

ACOUSTIC/THERMAL SYSTEMS
AT PANEL
SOLUTIONS

ASSEMBLY INSTRUCTIONS



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INTRODUCTION

This booklet is a general guide for the assembly of the FläktGroup® SEMCO®’s Acoustical Panel Enclosures. Carefully read and understand these instructions and any additional instructions on the panel layout drawings before you begin assembling the enclosure. Should you have any questions concerning the assembly procedure, please contact your SEMCO representative.

BEFORE ASSEMBLY

- Special instructions and/or details on the panel layout drawings take precedence over the assembly instructions. Self-drilling #14 x 3/4” Hex Head Tek screws are included for the panel trim supplied. (Pan Head screws will require pilot holes.)
 - Butyl rubber sealant is supplied for panel and trim installation but is not required for trim pieces that are joined to the perforated panel skin unless otherwise
- noted [refer to Step #4.] -Sikaflex is supplied for door installation [refer to Figure 4.]

 - Sealants are to be applied in accordance with manufacturer’s instructions.
 - Store sealants in accordance with manufacturer’s instructions. If the sealant is exposed to certain weather conditions or is too old, enclosure may leak after unit is completely erected.

GENERAL NOTES

Check shipment when it arrives against the bill of materials [included with drawings.] Notify SEMCO within seven days of receipt of panels in case of shortages or damages. FläktGroup SEMCO Duct & Acoustical Products Inc. will not be liable for any shortages or damages claimed beyond seven days. **NOTE:** Having panels on edge with male edge down usually facilitates selection and accessibility. If enclosure is not to be assembled immediately or if panels are exposed to the weather, take appropriate measures to keep panels dry and allow air circulation between panels. Maintain a clean work area to avoid debris and dust from collecting on panels, curbs and sealant.

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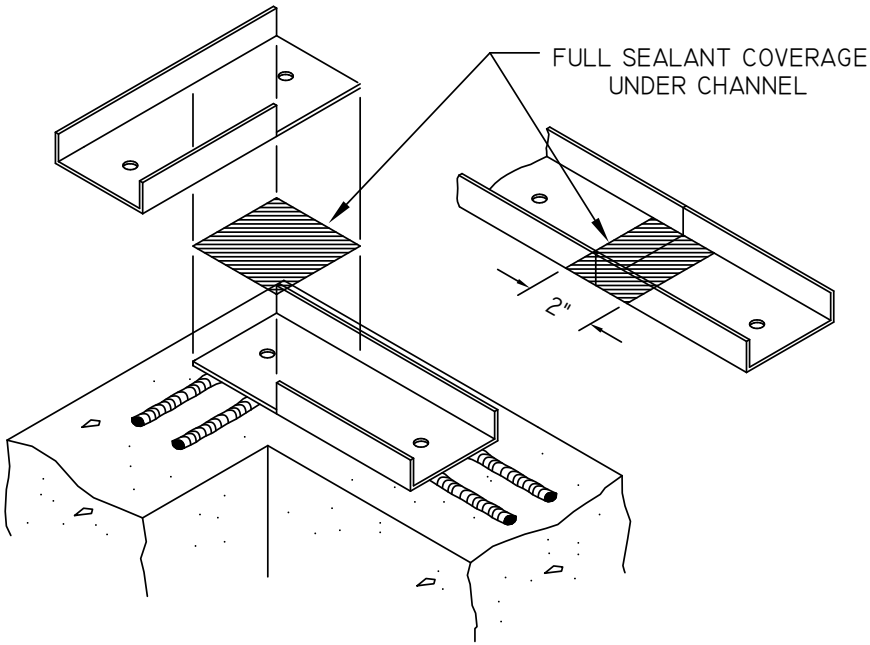
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STEP 1: BASE CHANNEL

- 1.1** Using the plan view on the panel layout drawings, chalk a line, using the outside dimensions of the enclosure, directly on the curb (or finished structural floor.)
- 1.2** Base channels are supplied in 10 ft. lengths with 9/16” holes punched on 24” centers. Cut the base channel to lengths required by the casing outline.

Straight joints are to be butted end-to-end and corner joints are to be lapped. (Figure 1)

FIGURE 1.

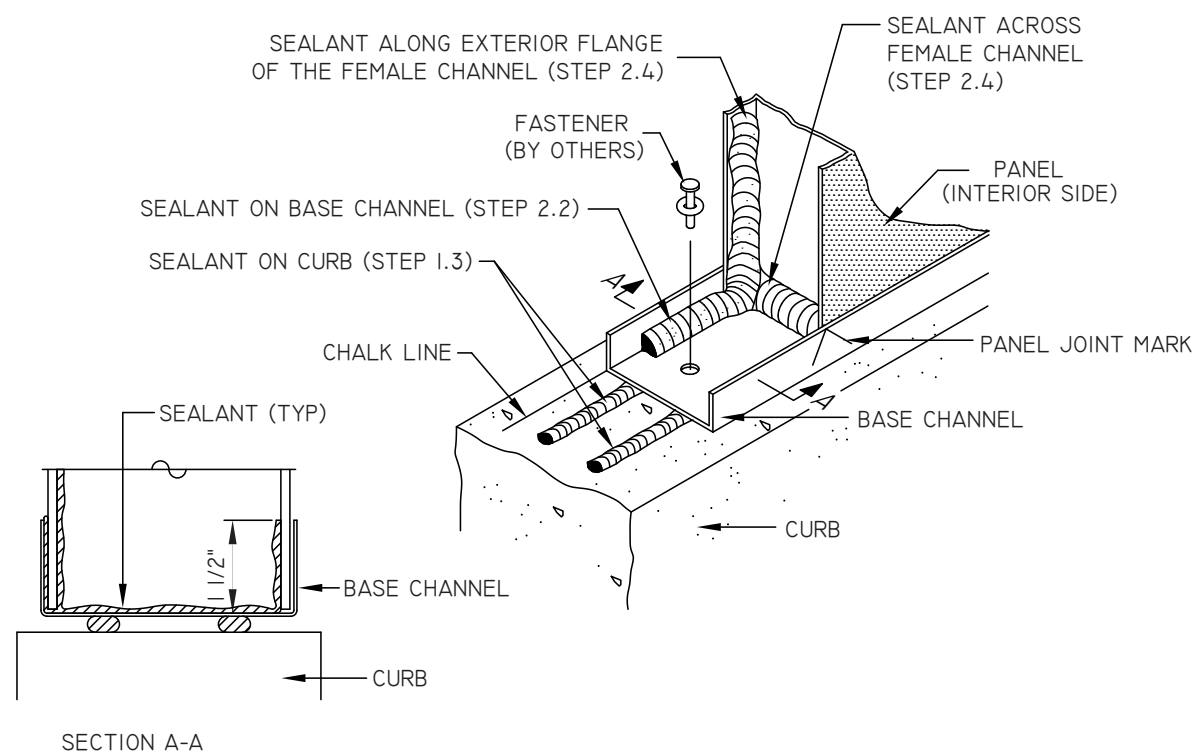


STEP 1: BASE CHANNEL, CONTINUED

1.3 Sweep curb to remove all dust and debris prior to applying sealant. Apply two ½" continuous beads of butyl sealant directly on curb approximately ½"-1" on either side of the base channel centerline. (Figure 2) Do not apply more sealant at one time than will be covered by the base channel within 15 minutes.

1.4 Place the base channel on sealant keeping the outside edge aligned with the chalk line. Secure base channel to curb with ramset, concrete anchor, expansion studs or other suitable fasteners with 2,000 lbs. shear and pullout (these fasteners are not supplied by SEMCO Duct & Acoustical Products Inc.)

FIGURE 2.



