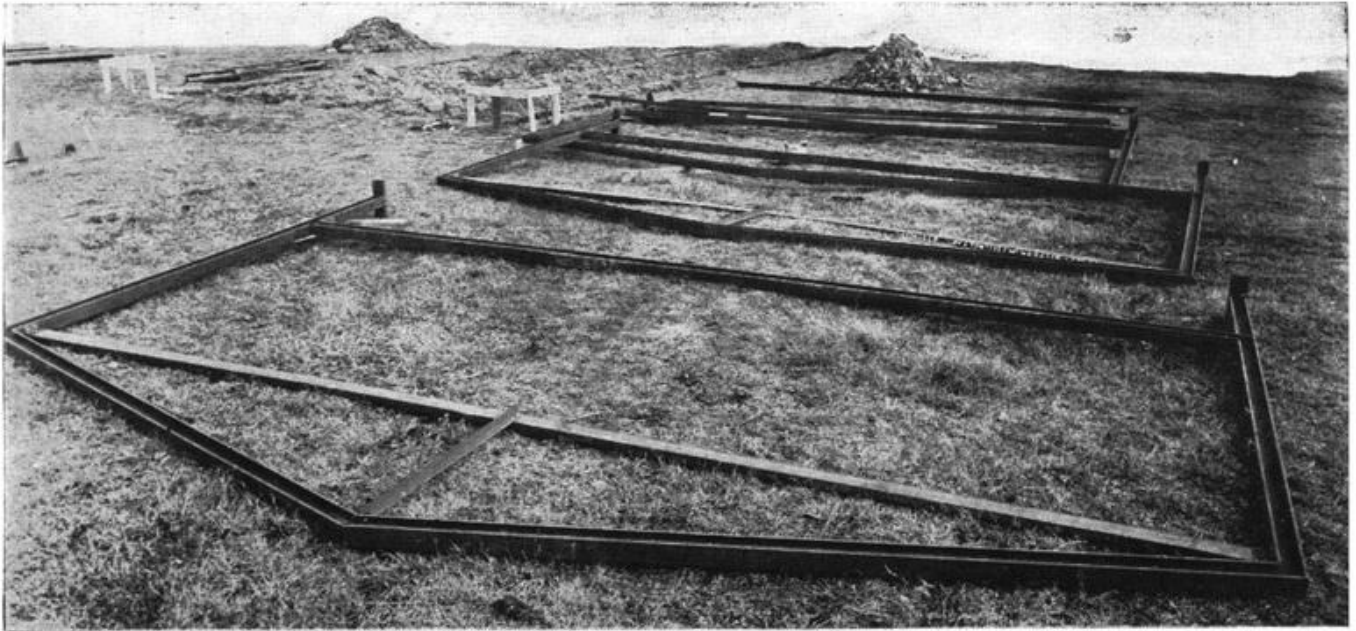


Figure 9. Assembled building ribs.

## 6. End Rib and Wall Assembly (see figs. 10, 11, and 12)

a. The two end wall ribs are pre-erection assembled by first joining with only one splice plate SP-2 inside of the ribs, a rib CRR-1 and a rib CR-1 (right). Similarly join a CR-2 with a CRR-2. The bolts fastening the SP-2 to the CR-1 and CR-2 are cut head  $\frac{1}{2}$ " x 1" bolts.

b. Attach with S.M. screws, a corner wall channel WC-1 to the CR-1 and a corner roof channel RC-1 to the CRR-1. Similarly attach a RC-2 to CR-2 and WC-2 to CRR-2 (fig. 10D).

c. The footings on each end of the assembled rib are FC-2 and should project into the building so that the outward face is flush with the rib (fig. 10c and 10J).

d. The floor brackets FB-1 are fastened to the CR-1 and CR-2 with 2 S.M. screws only (fig. 10B and 10H).

e. The end joist CJ-2 to which has been attached a channel brace CB-1, and the two

angles SB-1 (fig. 10E), at the center (where post occurs) is fastened to the floor brackets FB-1 and to each rib with  $\frac{5}{8}$ " S.M. screws (fig. 10B and 10H).

f. At a point approximately 7'-0" up from the floor joist CJ-2, fasten the wall plate WP-1 with three S.M. screws at each end (fig. 10A and 10G).

g. Insert and fasten between WP-1 and CR-2 (left), CR-1 (right) the gable studs GS-1 (fig. 10F and 10G).

h. At the center of the WP-1 fasten clip angle, CA figure 11H, CA-3, and at the oval holes the chain guides CG-1.

i. Between the floor joist CJ-2 and WP-1 insert and fasten the wall studs EWS-1 (right) and EWS-2 (left) (fig. 12C and 12F).

j. Attach to the door jamps DH-3 a door stop AS-5; to DH-4 attach an AS-6, and to the door head DH-2 attach an AS-4 (fig. 10G and 10H). Set the DH-2 into position (not fastened) as the door jamps DH-3 (right) and DH-4 (left) are being inserted and fastened to CJ-2

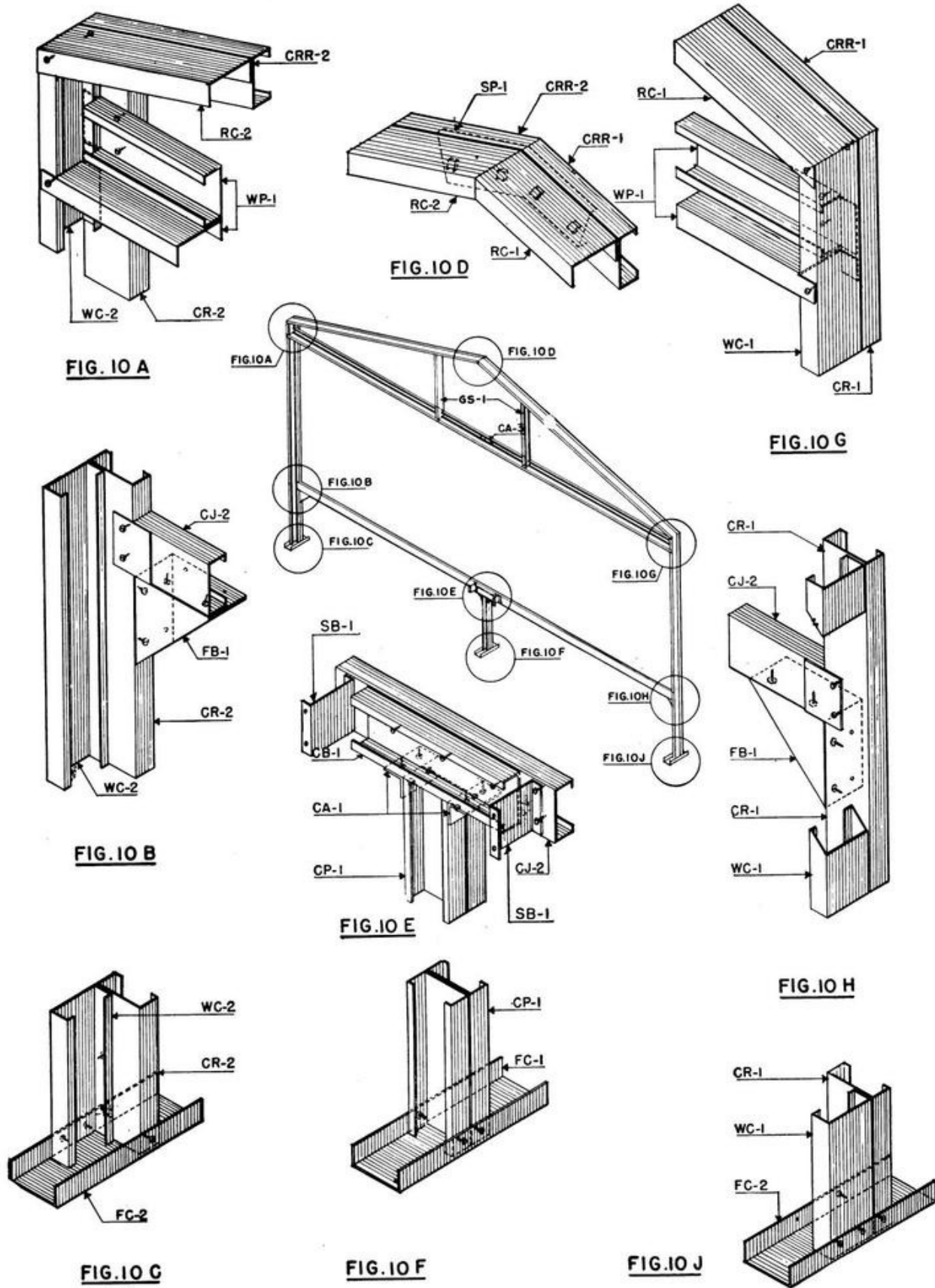


Figure 10. Assembly of end rib.



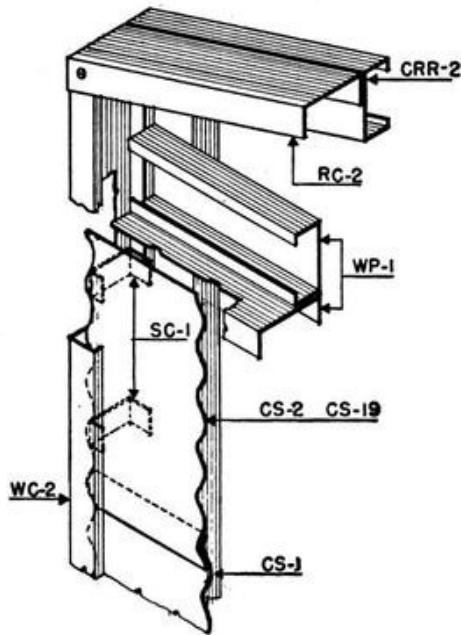


FIG. 12 A

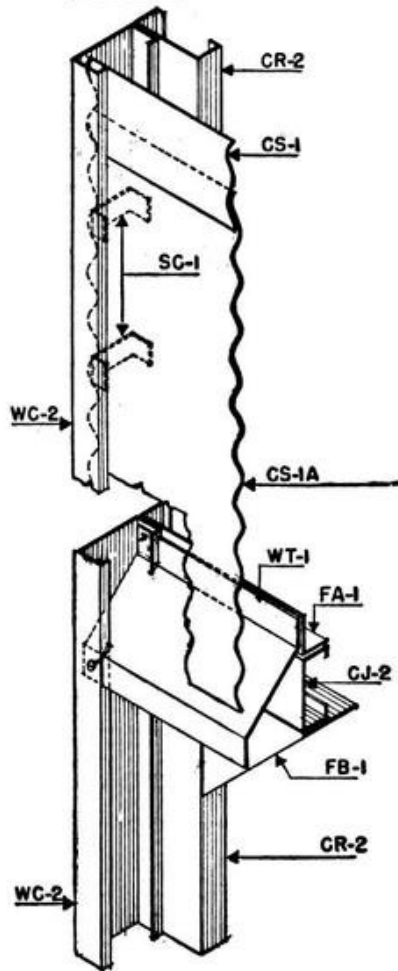


FIG. 12 B

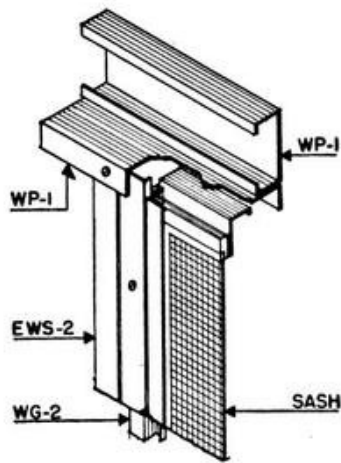


FIG. 12 C

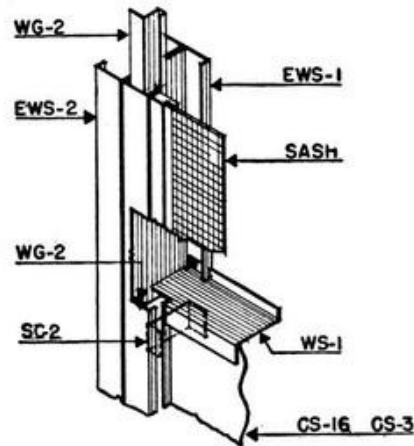


FIG. 12 E

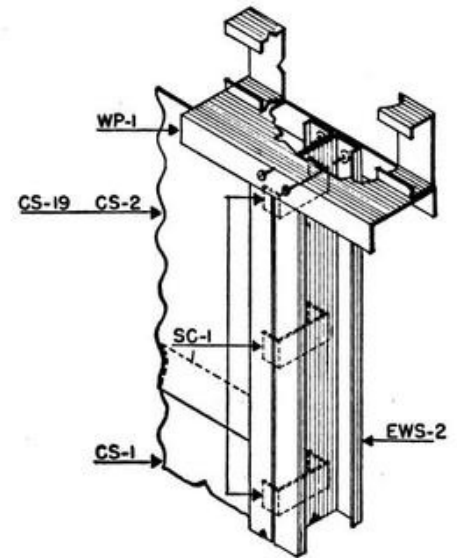


FIG. 12 D

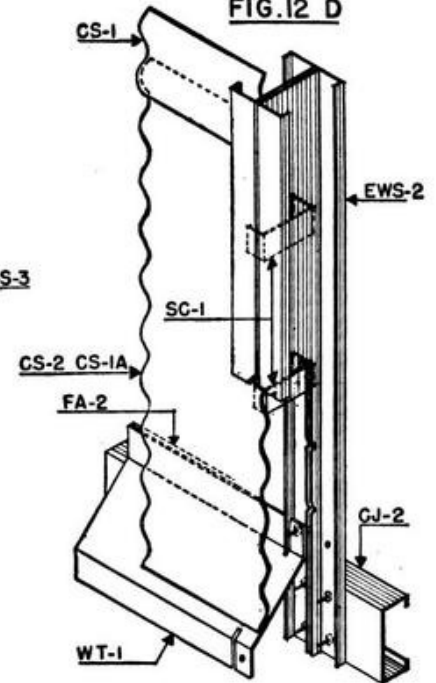


FIG. 12 F

Figure 12. Details of assembly of building end.

