PANELIZED HOME

A typical home package will be constructed of Secure-Lock Insulated Panels clad with steel skins. 4" panels will be used for the walls, and 6" panels for the roof. Several foam thicknesses are available, depending on the engineering requirements. Each standard and custom shell package includes a full set of prints and installation guidelines specific to the home being constructed.

General Note on Air Sealing: In addition to the sealants described below, it is also recommended to use a low expansion spray foam on all connections - base track to slab, base track to panels, panel to panel, top track to roof panel, window header to openings and under the roof ridge.

PREPARING SLAB:

[1] Setup the form work for a typical monolithic slab and double check that it's properly dimensioned. *(Note: A full basement or crawl space, can easily be accommodated by the* Secure-Lock *Panel System.)*

[2] Begin pouring the slab. Make sure the concrete sets square and level. This is especially important around the perimeter of the structure. The Secure-Lock Home Package is a pre-cut kit with all dimensions based on the foundation drawing. It is very important that you follow these simple steps in preparing the slab and concrete. If you do, the home will go together quickly, and the need for field alternations will be eliminated.

Drill weep holes here after all wall panels are installed.

Drill for anchor here.

Face this side towards outside of home. →

3/8" caulk bead here.

FIG. 1

[3] After the concrete is set, clean dust and debris from surface. This is important if the sealant is to adhere properly. Snap chalk lines for all exterior and interior bearing walls.

[4] Measure and precut base channel pieces, and miter all corners at a 45 degree angle. Pre-drill holes for anchors every 24"*(or per engineered drawings)* down the length of the channel with a 5/8" drill bit. Use the center line on the inside of the channel as a guide. Additional anchors will be placed on both sides of corners and within 6" of either side of all door openings.
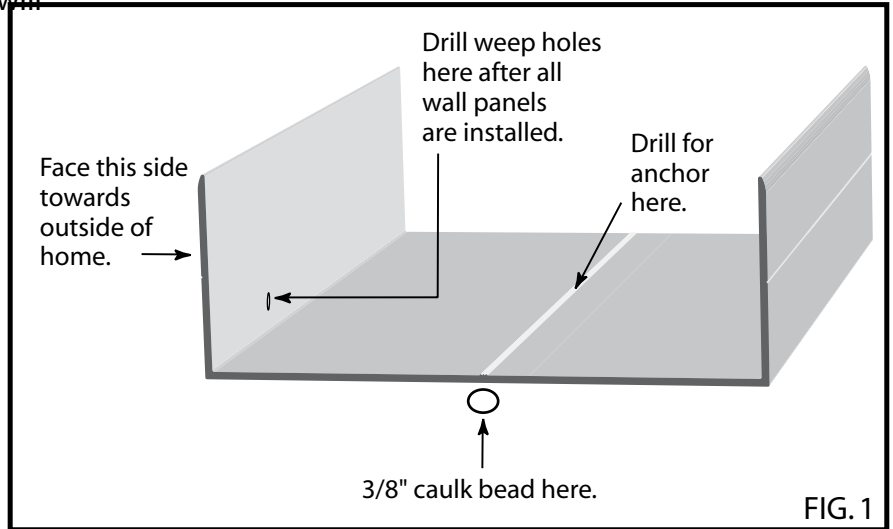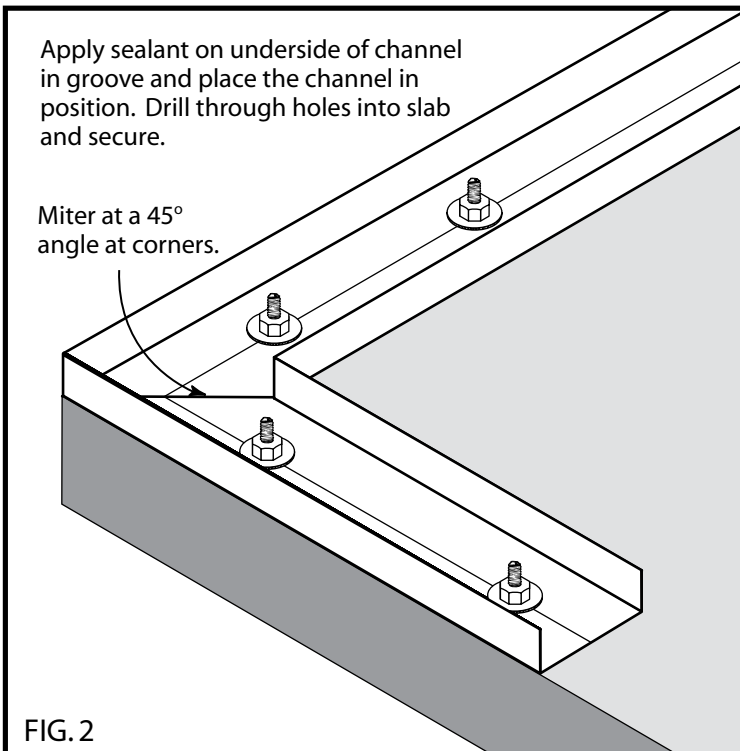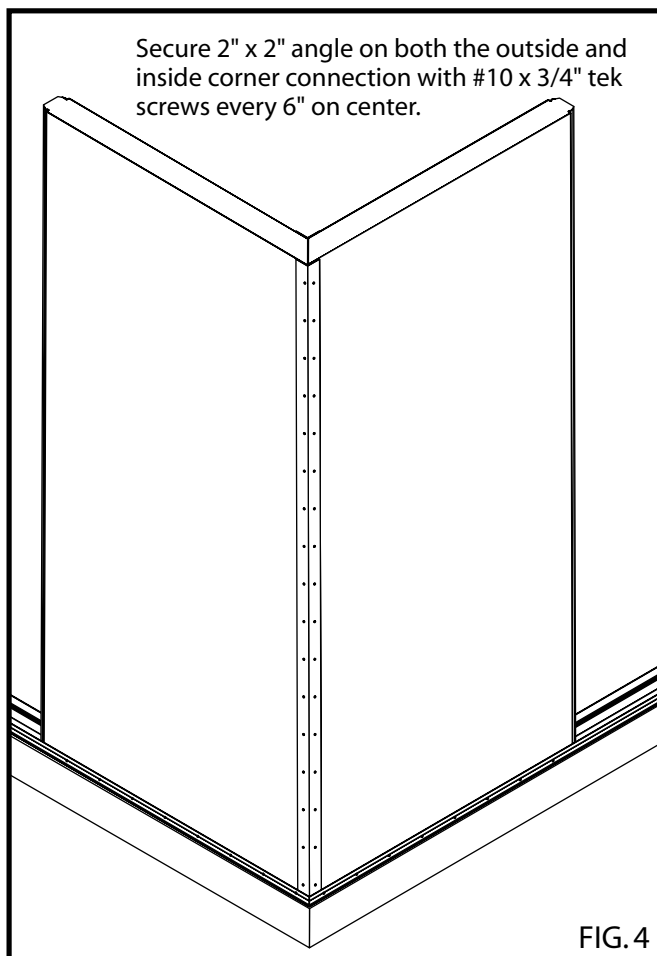