STEP 2: WALL PANEL INSTALLATION

2.1 Using the panel layout drawings follow the wall panel sequence indicated. Beginning with wall #1, mark the dimensioned panel joint for each panel on the base channel for the entire perimeter of the casing. (Figure 2) Take into account the exposed 1" male edge allowance where indicated on drawings. This step will provide a reference point for the location of each panel and will serve to detect and correct any growth in the wall length.

2.2 Apply a 1/2" high by ½" wide continuous bead of butyl sealant to the outer flange of the base channel for a distance slightly greater than the panel to be installed. Do not apply sealant too far in advance to avoid premature curing or collection of debris.

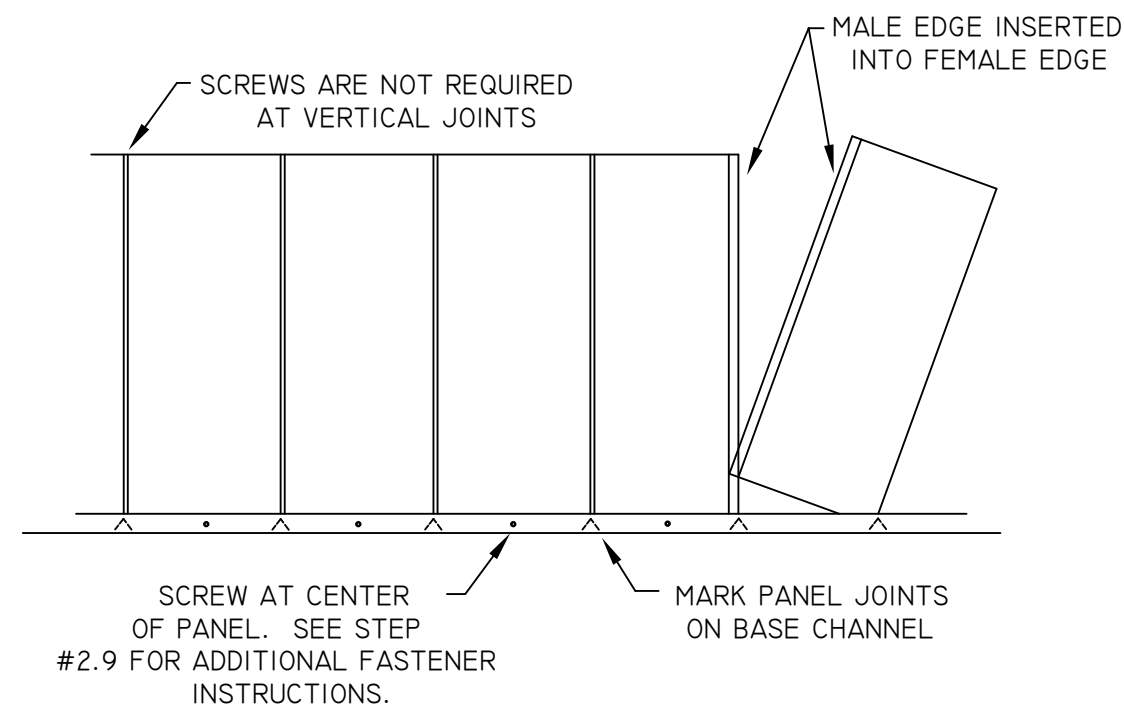
2.3 All panels are individually piece-marked as indicated on the panel layout drawings and are labeled with these mark numbers on each panel.

Install the first panel, keeping the panel joint aligned with the mark on the base channel. Make certain that the male (<) and female (=) edges are properly oriented as indicated on the panel layout drawings.

2.4 Plumb the panel and install a Tek screw through the base channel at the centerline of the panel, inside and outside (Figure 3.) Apply sealant generously the entire length of the exterior flange of the female channel; make certain that the sealant ties into the sealant in the base channel. Continue sealant across the female channel where it meets the base channel and 1 ½" up the interior flange of the female channel. (Figure 2)

2.5 Install the next panel in sequence by placing the female edge near the next joint mark on the base channel. With the panel tilted about 12" above the base, slip the male edge into the female edge of the previously installed panel and lower male edge into place. (Figure 3) Keep in mind that the panels must be installed with the male edge inserted into the female edge.

FIGURE 3.



STEP 2: WALL PANEL INSTALLATION, CONTINUED

Adjust the position of the panel horizontally so that the panel is centered between the joint line marks on the base channel. If necessary, carefully drive the panel into position by driving against a timber placed in the female channel of the panel. Take extreme care not to damage the roll-formed edges.

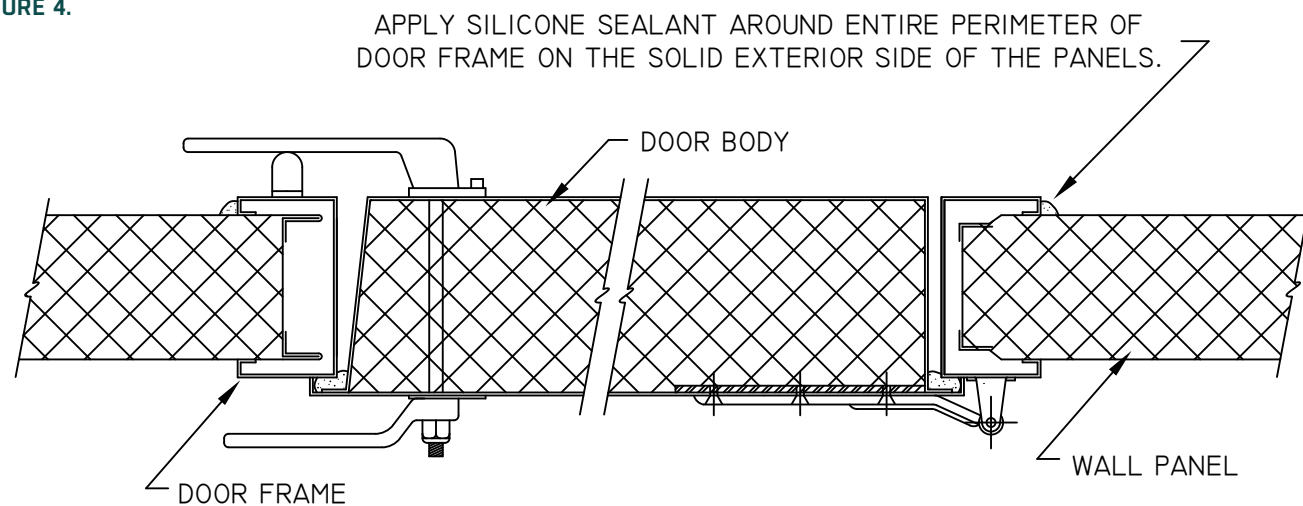
2.6 Install a Tek screw on the inside of the panel joint 3" below the top to maintain plumb; however, no additional screws are required in vertical joints for structural rigidity.

2.7 Continue installing panels as described following the sequence shown on the panel layout drawings. As each panel is installed, the joint line mark previously placed on the base channel will verify the location of each panel point.

2.8 Door frame installation must coincide with the panel installation. It is impossible to put them in at a later date. Doors must be installed to open against air pressure to ensure an airtight seal. Caulk the exterior perimeter of the door frame with silicone sealant. (Figure 4)

2.9 IMPORTANT: After installation of all wall panels is complete, Tek screw both sides of base channel through each panel joint and at 12" on center between joints.

FIGURE 4.



STEP 3: ROOF PANEL INSTALLATION

3.1 Review the roof plan on the panel layout drawings and locate roof panels. If structural reinforcement is required, it must be installed prior to the roof panels.

3.2 Install inside trim at the joint where the roof and walls meet. The upper edge of the trim must be level and flush with the highest point of the wall panels. (Figure 5) Fasten the trim to the assembled wall panels with Tek screws through every panel joint and at 12" on center between joints.