and WP-1. Place DS-2 into position before fastening bottom to the CJ-2 (fig. 11G). (Note bottom screw will also fasten water table.)

k. The exterior gable panels can be applied in the following order. At the center place panel CS-13, with an angle CC-8 under. Fasten the CS-13 by inserting screws in the bottom holes through the CC-8, WP-1 and DH-2, and at the top fasten to the RC members. Overlapping the CS-13 place and fasten similarly to the right, a CS-11, CS-9 and CS-7 with a CC-5 under the bottom edge and a CS-5, CS-3 with CC-3 under. The panels to the left of CS-13 are similarly applied but are marked CS-12, CS-10 and CS-8 with CC-6 under; CS-6 and CS-4 with CC-4 underneath.

l. On the inside of DJ-4 fasten window guide WG-1; to DJ-3 fasten WG-2 and to the inside of stud EWS-2 fasten WG-2, to stud EWS-1

fasten WG-1 (figs. 12E and 11G).

m. Insert between WC and EWS a group of four corrugated panels nestled together as follows: One CS-1A, two CS-1 and one CS-2. Between the EWS and DJ insert two panels, one CS-1A and one CS-16. Do not fasten these panels as they are raised into position later in the progress of erection.

n. Insert the water table WT-1 and fasten with S.M. screws through the top and bottom flange to the WC, EWS and DJ members, (fig. 12B and 12F).

o. Insert and only loosely fasten the window sill WS-1 between the EWS and DJ members at the approximate final position (fig. 12E).

p. Place batten clips IBC-1 on the lower part of EWS only.

q. The building ends are now ready for erection.

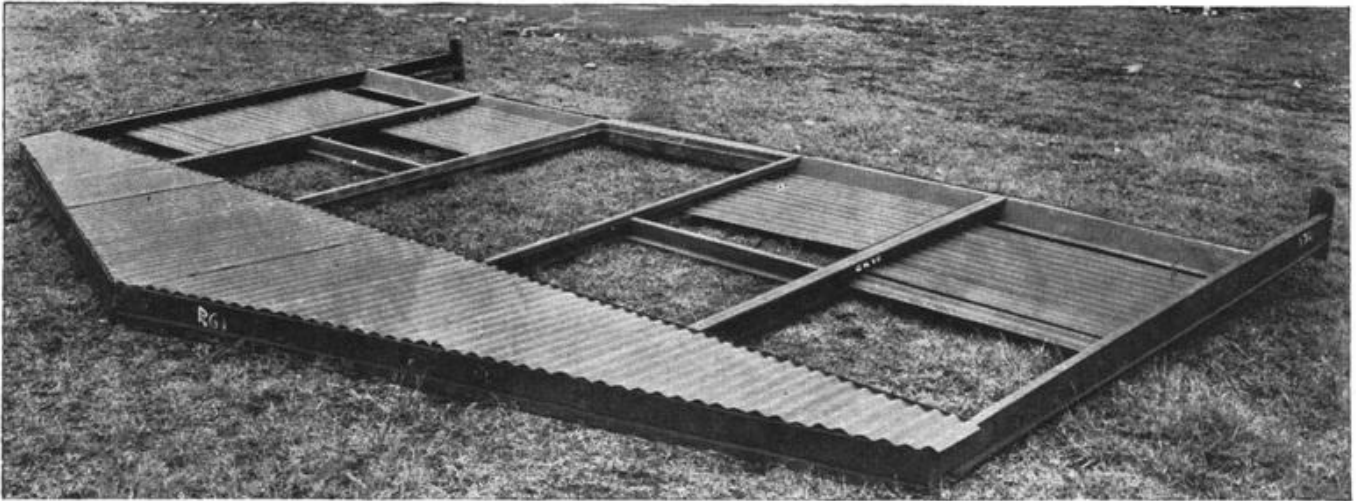


Figure 13. Assembled building end ready for erection.

## 7. Assembly of Ridge Ventilators (see fig.16)

a. The ridge ventilators may be pre-erection assembled while other parts of the building are also being assembled.

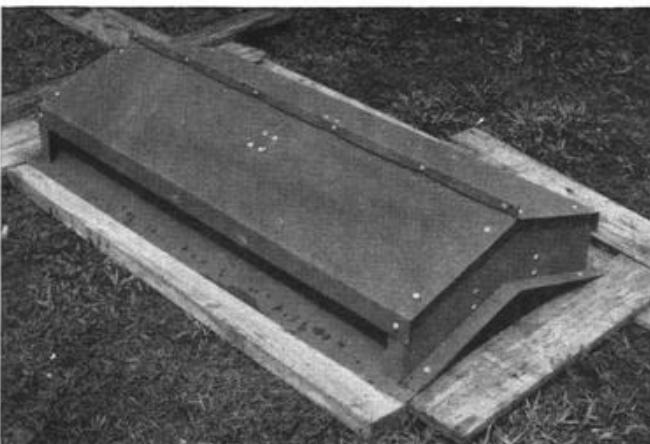


Figure 14. Assembled ridge ventilator.

b. Fasten damper RV-8 to RV-2 with S M. screw through the RV-2 into the hinges on RV-8.



Figure 15. Assembled ridge ventilator showing location of pulley before applying screening.



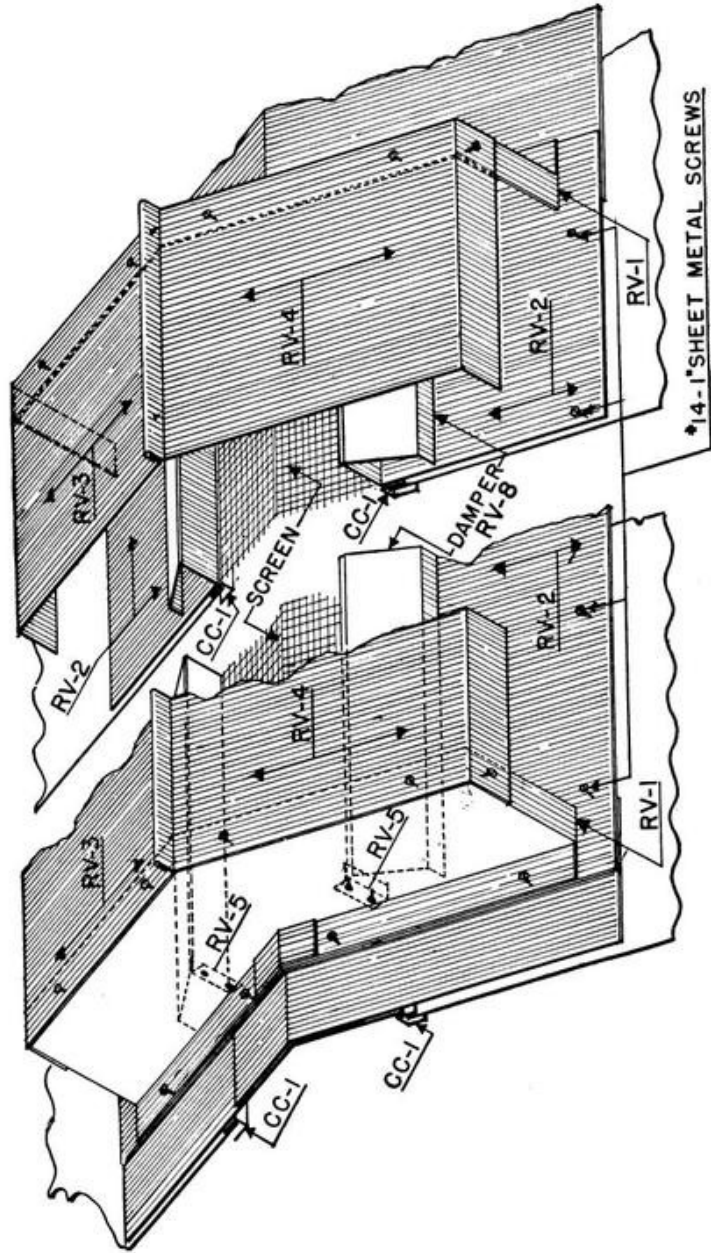


Figure 16. Ridge ventilator assembly.

c. To each end of a RV-2 fasten with S.M. screws an angle RV-5.

d. Place two RV-2's with 2" leg up between two RV-1's. The RV-1 should be so placed that the side and top flange is inward and fastened with 2 S.M. screws to each of the RV-5's.

e. On underside of each RV-3 and RV-4 locate at the center and  $4\frac{1}{4}$ " from the 1 inch flange, a pulley RV-6. The holes for the screws should be carefully punched (fig. 5).

f. With the RV-4 over the RV-3 join the two parts with six S.M. screws, and fasten to top flange of each RV-1 (fig. 16).

g. The ends of the ventilator chains should be inserted through the pulleys and the holes in RV-8 and a hook placed on the end. The length of the Y should be of such length that only a single chain passes through the hole in the screen.

h. The ventilator should be turned over and the screening attached with S.M. screws in such a manner that the hole in the center will be align and on center with the pulleys.

## 8. Assembly of Floor and Roof Purlins

a. The floor purlins FP-1, FP-3, FP-2 in "C" units, and roof purlins, RP-1 are assembled by loosely fastening purlin clip PC-1 at each end with a  $1\frac{1}{4}$ " bolt. The V section of PC-1 should be outward and face with the opening up.

b. The majority of the RP-1's have a wood block PF-1 nailed within and at the center of the purlin with 4d nails. The first row of

purlins each side of the ridge of the building do not contain the wood blocks.

## 9. Erection of Building Ribs

a. When all pre-erection assembly has been completed an assembled building rib should be carried to a point approximately the center of the building but on a multiple of 4'-0".

b. Before the rib is raised the assembled center post CP-1 (see para. 5) should be fastened with S.M. screws to the floor joist.

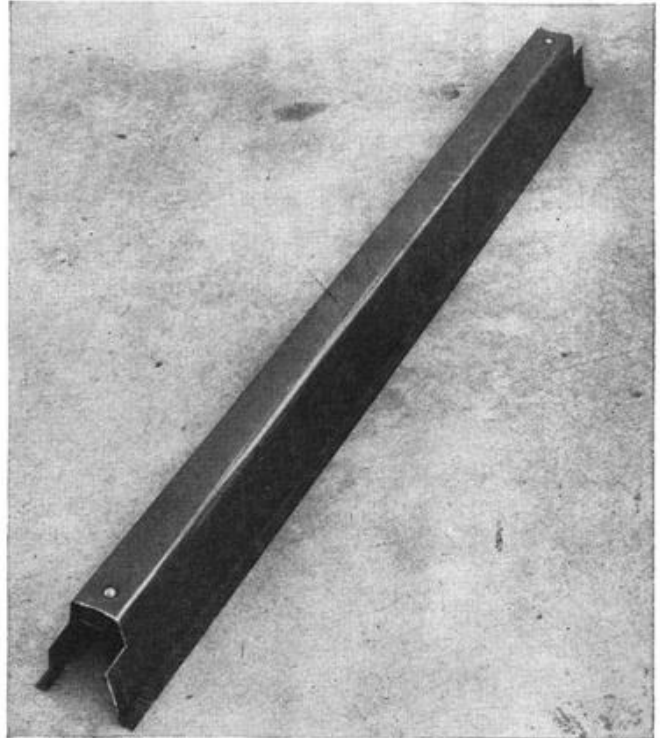


Figure 17. Assembled purlin.

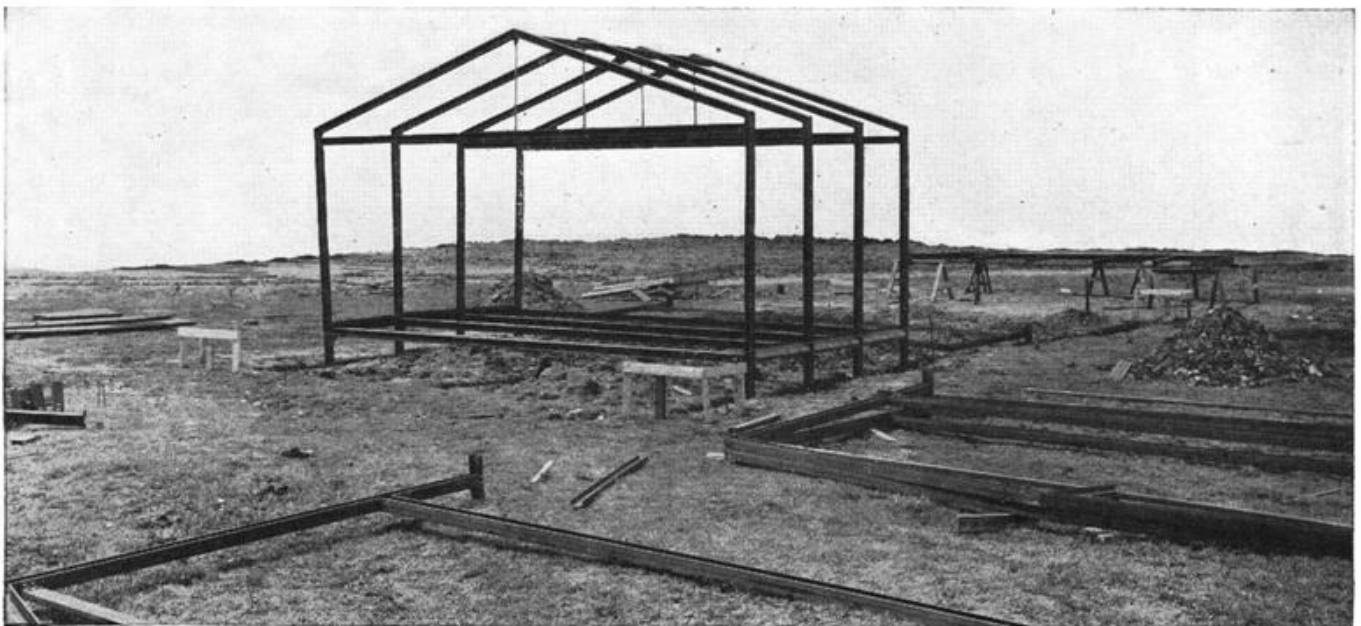


Figure 18. First building ribs erected.

c. The rib should now be raised with caution to prevent bending or displacing the footings and set firmly on and in the channel in the trench.

d. While this rib is held in place erect a second building rib approximately 4'-0" on either side. Caution should be taken that the tie RT-1 faces in the same direction on both these ribs and all subsequent erected ribs.

e. Fasten immediately a water table WT-1 between the two erected ribs.

f. Fasten immediately a roof purlin RP-1 (without wood block) near the ridge and between the two erected ribs.

g. Fasten immediately a floor purlin FP-3 between the floor joists and at the center.

h. Continue erecting the assembled building ribs fastening each to the previously erected rib as indicated in e, f, g. above.

## 10. Insertion of Window Guides and Wall Panels (see fig. 20)

a. The spaces in which windows are to be installed should be established before proceeding further. It will be noted that there are six windows furnished for each side wall of a basic 20' x 48' building which will require that at some point, preferably at the center it is necessary to place two windows together.

b. Insert and fasten with S.M. screws a window guide WG-1 inside of the right building rib and a WG-2 inside of the left building rib of the spaces that will receive windows (fig. 20D and 20E).

c. The spaces where windows do not occur will have four exterior panels: one CS-1A, two CS-1, and one CS-2.

d. The spaces where windows occur will have two exterior panels CS-1A and CS-16.

e. The exterior panels should be nestled into groups in the order as named in 9c and d. With the aid of a piece of crating material approximately 4'-0" long, the building ribs should be spread at the eave line sufficiently to insert and lower each group in its proper space to rest on the WT-1.

f. Continue inserting groups of panels on both sides of building.

## 11. Eave Angle and Center Tie

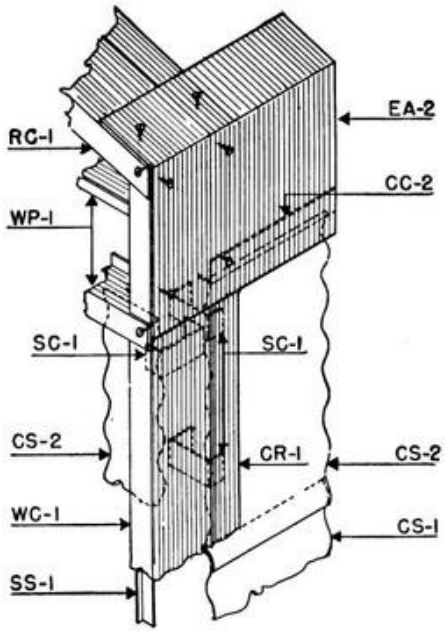
a. When all the exterior panels have been placed, the eave angle EA-3 should be fastened with S.M. screws on the top and in the first top hole of the side to each building rib. It will be noted that the eave angle EA-1 and EA-2 extend from the building and to the second building rib and therefore the first EA-3 should start at the second building rib. The EA-1 and EA-2 are applied when the building end is raised.

b. At the spaces between ribs where windows do not occur place under the EA a closer CC-2 fastening to the EA with S.M. screws and at the ends fastening the eave angle and closer to the building rib.

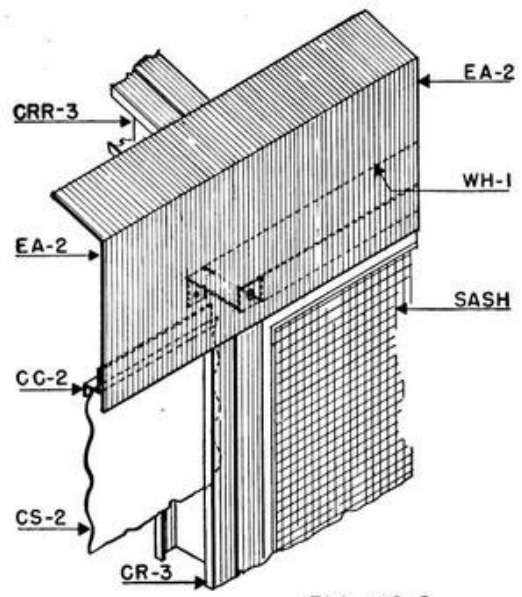
c. The spaces where windows do occur have window heads WH-1 (to which chain guide CG-1 has been attached) inserted between the ribs and under the EA also fastened at the ends with the EA to the building ribs. Do not fasten the window head at the lower interior flange as these screws also fasten trim members.



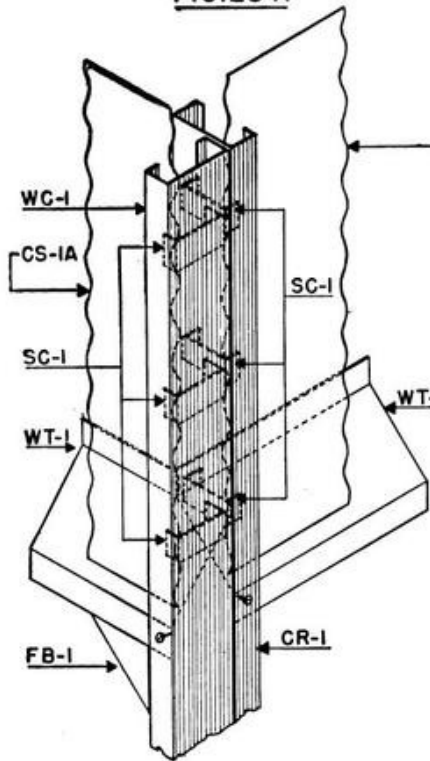
Figure 19. All building ribs erected and showing platform from crating material.



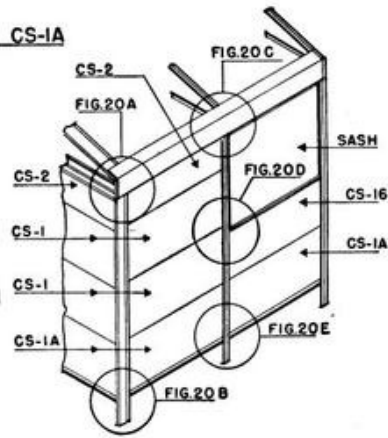
**FIG. 20 A**



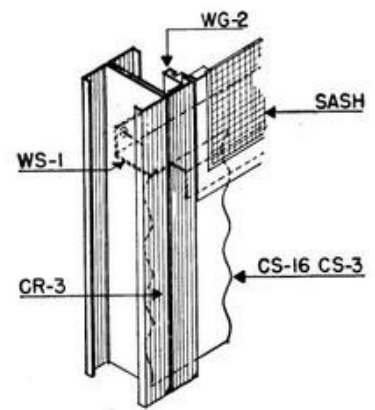
**FIG. 20 C**



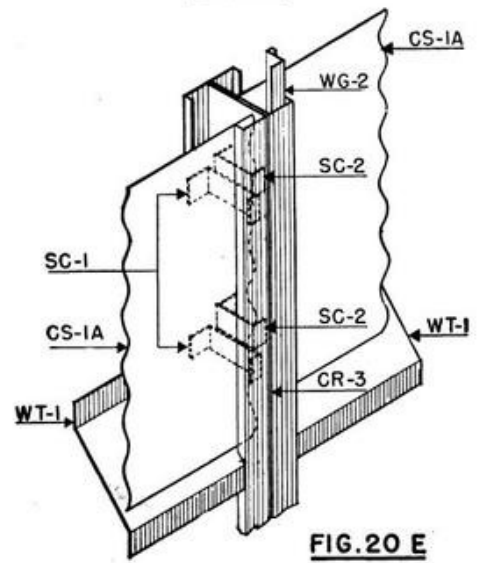
**FIG. 20 B**



**FIG. 20 D**



**FIG. 20 E**



*Figure 20. Side wall erection details.*



Figure 21. View showing wall panels grouped and placed into position. Note method of spreading ribs at eave to insert panels.

## 12. Installation of Floor and Roof Purlins (see fig. 24)

a. Place a floor purlin FP-1 (FP-2 in "C" Unit) at each side wall and the balance of the floor purlins FP-3 at approximately 2'-0" centers. The purlins will fit easily by slightly moving the floor joist and should not be forced into place in such a manner as will bend or distort the shape. Caution should be used that the clips PC-1 properly engage the floor joist and are tightly screwed.

b. Place the roof purlins RP-1 in a similar manner as the floor purlins. The two rows of purlins near the ridge will not have purlin fillers PF-1.

## 13. Window Sills

a. The window sills WS-1 may be inserted at

this time. The leg with holes must go upward to the window head.

b. The ends of the window sill can be loosely fastened but should not be tightly fastened into place as the screw will also fasten interior trim and screening.

## 14. Erection of Building Ends (see figs. 12 and 20)

a. The assembled building ends should be raised and connected to the building in a manner similar to the building ribs.

b. Add center post CP-1 just before end is to be raised.

c. Insert and fasten immediately WT-1.

d. Insert and fasten immediately two purlins RP-1's.

e. Insert a group of four exterior panels.

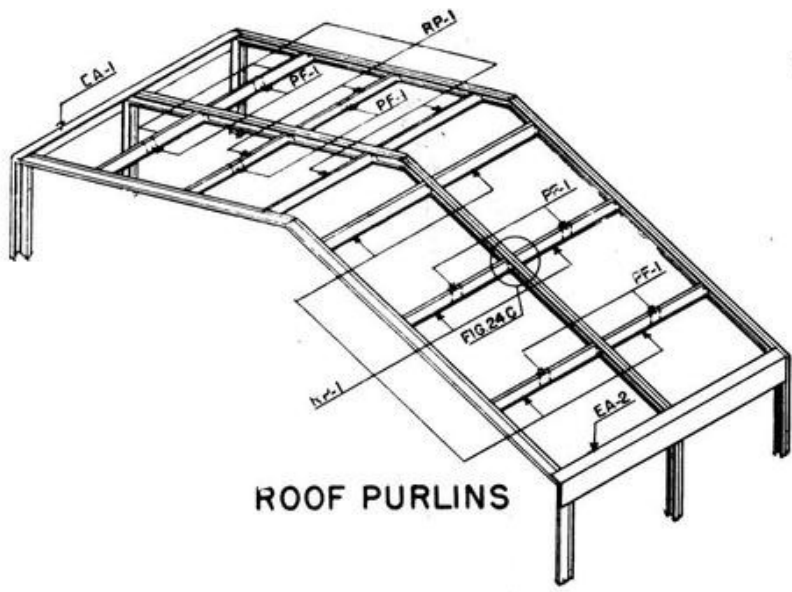
f. Apply eave angles EA-1 and EA-2 with CC-2 underneath.



Figure 22. Eave angles with floor and roof purlins in place and some wall panels raised into position.