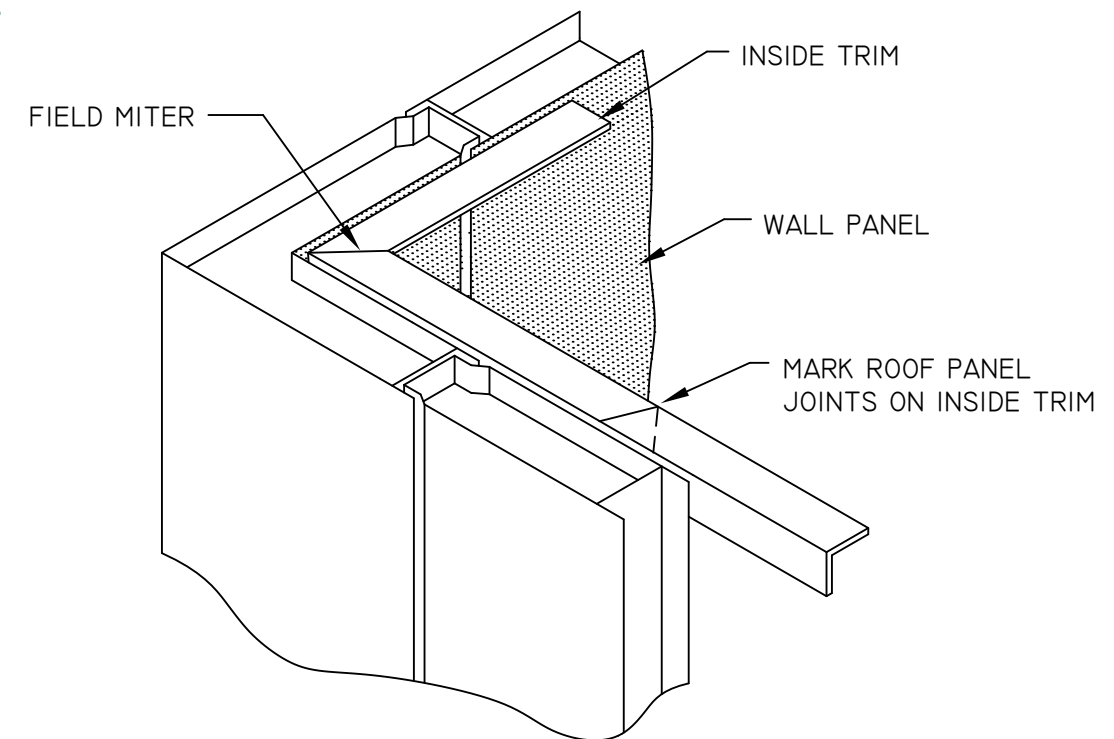
3.3 Mark roof panel joints (as dimensioned on the panel layout drawings) on the inside trim before installing roof panels. (Figure 5) Take into account the 1" male edge allowance where indicated on the drawing.

3.4 Install the first roof panel keeping the joint aligned with the mark on the inside trim. Square the panel with the walls and fasten both ends of the roof panel through the inside trim near the centerline of the panel with Tek screws. Make certain that the male (<) and female (=) edges are properly oriented as shown on the panel layout drawings. Keep in mind that the panels must be installed with the male edge inserted into the female edge.

3.5 Apply sealant generously to the exterior flange in the female channel on the previously installed roof panel and install next panel. Again, it is important to maintain proper alignment with the joint line marks on the inside trim.

3.6 After installation of all roof panels is complete, Tek screw inside trim through roof panel joints, internal channels, and at 12" on center.

FIGURE 5.



STEP 4: TRIM INSTALLATION

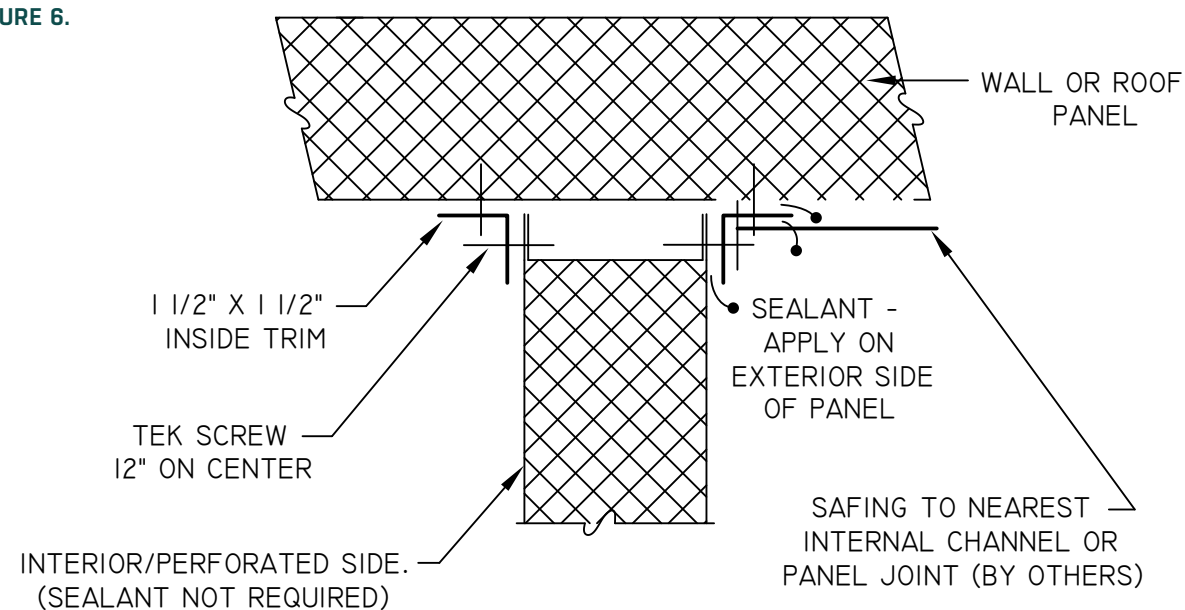
4.1 All trim is supplied in 10 ft. lengths to be field cut to length as necessary. Trim is to be secured to panels with selfdrilling Tek screws through each panel joint, internal stiffener and at 12" on center.

4.2 Install inside trim where interior wall panels meet exterior wall panel. (Figure 6) Sealant is not required for trim pieces that are joined to interior, perforated panel skin. (Figure 6)

4.3 Apply butyl sealant to both legs of outside trim and install vertical outside trim where preformed corner panels are not used. Attach the trim such that it runs from the top of the roof panels to the curb overlapping the base channel. Field notch kicks at trim overlapping the base channel. (Figure 7)