*Figure 23. Roof and floor purlins in place. Interior view of erected building ends.*



ROOF PURLINS

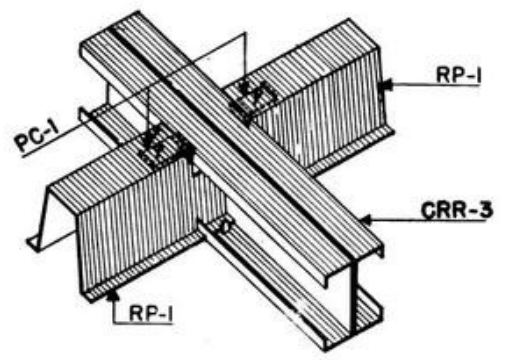


FIG. 24 C

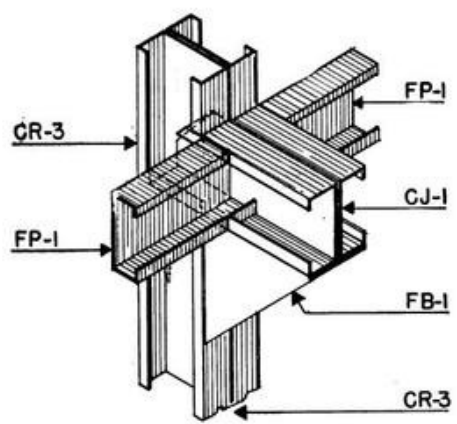


FIG. 24 A

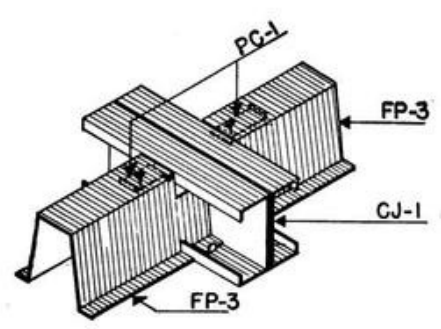
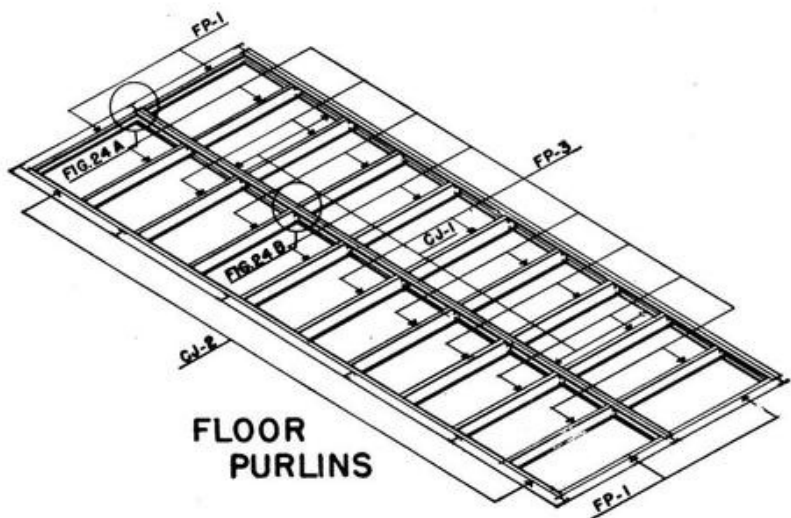


FIG. 24 B



FLOOR PURLINS

Figure 24. Floor and roof purlins.

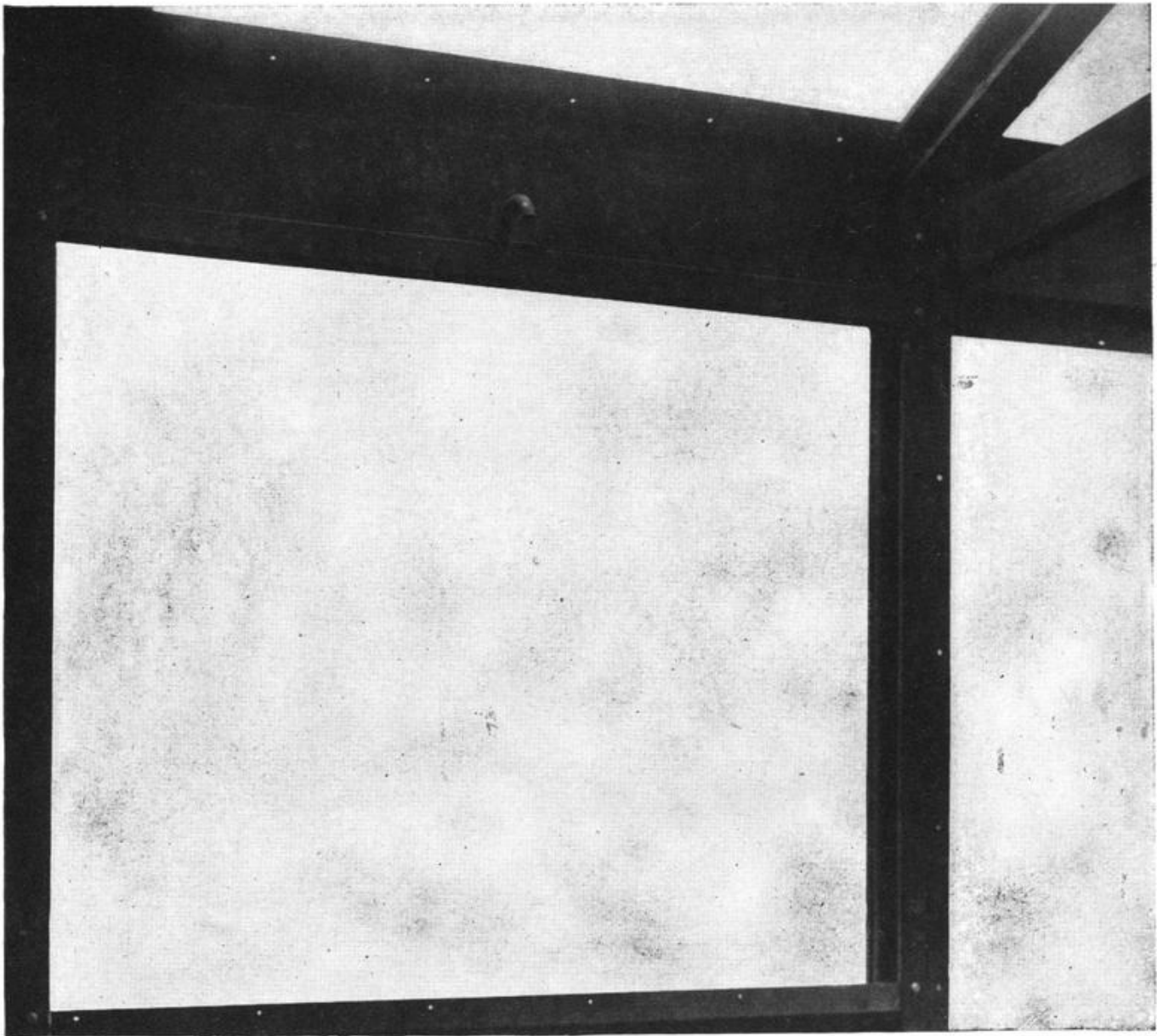


Figure 25. Detail showing window sill inserted and window head with chain guide.

g. Bend the edge of the gable panels at the ends to fit over and fasten with eave angle to rib member.

h. Insert floor purlins FP-1 and FP-3.

i. Insert balance of roof purlins RP-1.

j. Check end for plumb, line and square.

k. Back fill trenches.

### 15. Application of Roofing

a. The application of the corrugated roofing must start from the right hand end of each side with a RS-3 and progress toward the other end with RS-1's. The last roof panel at the left end of the building will be a RS-2. Lead washers are provided to be placed under all screws on roof exposed to the weather.

b. The RS-3 is fastened to the RC-2 thru the holes provided with 1" S.M. screws.

c. The RS-1's are overlapped on the previously placed panels, approximately 5", fastened together with  $\frac{1}{2}$ " S.M. screws thru field punched holes approximately 8" o.c. and fastened to the purlins thru the holes provided with 1" S.M. screws. The purlins must also be punched.

d. The RS-2 is also lapped and fastened to the previously laid panel and to RC-1.

e. Do not place screws at the top of each panel until after the ridge flashing and ventilators have been placed.

### 16. Raising of Exterior Wall Panels

a. As the roof panels are being applied the side walls should be raised.

b. The group of four panels is raised by first lifting panel CS-2 followed by a CS-1 which is





Figure 26. Building end erected and in place.

fastened under and to the CS-2 with two S.M. screws. The second CS-1 is then raised and fastened to and under the first CS-1. The remaining panel CS-1A is fastened to and under the second CS-1. Place at each side of the assembled panel, the erection clips SC-1 at approximately 8" centers, forcing the panel outward.

c. The group of two panels (under windows) are raised similarly, the CS-16 fastening over the lower CS-1A. Place at each side of the assembled panel, forcing the panel outward, the erection clips SC-2 at approximately 8" centers.

#### 17. Application of Ridge Flashing and Ventilators

a. For the extreme end of the roof, fasten a

RF-1 and RF-2 together and for the space between ventilators fasten two RF-3's together.

b. The ridge flashing may start from either end of the building with the assembled RF-1 and RF-2 followed by an assembled RF-3. It will be noted that the ventilators and RF-3 alternate along the ridge.

c. The lower edges of the RF members are fastened through the roof panels to the purlin which must be field punched with 1" S.M. screws and washers.

d. When the first two sections of ridge flashing are installed the first ventilator should be located, first placing corrugation closure CC-1 on the ends of the corrugated roofing. Before fastening the edges of the ventilator, which rests on top of the erected ridge flashing RF-3, be



Figure 27. Roofing panels applied.

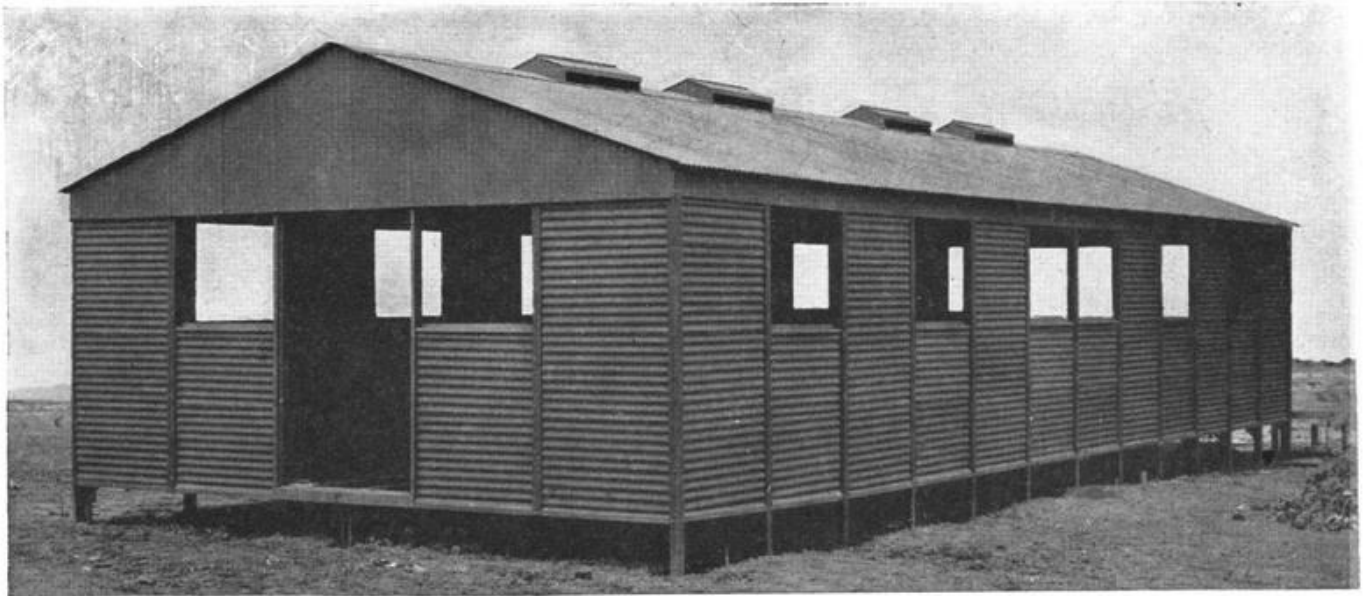


Figure 28. Ridge ventilators and flashing in place.

sure to slip the next RF-3 under the edge and fasten ventilator to each ridge flashing with 4 screws. The lower edge of the ventilator is also fastened, with 1" S.M. screws through the roofing panels to the purlins. Continue erecting roof flashings and ventilators for the entire length of building.

### 18. Installation of Windows

a. Insert in each WG the proper window slide member resting on the water table WT-1.

b. Lower the window sash behind the sash slide and fasten the slide sash to the exterior of sash with small screws provided.

c. A length of chain should be run through the chain guide, CG-1 and through the hole in the top of the sash. Place hook on each end of the chain.

d. Care should be taken in handling the sash as the material is easily subject to damage.

### 19. Installation of Doors

a. Three hinges should be fastened to each jamb with screws in the holes provided.

b. Place the doors in a closed position with several thickness of paper (approximately  $\frac{1}{8}$ ") under the bottom edge which will provide proper clearance and fasten the hinges to the door.

c. Apply  $\frac{1}{2}$ " x 2" wood astragal to the outside of door which has the lock.

d. Apply bolt to top of door (without lock) in such a manner that it will engage the downward flange of the door head stop. Apply bolt at bottom of the same door to fit hole in door sill.

e. Apply lock, door knobs and keeper.

f. Apply door buttons on sides of door to hold plywood panels open.

### 20. Laying of Floor Panels

a. All the floor purlins FP-3 should be installed at approximately 2'-0" centers and securely fastened. Figure 24, 24A, and 24B.

b. Lay all the plywood floor panels in place with the 10' dimension across the building. Care should be taken to align the flooring as much as possible. The side marked bottom should be down and when the necessary adjustment and fitting is complete fasten the flooring down with  $1\frac{1}{2}$ " drive screws in holes provided in the flooring.

c. The plywood floor should be protected as much as possible with the wrapping from the interior finish packages.

### 21. Interior Finish—End Walls (see fig. 32).

a. The interior finish is held in place by trim members marked with a "T" and also battens "B" held in place with batten clips "BC."

b. The screening for the windows is applied with the interior finish and is also held by the "T" members.

c. Caution should be taken as the packages of interior finish are uncrated that the panels are not dropped, damaged or marked. Some of the smaller pieces are part of the finish and should not be discarded as scrap. All cutting of holes should be done from the finish side, and if the back edges of the boards which fit into a U-shaped trim member are slightly beveled with a sharp knife, the insertion and erection will be greatly simplified. The position of the insulation board



Figure 29. Detail view of side wall panels showing window in place.

clips IBC-1 should be carefully checked with the batten member which will cover the joints between panels.

d. The interior finish of the end walls should be done first by applying a T-1 to the corner edge of a IB-3, a T-23 to the bottom and placing the panel into position.

e. A rectangular hole should be cut in each IB-8 and IB-9 panel where the chain guide occurs over the windows. Apply a T-3 to the top edge of a panel IB-8 (right hand) and a T-2 to the top of a IB-9 (left hand) and slide these panels into position. The T-3 (or T-2) should be fastened into position on the flange of the rib channel by means of the straps provided.

f. Insert panel IB-10 over door making sure that upper edge is in the groove of the T-3 and T-2. Fasten bottom to door head with a T-19. Batten B-5 will cover the edges.

g. Place a T-22 on the bottom of a IB-4 and a T-10 on the edge which will be at the door jamb. Put these panels into position and fasten the T-10 to the door jamb.

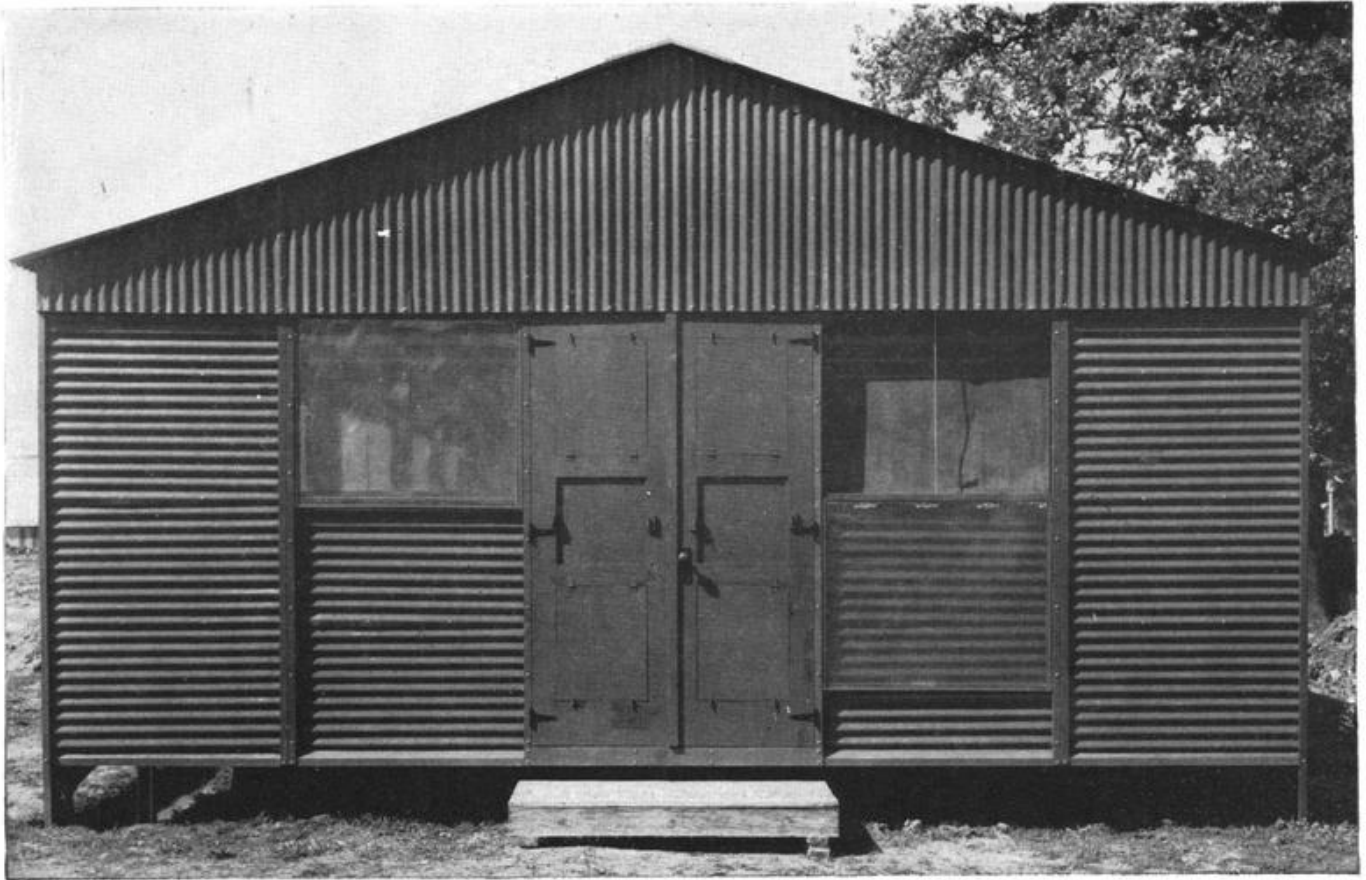
h. The window screening should be first applied under trim T-8 and fastened to the EWS. The opposite edge is under T-9 and fastened to the DS. The bottom edge is under T-24 or T-25 and is fastened to the window sill, the screen is then stretched upward under T-17 and fastened to the window head. Care should be exercised in trimming the screen not to mar the interior finish.

i. Apply T-16 and T-18 at the top of IB-3 and batten B-4 over joint between IB-3 and IB-4, fastening the B-4 by means of clips BC-2, slipped over the pin on IBC-1. All other trim is held in place by screws.

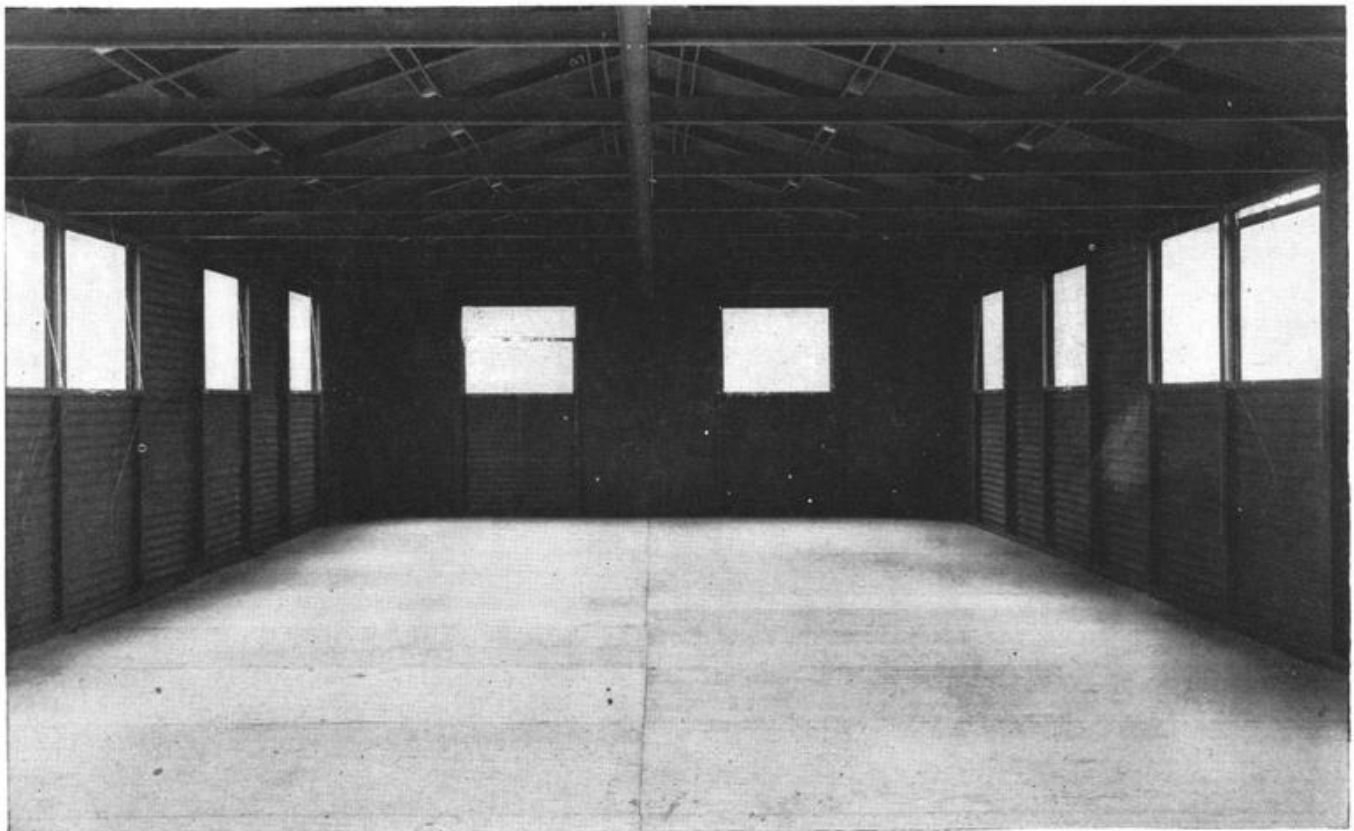
## 22. Interior Finish—Side Walls (see fig. 32)

a. The side wall finish is installed in a similar manner and consists of panels IB-2 and IB-5, see figure 32 for location and trim markings.

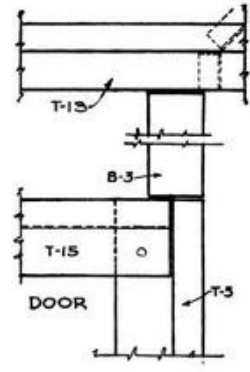
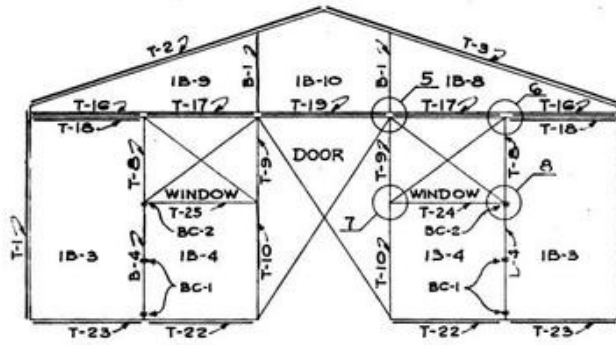
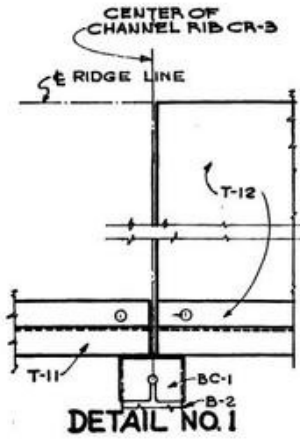
b. The IB-1 and IB-2 panels have a T-20 applied at the bottom before being set into position. The trim member T-13 is applied to the top of IB-1 after it is set into position. The



*Figure 30. Completed end of building.*

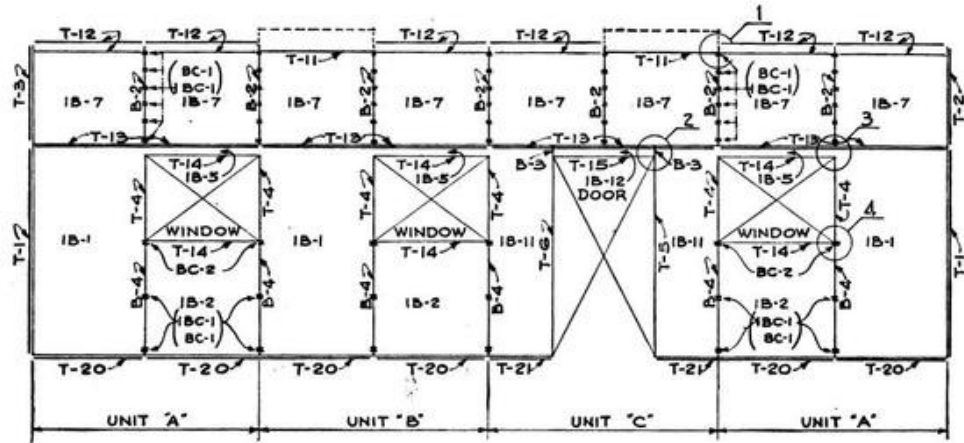
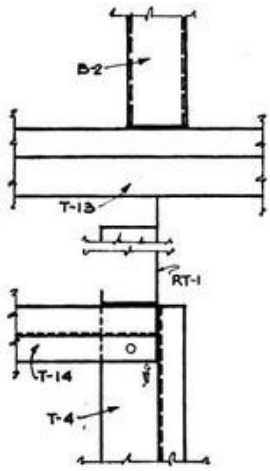