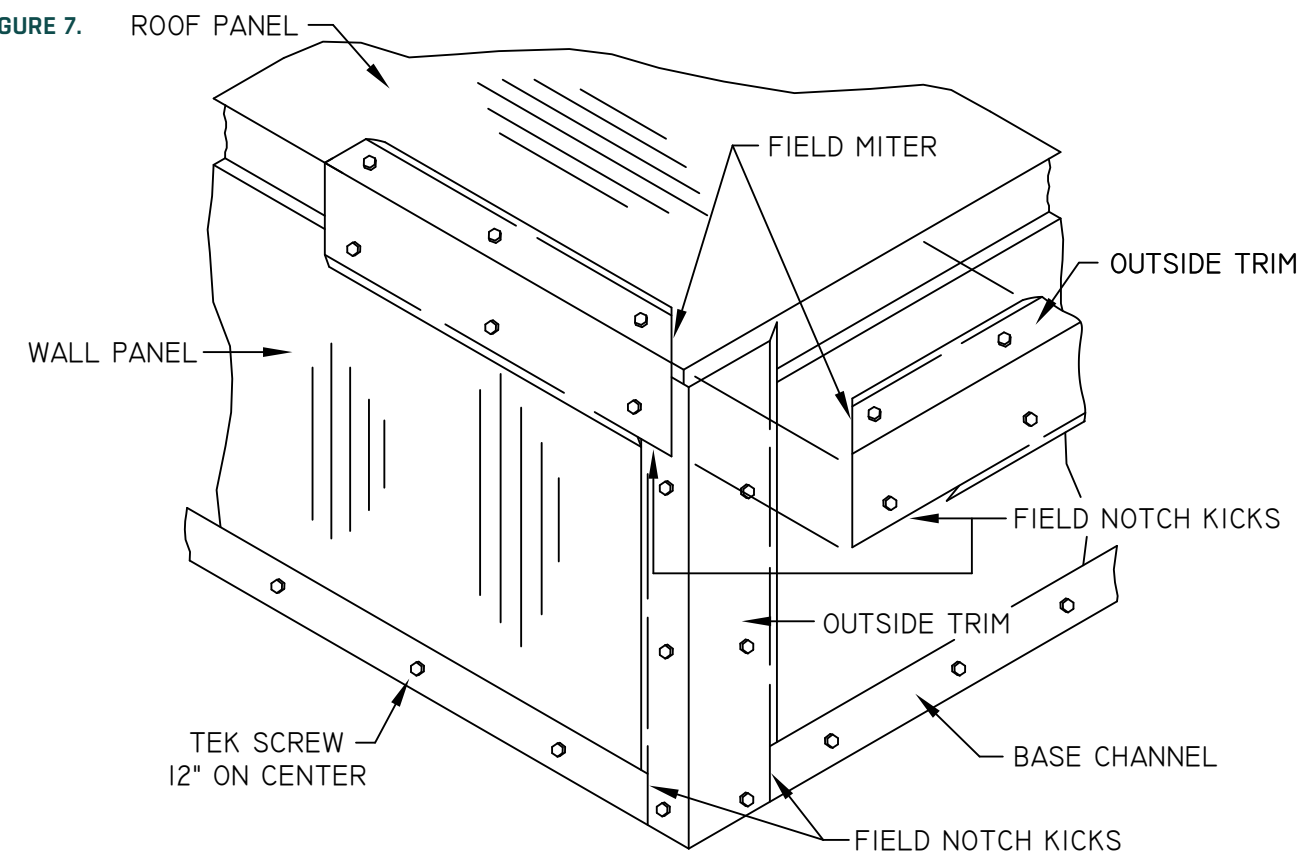
Attach vertical inside trim along interior corners where preformed corner panels are not used.

FIGURE 6.



STEP 4: TRIM INSTALLATION, CONTINUED

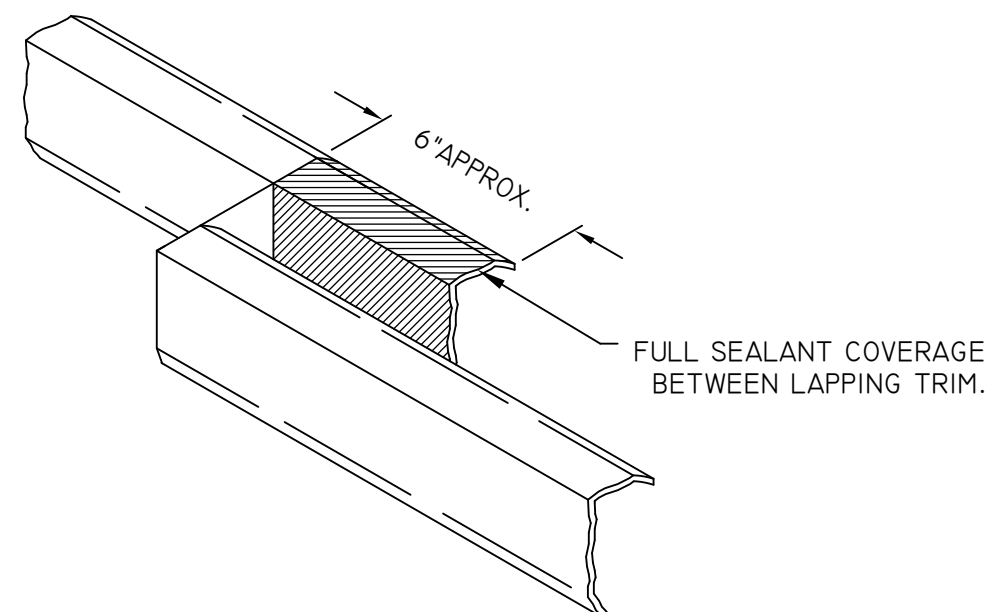
FIGURE 7.



4.4 Apply butyl sealant to both legs of horizontal outside trim and fasten to roof and wall panels providing a tight seal. (Step #4.1) Field notch kicks at trim overlap and miter as required. (Figure 7)

4.5 Where splices are necessary, overlap trim by 6" and coat the overlap with butyl sealant. Install Tek screws at center of overlap and 1" beyond. (Figure 8)

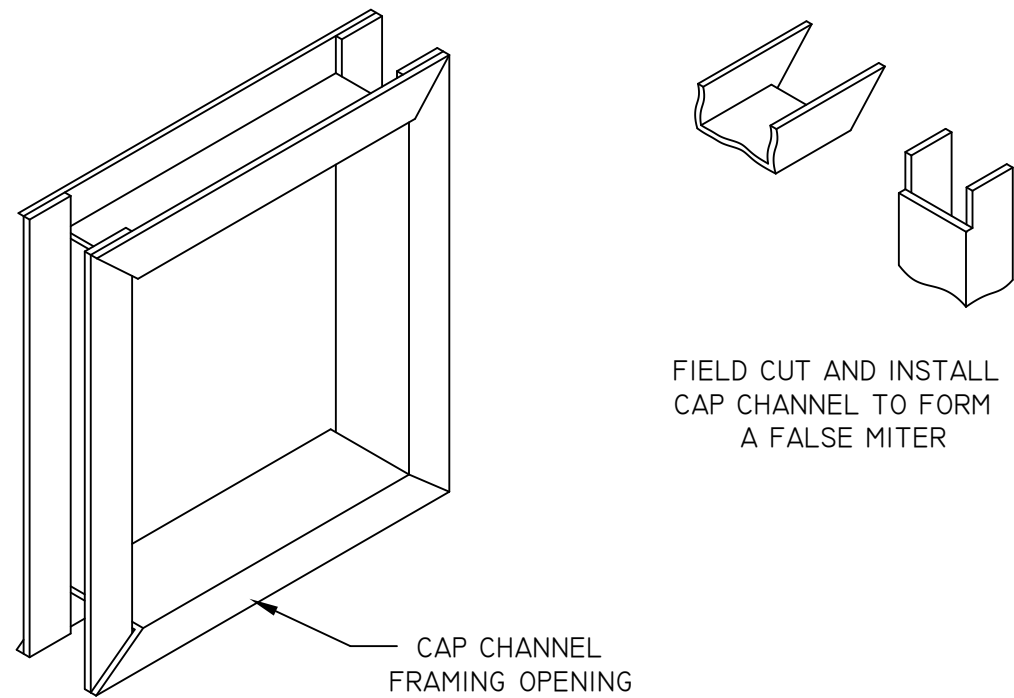
FIGURE 8.



STEP 4: TRIM INSTALLATION, CONTINUED

- 4.6** Cap channel is supplied for trimming all exposed panel edges and framing all rectangular openings in the enclosure. Field cut and install cap channel to form a false miter. (Figure 9) Apply butyl sealant along panel exterior edge and fasten cap channel to panels with Tek screws at 12" on center.
- 4.7** Special trim applications not pictured in this booklet may be required on a particular enclosure and will be detailed on the final panel layout drawings.