*Figure 31. Interior view showing plywood floor in place.*



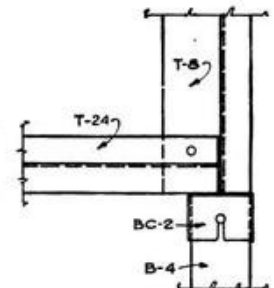
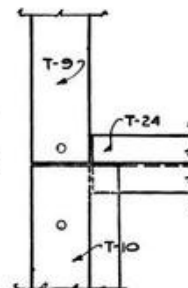
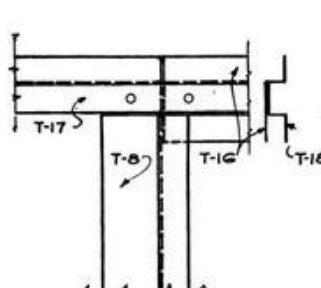
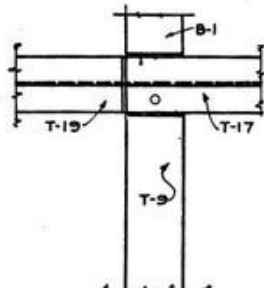
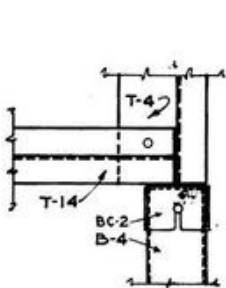
INTERIOR END ELEVATION

DETAIL NO. 2



DETAIL NO. 3

INTERIOR SIDE ELEVATION



DETAIL NO. 4

DETAIL NO. 5

DETAIL NO. 6

DETAIL NO. 7

DETAIL NO. 8

Figure 32. Interior finish.

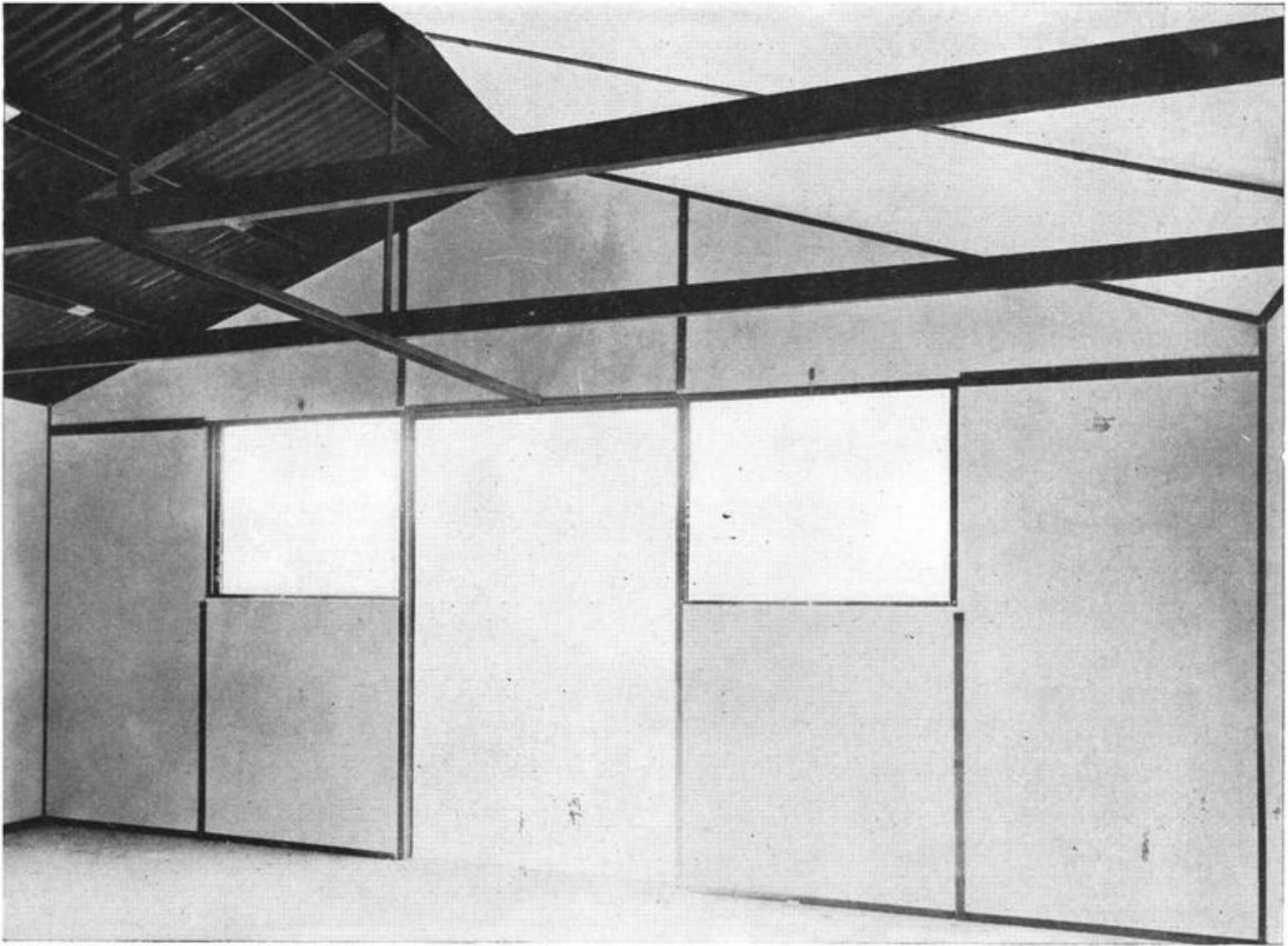


Figure 33. Interior finish applied to building end.

batten B-4 can be applied as soon as the adjacent IB-2 is in position.

*c.* The panels IB-5 should have a rectangular hole cut to fit over the chain guides. Care should be used in inserting this panel into T-13 and bowing it slightly to fit behind the RT-1's so as to prevent breakage. These panels should not be installed until the window screening has been installed and fastened at sides and bottom.

*d.* The window screens are installed by first fastening the left hand edge, allowing sufficient edge to fit under a trim member T-4 with  $\frac{1}{2}$ " screws through the T-4, screen and to the building rib. The bottom edge and right edge should be cut with proper allowance to fit behind the T-14 and T-4; the top edge should not be cut. Fasten the right edge under the T-4 stretching as much as possible. Fasten the bottom edge to the window sill, under the T-14. The ends of the window sill and T-14 will be fastened to the building ribs. The top of the screening is left long. The panel IB-5 should now be placed. By reaching over and behind the IB-5 panel

sufficient pull can be applied to the screening to obtain a satisfactory stretch as the T-14 is applied to the window head. The ends of the window head and trim T-14 will fasten to the building rib.

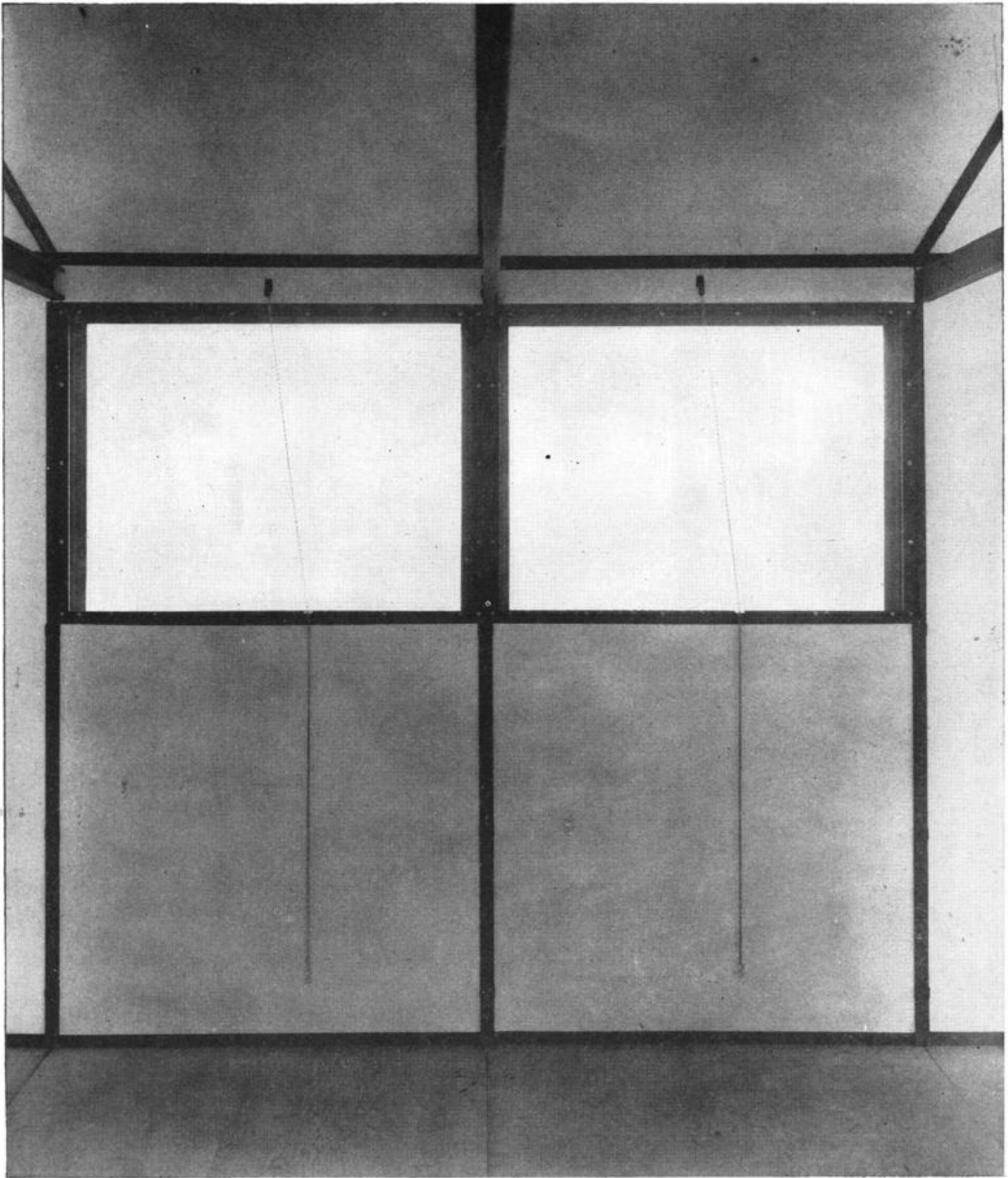
### 23. Interior Finish—Roof (see fig. 32)

*a.* The roof panels IB-7 are installed with a trim member T-12 or T-11 at top and fit into trim T-13 at the bottom. The beveling of the bottom of these panels is very helpful and if driving is necessary it should be done carefully with a block of wood and hammer.

*b.* Apply battens B-2 between IB-7 panels, slipping batten clips BC-1 onto the pin of the clip ICB-1.

*c.* Apply trim T-12 at ridge to cover the ends of two IB-7 and a T-11 at the end of each IB-7 where ventilators occur and fasten to the building rib.

*d.* A R.H. wood screw with a washer should be screwed through the finish into the wood block in the center of each purlin.



*Figure 34. Interior detail view at double windows with screening and windows in place.*

#### **24. Step Construction**

The steps are field constructed from crating material using 2" material of the wider sizes or if grade permits some of the crating boxes can be strengthened for use as steps.

#### **25. Assembly and Erection of Additional "B" Units**

- a.* Additional building Units "B" are packaged separately.
- b.* The assembly and erection of these addi-

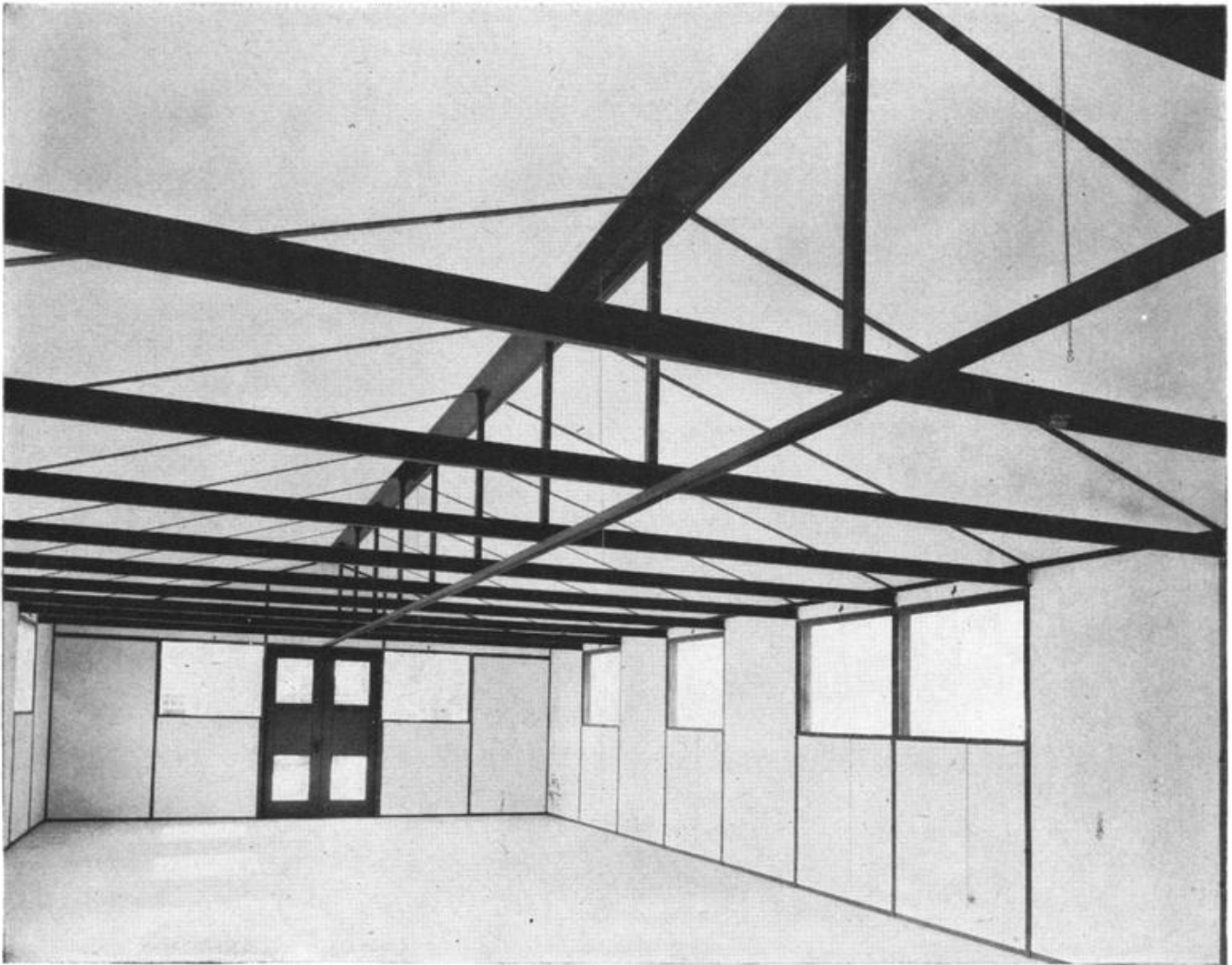


Figure 35. Interior view showing finish completed.

tional units is identical with that described for the intermediate 8'-0" units of a basic building. The members carry identical marks and are interchangeable with any part of an intermediate unit of basic building. See figure 36 for assembled unit.

## 26. Assembly and Erection of Additional "C" Units

a. Additional building Units "C" are packaged separately.

b. The procedure for assembly and erection is generally similar to a basic building. Some of the members are identical in size, marking and function as in a basic building, however certain members are different and bear markings of their own. The side walls of a "C" unit may be inserted at any point along the side wall which is a multiple of 8'-0", never at a point where an eave angle does not end. Therefore it should be predetermined exactly where they will be lo-

cated as it is necessary that corresponding members are installed at those points. See figure 37 for assembled unit.

c. The interior posts are marked CP-1 and the side wall post is CP-2. All the foot pieces are FC-1.

d. The corrugated panel on each side of the door consists of one CS-14A, two CS-14 and one CS-15.

e. The building rib should be assembled as described in paragraph 5. As the other building ribs are being raised a distance of 8'-0" apart the posts and CJ-1 joint of a Unit "C" should also be set into position. Several floor purlins should be placed to keep the joist in position.

f. The building ribs over door are composed of a CR-4 and CRR-4 joined by a splice plate SP-2, and are joined at the ridge by a splice channel SP-1. A RT-1 is also inserted similar to a regular building rib.

g. The eave angle EA-4 should be applied





with S.M. screws to the building ribs on each side of the space where the door will occur. The bottom screw will have to be removed later for the insertion of CC-8 and therefore should not be driven too tightly.

*h.* A water table WT-2 should be fastened to each erected CR-3 with S.M. screws. At the other end of each WT-2 fasten with the top screw only, a door jamb (DJ-1 to right DJ-2 to left) inserting the grouped corrugated panels between the rib and the door jamb. Between the jambs and with two screws (the lowest also hold the outer edge of the water table) fasten a door sill DS-1. A piece of crating material should be placed under the DS-1 on top of FP-2 for protection during erection.

*i.* The upper end of the jamb members are fastened to the eave angle EA-4 at the top hole only until the door head DH-1 has been placed between the jambs and between the inside face of the eave angle and the jamb. Be sure all these screws are securely driven.

*j.* Attach door stops AS-3 to head, AS-1 and AS-2 to jambs.

*k.* The rib CR-4 should now be raised and placed into position immediately fastening the

ends to the eave angle with six S.M. screws and the tie HT-1 must be fastened to bottom of each of the ribs. Several roof purlins should also be placed.

*l.* The erection of the roof panels and roof ventilator is identical to that described for a basic building.

*m.* The corrugated panels are raised by applying the first panel CS-14 to and under CS-15, the second CS-14 to and under the first CS-14 and CS-14A to and under the lower CS-14.

*n.* The door is installed as described for a basic building.

*o.* The floor is placed as described for a basic building.

*p.* The interior finish is installed in a similar manner as described for a basic building. The trim and panel markings are shown in figure 32.

*q.* The steps are field constructed from crating material.

## **27. Excess Material**

All excess screws, bolts and material should be carefully collected and stored for use if and when the buildings are re-erected.

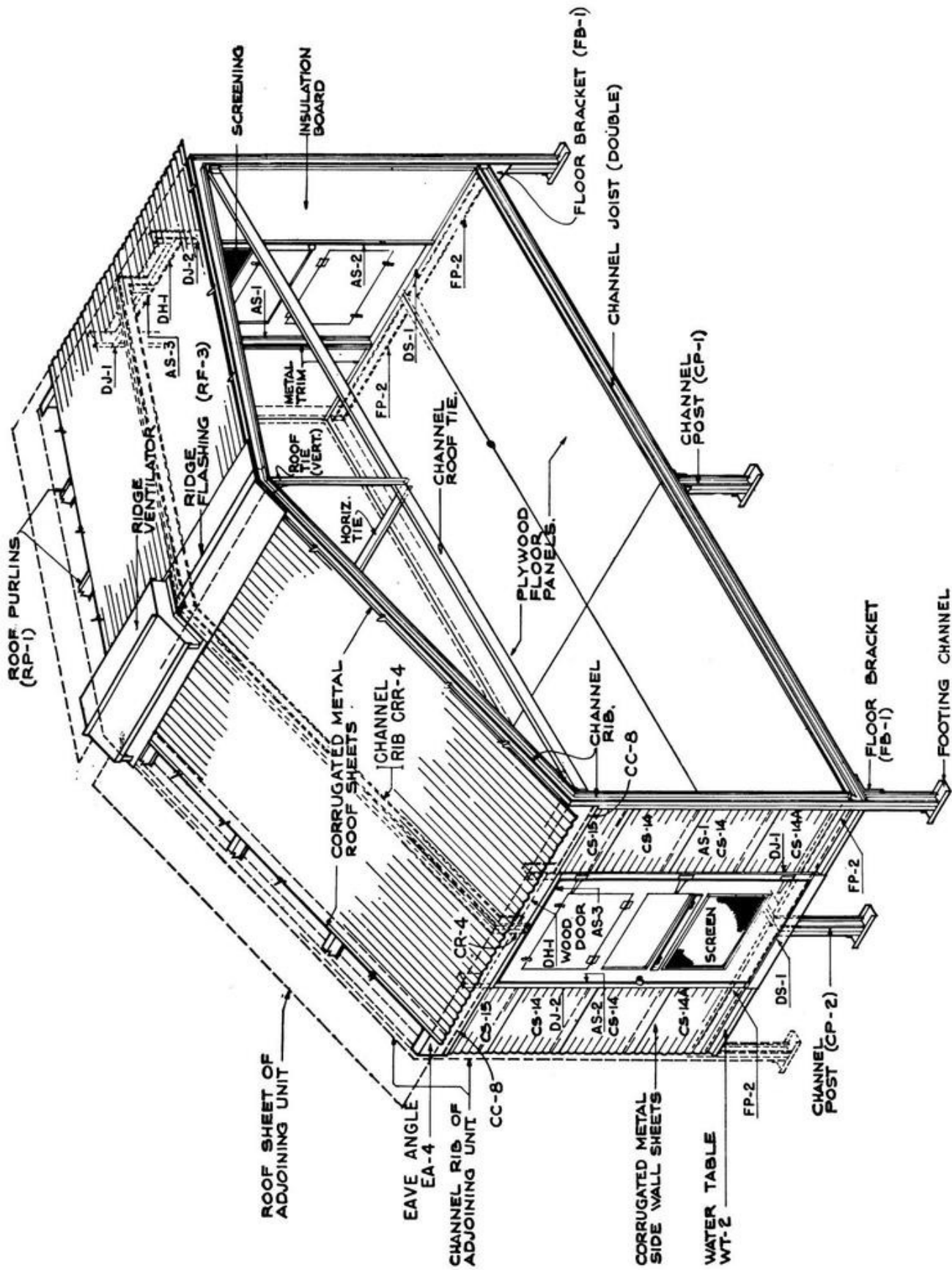


Figure 37. Isometric view of assembled building unit "C."

## 28. Lists of Parts and Markings

The following lists of parts arranged alphabetically, with mark and number, are to be separately stacked before assembling or erecting:

a. One complete 20' x 48' barrack, basic building:

Mark	Member	Number	Mark	Member	Number
AS-4	Angle stop door head	2	FC-1	Footing channel	35
AS-5	Angle stop door jamb	2	FC-2	Footing channel	4
AS-6	Angle stop door jamb	2	FP-1	Floor purlin	24
B-1	Batten interior	4	FP-3	Floor purlin	108
B-2	Batten, interior	22	GP-1	Gusset plate ridge	11
B-4	Batten, interior	26	GS-1	Gable stud	4
BC-1	Batten clips	194	HT-1	Horizontal tie	4
BC-2	Batten clips	28	HT-2	Horizontal tie	1
CA-1	Clip angles	26	HT-3	Horizontal tie	1
CA-2	Clip angles	44	IB-1	Insulation board	12
CA-3	Clip angles	2	IB-2	Insulation board	12
CB-1	Channel blocking	2	IB-3	Insulation board	4
CC-1	Corrugation closure	8	IB-4	Insulation board	4
CC-2	Closure at eave angle	12	IB-5	Insulation board	12
CC-3	Corrugation closure	2	IB-7	Insulation board	24
CC-4	Corrugation closure	2	IB-8	Insulation board	2
CC-5	Corrugation closure	2	IB-9	Insulation board	2
CC-6	Corrugation closure	2	IB-10	Insulation board	2
CC-7	Corrugation closure	2	IBC-1	Insulation board clips	222
CG-1	Chain guide	16	PC-1	Purlin clips	428
CH-1	Chain hooks	16	PF-1	Purlin filler	48
CJ-1	Channel joist	11	RC-1	Corner roof channel	2
CJ-2	Channel joist	2	RC-2	Corner roof channel	2
CK-1	Chain keeper	4	RF-1	Ridge flashing	2
CP-1	Channel post	13	RF-2	Ridge flashing	2
CR-1	Channel rib	2	RF-3	Ridge flashing	12
CR-2	Channel rib	2	RP-1	Roof purlins	72
CR-3	Channel rib	22	RS-1	Corr. roof sheets	46
CRR-1	Channel rib roof	2	RS-2	Corr. roof sheets	2
CRR-2	Channel rib roof	2	RS-3	Corr. roof sheets	2
CRR-3	Channel rib roof	22	RT-1	Roof tie	11
CS-1	Corr. wall sheets	32	RV-1	Ridge vent sections	8
CS1-A	Corr. wall sheets	32	RV-2	Ridge vent sections	8
CS-2	Corr. wall sheets	16	RV-3	Ridge vent sections	4
CS-3	Corr. wall sheets	2	RV-4	Ridge vent sections	4
CS-4	Corr. wall sheets	2	RV-5	Ridge vent sections	16
CS-5	Corr. wall sheets	2	RV-6	Ridge vent pulley	8
CS-6	Corr. wall sheets	2	RV-7	Ridge vent screen	4
CS-7	Corr. wall sheets	2	RV-8	Ridge vent damper	8
CS-8	Corr. wall sheets	2	SB-1	Sill bracket	4
CS-9	Corr. wall sheets	2	SC-1	Erection clips	370
CS-10	Corr. wall sheets	2	SC-2	Erection clips	200
CS-11	Corr. wall sheets	2	SJA-1	Smoke jack adapter	8
CS-12	Corr. wall sheets	2	SP-1	Splice channel	24
CS-13	Corr. wall sheets	2	SP-2	Splice plate	48
CS-16	Corr. wall sheets	16	T-1	Trim, interior	4
DH-2	Door head	2	T-2	Trim, interior	2
DJ-3	Door jamb	2	T-3	Trim, interior	2
DJ-4	Door jamb	2	T-4	Trim, interior	20
DS-2	Door sill	2	T-8	Trim, interior	4
EA-1	Eave angle	2	T-9	Trim, interior	4
EA-2	Eave angle	2	T-10	Trim, interior	4
EA-3	Eave angle	8	T-11	Trim, interior	8
EWS-1	End wall stud	2	T-12	Trim, interior	8
EWS-2	End wall stud	2	T-13	Trim, interior	12
FB-1	Floor bracket	26	T-14	Trim, interior	24