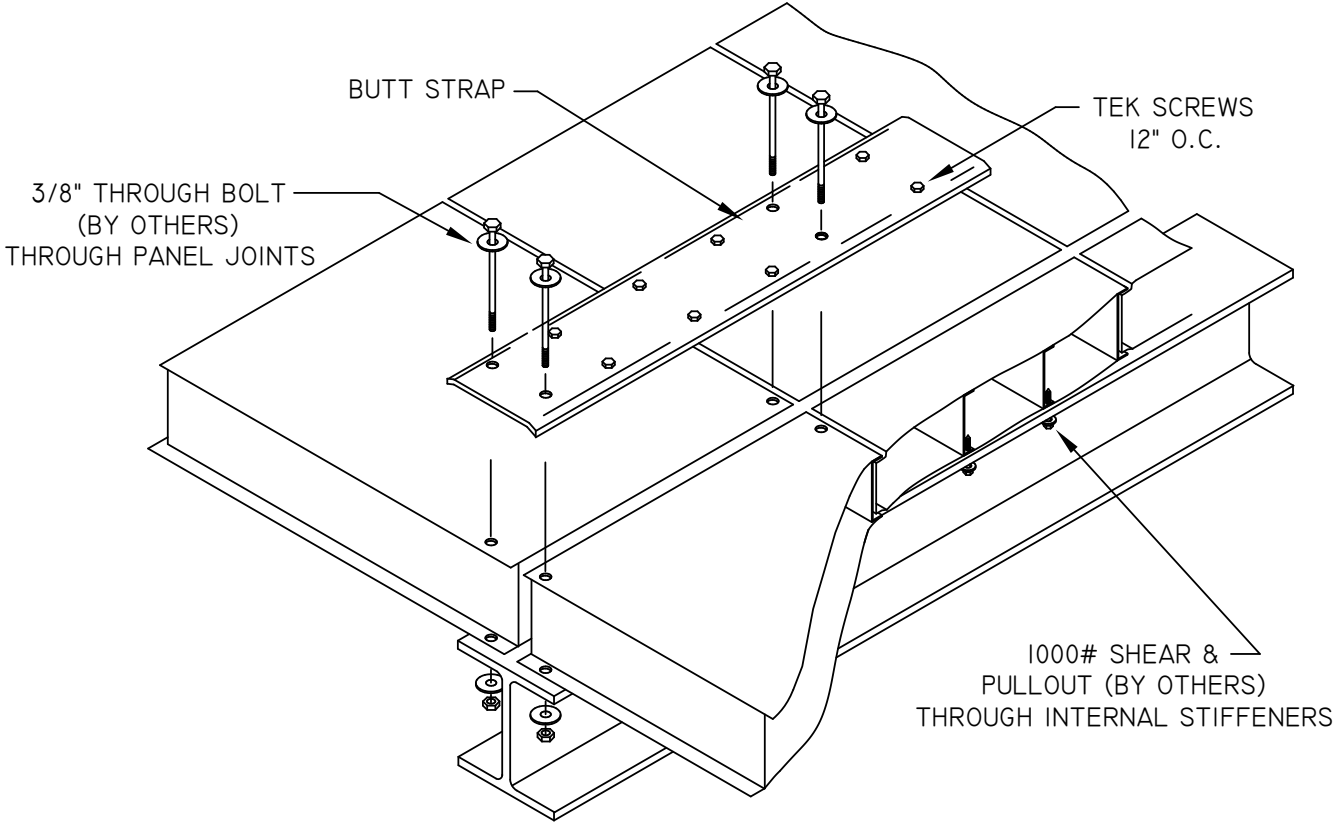
FIGURE 9.



STRUCTURAL STEEL

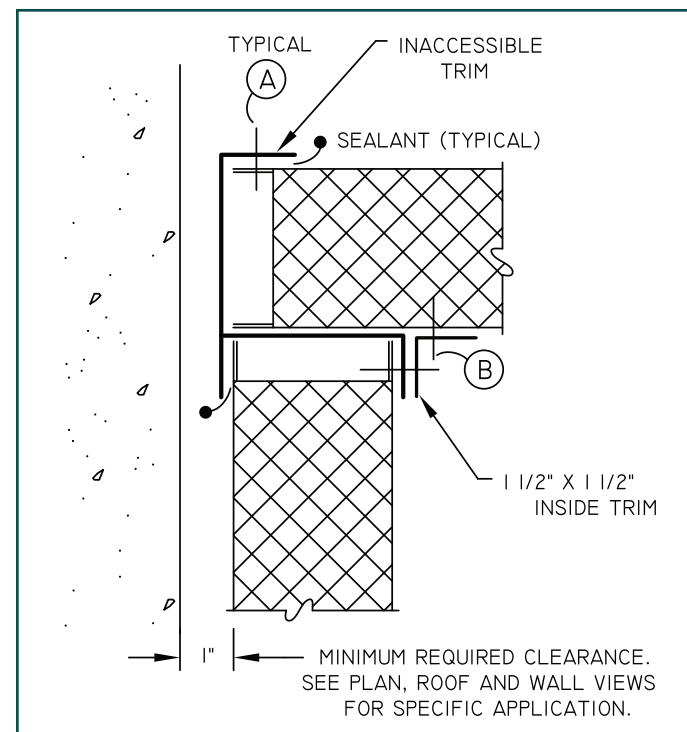
- 4.8** Structural steel must be field welded and secured in place as necessary. All structural steel is to be secured to panels through tongue and groove panel joints and internal panel stiffeners with a fastener rated at a minimum of 1,000 lbs. shear and pullout. In positive pressure areas, steel will require additional through bolts through tongue and grove panel joints to prevent uplift of panels at operating pressures. (Figure 10)
- SEMCO DUCT & ACOUSTICAL PRODUCTS INC. DOES NOT PROVIDE ANY FASTENERS FOR SECURING STRUCTURAL STEEL.**
- 4.9** On enclosures where SEMCO is supplying structural steel, that steel will be supplied in standard 10' and 20' lengths to be field cut as necessary.
- 4.10** Refer to panel layout drawings for further details for structural steel reinforcement.

FIGURE 10.

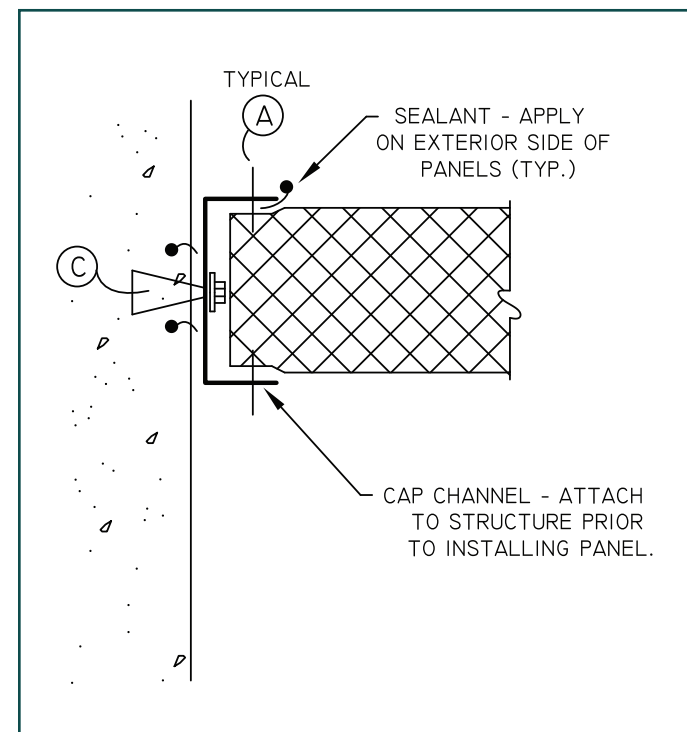


APPLICATION: ROOF SUPPORT WITH PANEL BREAK POSITIVE PRESSURE AREA

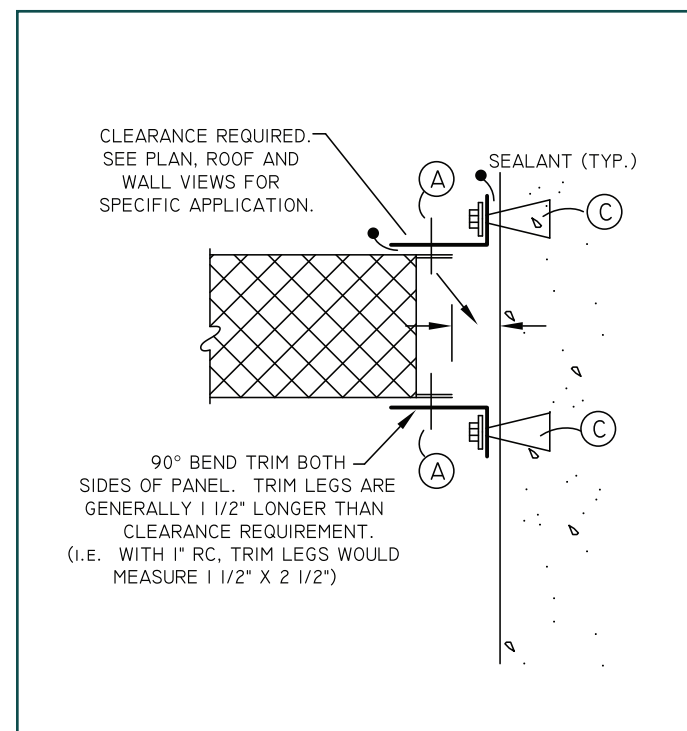
A. Inaccessible Trim



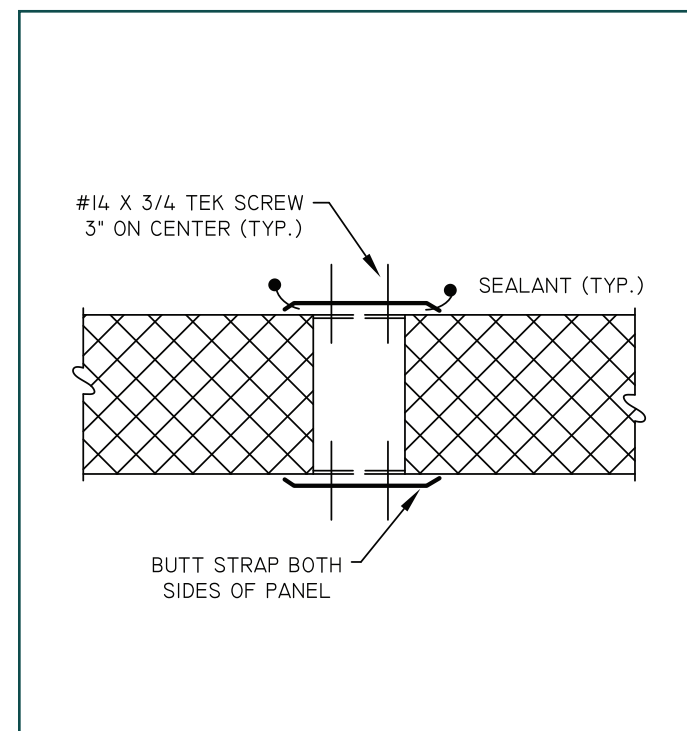
B. Panel to Structure



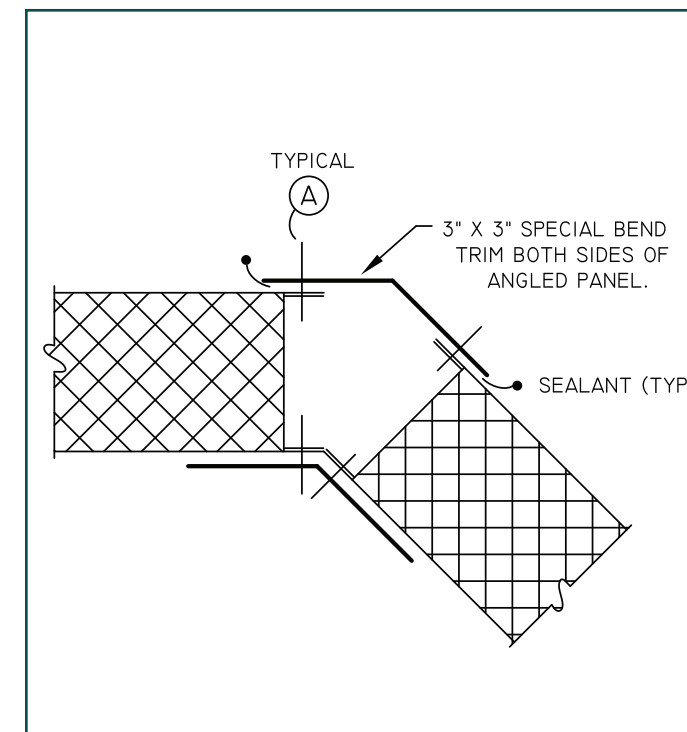
C. Panel to Structure



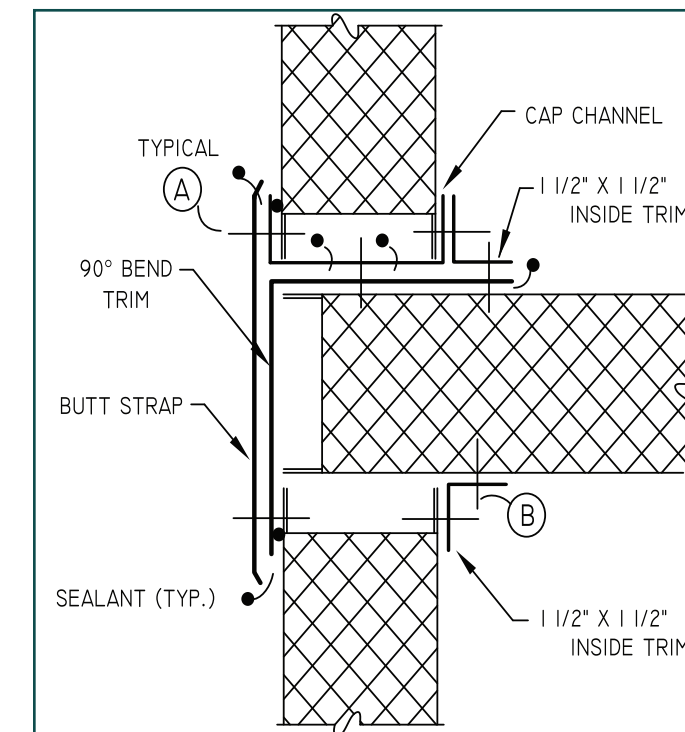
D. Panel to Joiner



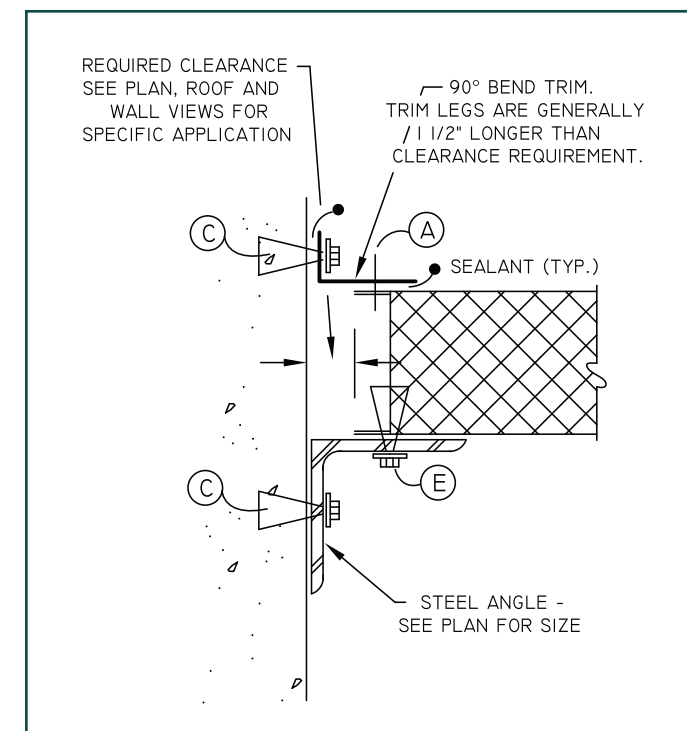
E. Angle Panel Trim



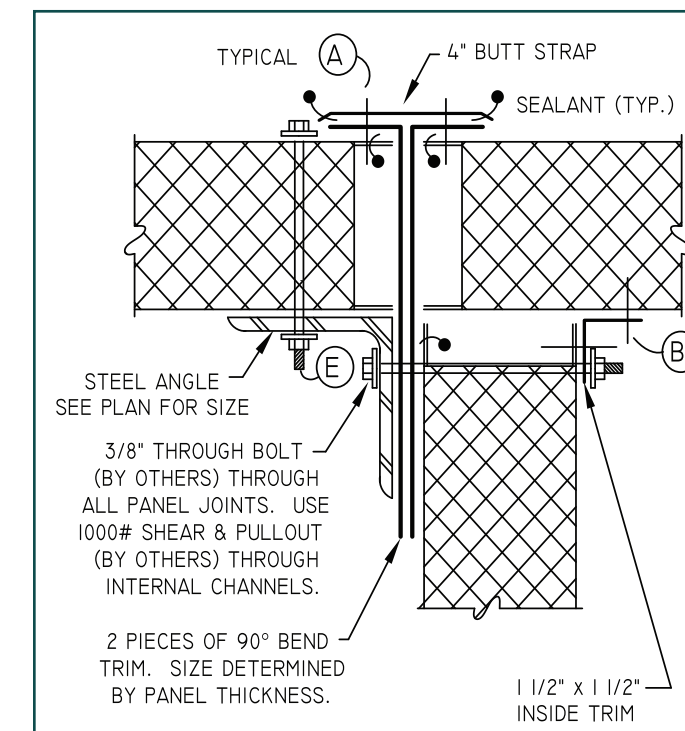
F. Intermediate Panel Trim



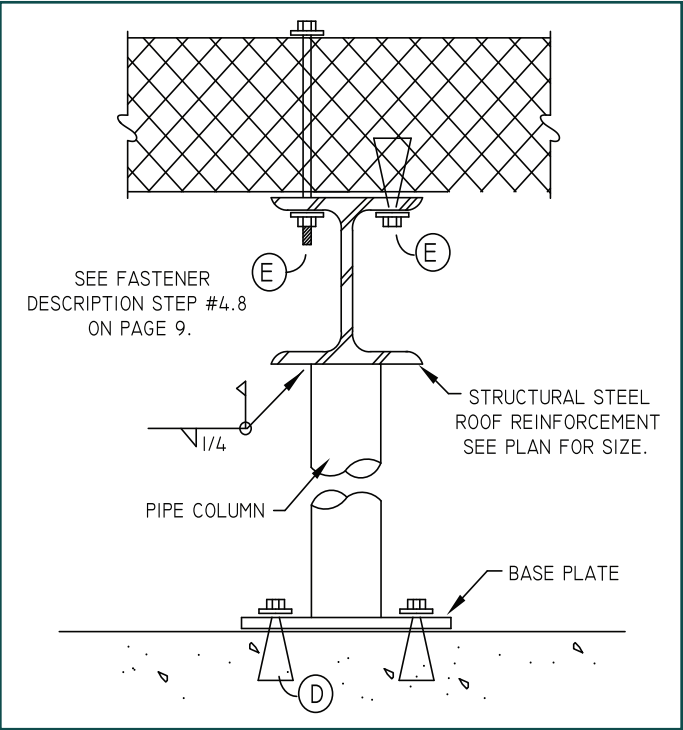
G. Panel Support at Structure