Mark	Member	Number
T-16	Trim, interior.....	4
T-17	Trim, interior.....	4
T-18	Trim, interior.....	4
T-19	Trim, interior.....	4
T-20	Trim, interior.....	24
T-22	Trim, interior.....	4
T-23	Trim, interior.....	4
T-24	Trim, interior.....	2
T-25	Trim, interior.....	2
T-26	Trim, interior.....	2
VT-1	Roof tie.....	11
WC-1	Corner wall channel.....	2
WC-2	Corner wall channel.....	2
WG-1	Window guide.....	16
WG-2	Window guide.....	16
WH-1	Window head.....	12
WP-1	Channel plate.....	2
WS-1	Window sill.....	16
WT-1	Water table.....	32
	Doors.....	4
	Plywood floor panels.....	24
	Window sash.....	16

Mark	Member	Number
	Window screens.....	16
	1/2" x #14 SM screws.....	1028
	5/8" x #14 SM screws.....	2488
	1" x #14 SM screws.....	889
	5/8" x #8 SM screws.....	40
	1 1/2" x #10 R.H. wood screws.....	53
	3/4" x #8 F.H. wood screws.....	53
	1 1/2" x #12 drive screws.....	480
	1/2" x 3/4" machine bolts and nuts.....	155
	1/2" x 1" machine bolts and nuts.....	106
	1/2" x 1" cut head machine bolts and nuts.....	8
	1/4" x 1 1/4" machine bolts.....	448
	1/4" steel washers.....	53
	5/8" O.D. lead washers.....	1408
	5" T hinges.....	12
	6" spring bolts.....	4
	Locks.....	2 sets
	Ventilator chain.....	4
	Window chain.....	16
	Chain hooks.....	26
	5# roofing cement.....	1
	S.M. punch.....	1

b. One Complete Additional "B" Unit:

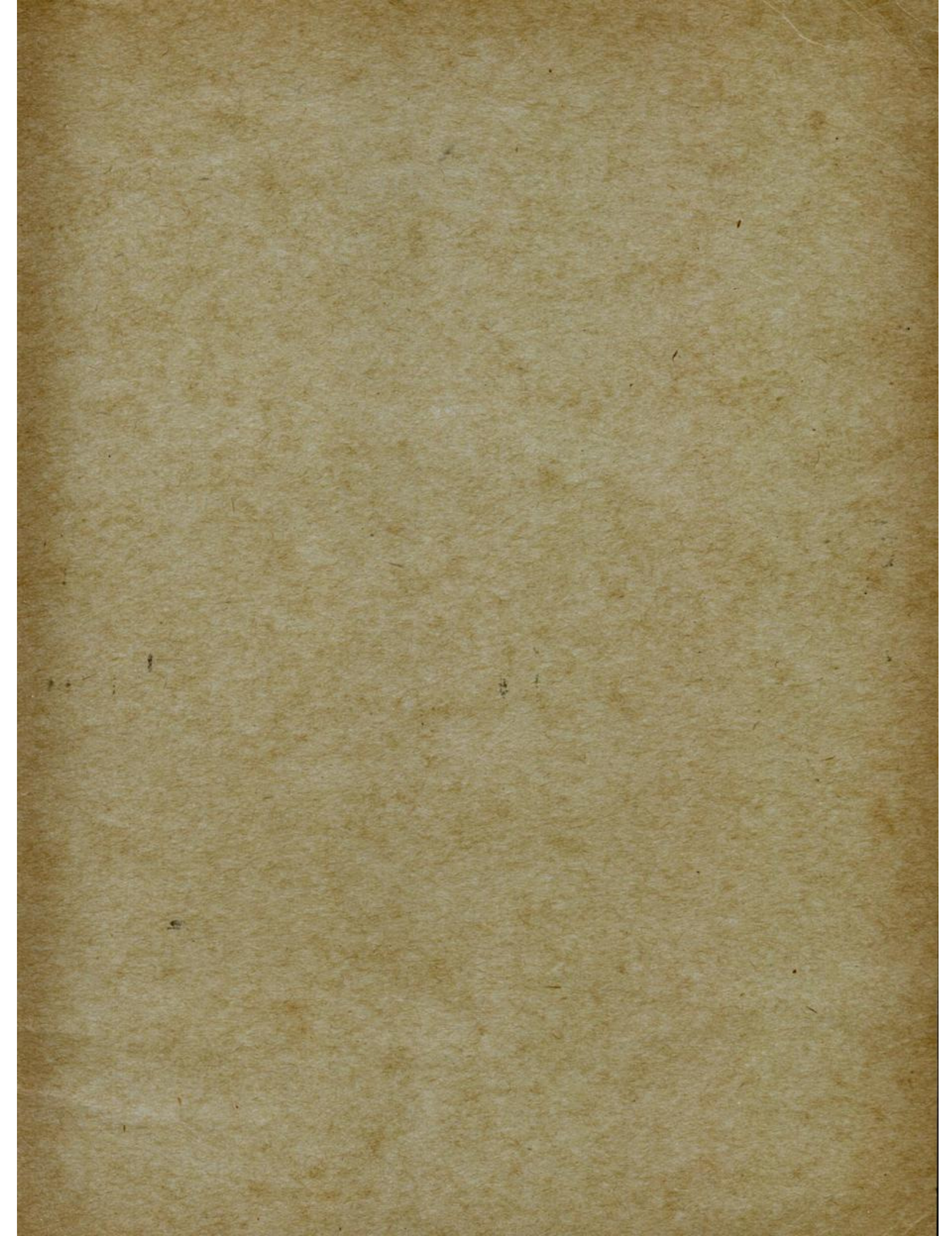
Mark	Member	Number
B-2	Battens, interior.....	4
B-4	Batten, interior.....	4
BC-1	Batten clips.....	32
BC-2	Batten clips.....	4
CA-1	Clip angles.....	4
CA-2	Clip angles.....	8
CC-1	Corr. closure.....	2
CC-2	Corr. closure.....	2
CG-1	Chain guide.....	2
CH-1	Chain hooks.....	2
CJ-1	Channel joist.....	2
CK-1	Chain keeper.....	1
CP-1	Channel post.....	2
CR-3	Channel rib.....	4
CRR-3	Channel rib roof.....	4
CS-1	Corr. wall panels.....	4
CS1-A	Corr. wall panels.....	4
CS-2	Corr. wall panels.....	2
CS-16	Corr. wall panels.....	2
EA-3	Eave angle.....	2
FB-1	Floor bracket.....	4
FC-1	Footing channel.....	6
FP-1	Floor purlins.....	4
FP-3	Floor purlins.....	18
GP-1	Gusset plate.....	2
HT-1	Horizontal tie.....	1
IB-1	Insulation board.....	2
IB-2	Insulation board.....	2
IB-5	Insulation board.....	2
IB-7	Insulation board.....	4

Mark	Member	Number
IBC-1	Insulation bd. clips.....	36
PC-1	Purlin clips.....	70
PF-1	Purlin filler.....	8
RF-3	Ridge flashing.....	2
RP-1	Roof purlins.....	12
RS-1	Roof sheets.....	8
RT-1	Roof tie.....	2
RV-1	Ridge vent sections.....	2
RV-2	Ridge vent sections.....	2
RV-3	Ridge vent sections.....	1
RV-4	Ridge vent sections.....	1
RV-5	Ridge vent sections.....	4
RV-6	Ridge vent sections.....	2
RV-7	Ridge vent sections.....	1
RV-8	Ridge vent sections.....	2
SC-1	Erection clips.....	50
SC-2	Erection clips.....	30
SP-1	Splice channel.....	4
SP-2	Splice plate.....	8
T-4	Trim, interior.....	4
T-11	Trim, interior.....	2
T-12	Trim, interior.....	1
T-13	Trim, interior.....	2
T-14	Trim, interior.....	4
T-20	Trim, interior.....	4
VT-1	Roof tie.....	2
WG-1	Window guide.....	2
WG-2	Window guide.....	2
WH-1	Window head.....	2
WS-1	Window sill.....	2

Mark	Member	Number	Mark	Member	Number
WT-1	Water table.....	4		1½" x #12 drive screws.....	80
	Plywood floor panels.....	4		½" x ¾" machine bolts and nuts.....	24
	Window sash.....	2		½" x 1" machine bolts and nuts.....	16
	Window screens.....	2		¼" x 1¼" machine bolts.....	72
	½" x #14 S.M. screws.....	144		¼" steel washers.....	10
	⅝" x #14 S.M. screws.....	260		⅝" O.D. lead washers.....	200
	1" x #14 S.M. screws.....	136		Ventilator chain.....	1
	⅝" x #8 S.M. screws.....	10		Window chain.....	2
1¼" x #10 R.H. wood screws.....	10	Chain hooks.....	6		

c. One Complete Additional "C" Unit.

Mark	Member	Number	Mark	Member	Number
AS-1	Door stop.....	2	RS-1	Roof sheets.....	8
AS-2	Door stop.....	2	RT-1	Roof tie.....	2
AS-3	Door stop.....	2	RV-1	Ridge vent section.....	2
B-2	Interior batten.....	4	RV-2	Ridge vent section.....	2
B-3	Interior batten.....	4	RV-3	Ridge vent section.....	1
B-4	Interior batten.....	2	RV-4	Ridge vent section.....	1
BC-1	Batten clips.....	34	RV-5	Ridge vent section.....	4
CA-1	Clip angles.....	4	RV-6	Ridge vent section.....	2
CA-2	Clip angles.....	8	RV-7	Ridge vent section.....	1
CC-1	Corr. closure.....	2	RV-8	Ridge vent section.....	2
CC-8	Corr. closure.....	4	SC-1	Erection clips.....	96
CJ-1	Channel joist.....	2	SP-1	Splice channel.....	4
CK-1	Chain keeper.....	1	SP-2	Splice plate.....	2
CP-1	Channel post.....	2	T-5	Trim, interior.....	2
CP-2	Channel post.....	2	T-6	Trim, interior.....	2
CR-3	Channel rib.....	2	T-11	Trim, interior.....	2
CR-4	Channel rib.....	2	T-12	Trim, interior.....	1
CRR-3	Channel rib roof.....	2	T-13	Trim, interior.....	2
CRR-4	Channel rib roof.....	2	T-15	Trim, interior.....	2
CS-14	Corr. wall panels.....	8	T-21	Trim, interior.....	4
CS-14A	Corr. wall panels.....	4	VT-1	Roof tie.....	2
CS-15	Corr. wall panels.....	4	WT-2	Water table.....	4
DH-1	Door head.....	2	Doors.....	2	
DJ-1	Door jamb.....	2	Plywood floor panels.....	4	
DJ-2	Door jamb.....	2	½" x #14 S.M. screws.....	144	
DS-1	Door sill.....	2	⅝" x #14 S.M. screws.....	300	
EA-4	Eave angle.....	2	1" x #14 S.M. screws.....	136	
FB-1	Floor bracket.....	4	⅝" x #8 S.M. screws.....	10	
FC-1	Footing channel.....	6	1¼" x #10 R.H. wood screws.....	10	
FP-2	Floor purlins.....	4	¾" x #8 F.H. wood screws.....	44	
FP-3	Floor purlins.....	18	1½" x #12 drive screws.....	80	
GP-1	Gusset plate.....	2	½" x ¾" machine bolts and nuts.....	24	
HT-1	Horizontal tie.....	1	½" x 1" machine bolts and nuts.....	8	
IB-7	Insulation board.....	4	¼" x 1¼" machine bolts.....	72	
IB-11	Insulation board.....	4	¼" steel washers.....	10	
IB-12	Insulation board.....	2	⅝" O.D. lead washers.....	200	
IBC-1	Insulation bd. clips.....	34	T hinges.....	6	
PC-1	Purlin clip.....	70	Locks.....	2 sets	
PF-1	Purlin filler.....	8	Ventilator chain.....	1	
RF-3	Ridge flashing.....	2	Chain hooks.....	3	
RP-1	Roof purlins.....	12			



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