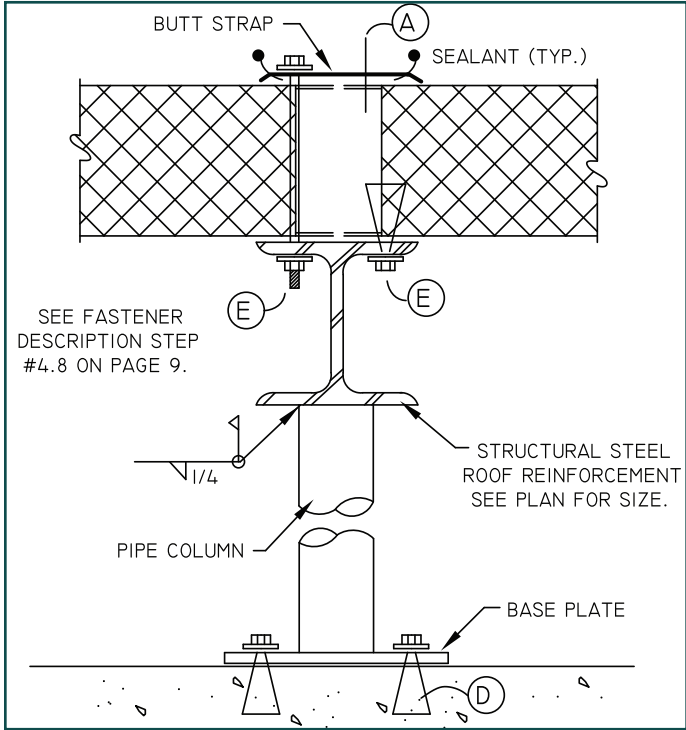
H. Roof Break at Interior Wall



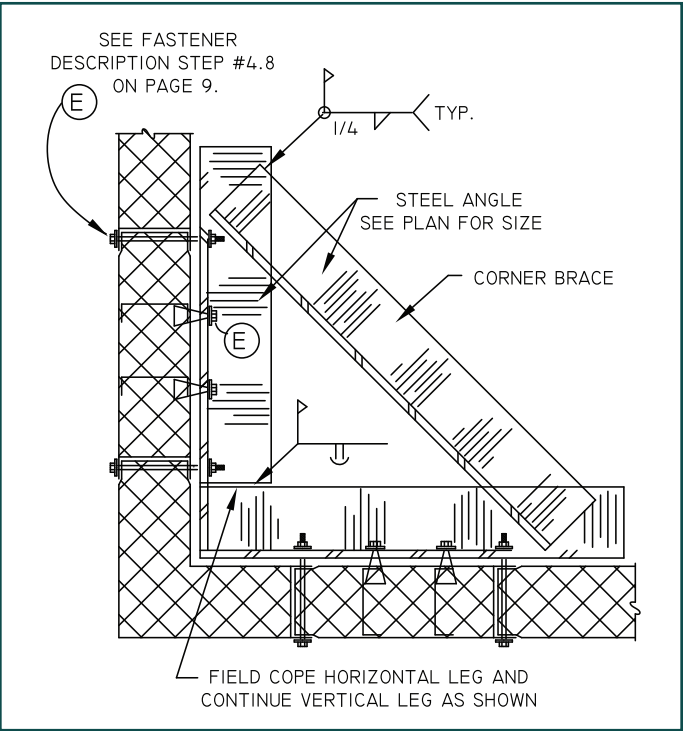
I. Roof Panel Support



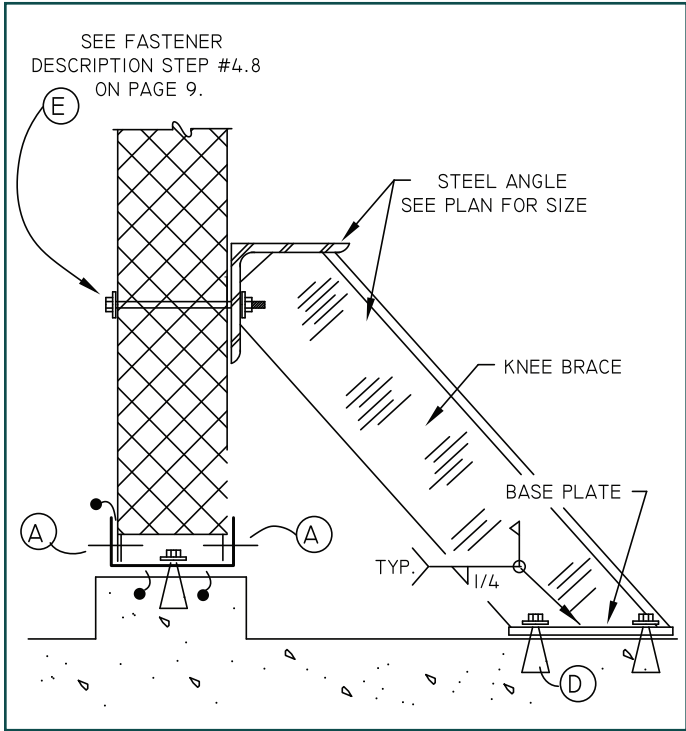
J. Roof Panel Support with Break



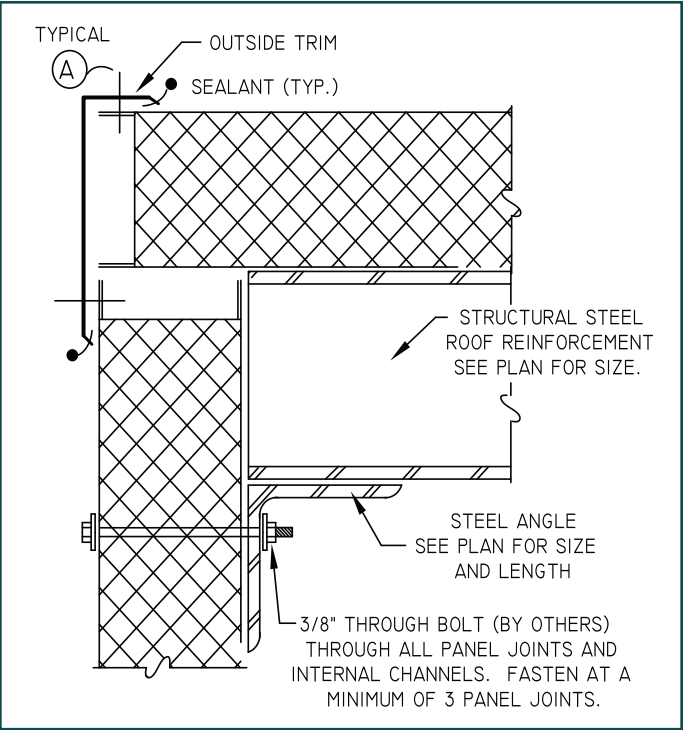
K. Wall Panel Support Corner Brace



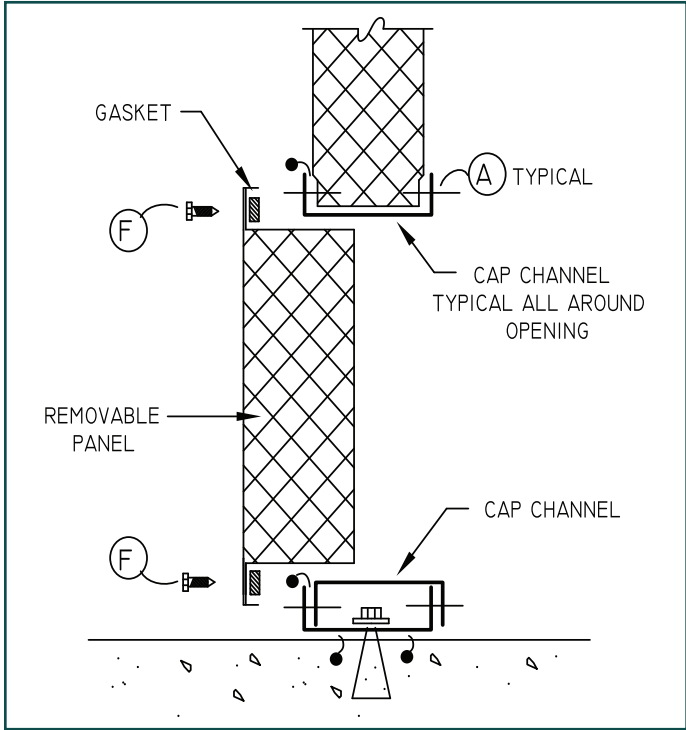
L. Wall Panel Support Knee Brace



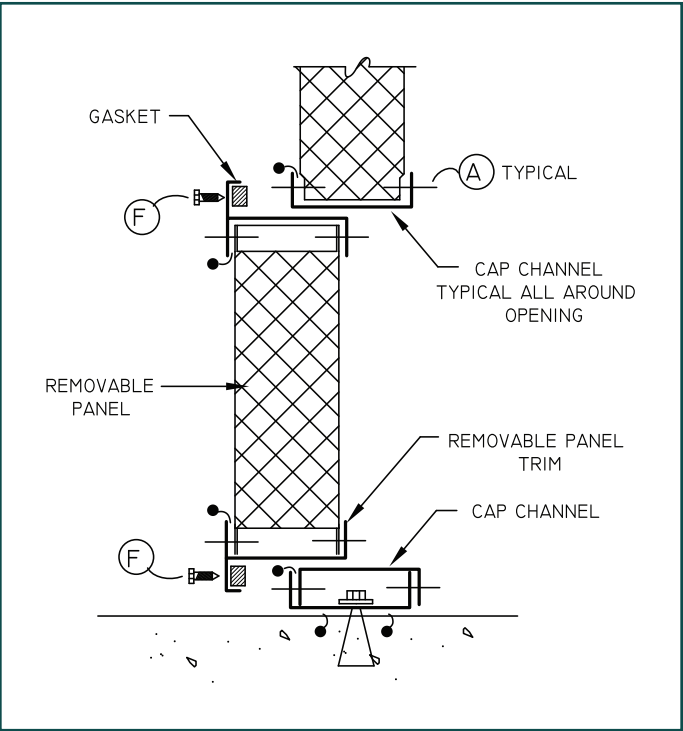
M. Wall Clip



N. Removable Panel



O. Removable Section



Fastener Schedule

- A.** #14 X 3/4 TEK SCREW 12" ON CENTER & THROUGH PANEL JOINTS (WHERE APPLICABLE)
- B.** #14 X 3/4 TEK SCREW THROUGH PANEL JOINTS & INTERNAL STIFFENERS (WHERE NOT APPLICABLE, TEK SCREW @ 12" ON CENTER).
- C.** 1000# SHEAR AND PULLOUT 12" ON CENTER (BY OTHERS)
- D.** 2500# SHEAR AND PULLOUT 4 PER BASE PLATE (BY OTHERS)
- E.** POSITIVE PRESSURE AREAS - USE 3/8" THROUGH BOLTS (BY OTHERS) THROUGH PANEL JOINTS AND 1000# SHEAR & PULLOUT (BY OTHERS) THROUGH INTERNAL STIFFENERS. NEGATIVE PRESSURE AREAS - USE 1000# SHEAR & PULLOUT (BY OTHERS) THROUGH PANEL JOINTS AND INTERNAL STIFFENERS.
- F.** #14 X 1 1/2" PAN HEAD SCREWS 12" ON CENTER

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