Apply sealant on underside of channel in groove and place the channel in position. Drill through holes into slab and secure.

Miter at a 45° angle at corners.

FIG. 2

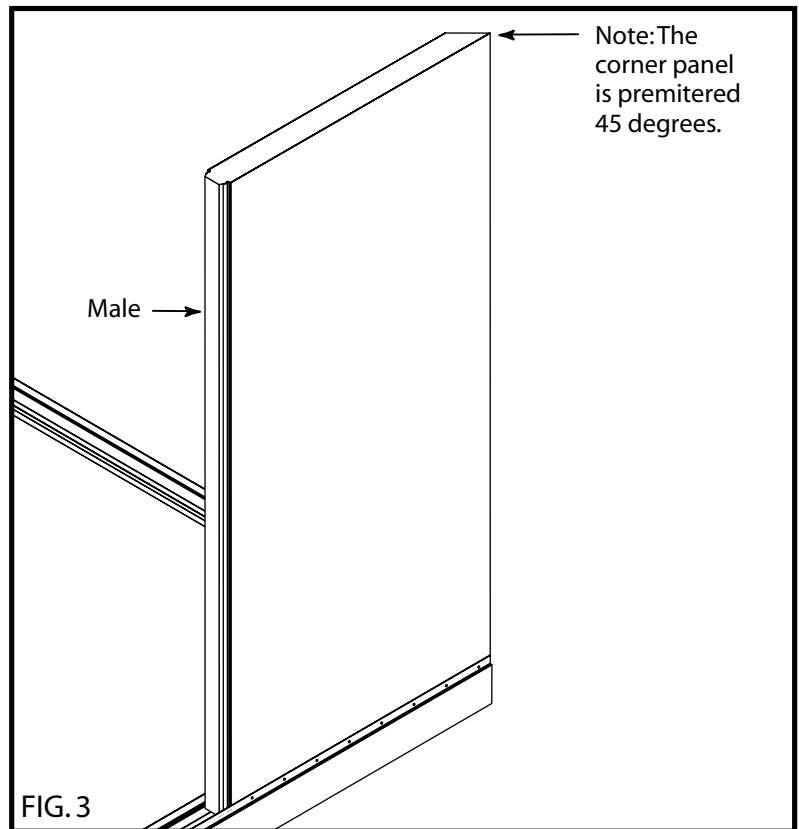**[5]** Apply sealant along the center groove on the underside of the channel and place the base channel into position. *[FIG 1]* (Structall recommends a high quality terpolymer rubber adhesive such as Solar Seal 900. This sealant will expand and contract better than acrylics or oil base caulks and performs equally as well on nonporous and porous surfaces.) Drill through holes into slab using a 3/8" masonry drill bit. The wedge anchor threads should protrude from channel 1/2". Apply a washer and nut. Then secure wedge anchors in place. *[FIG 2]* For shear walls, see the shear wall fastening schedule on page 4 for additional requirements.
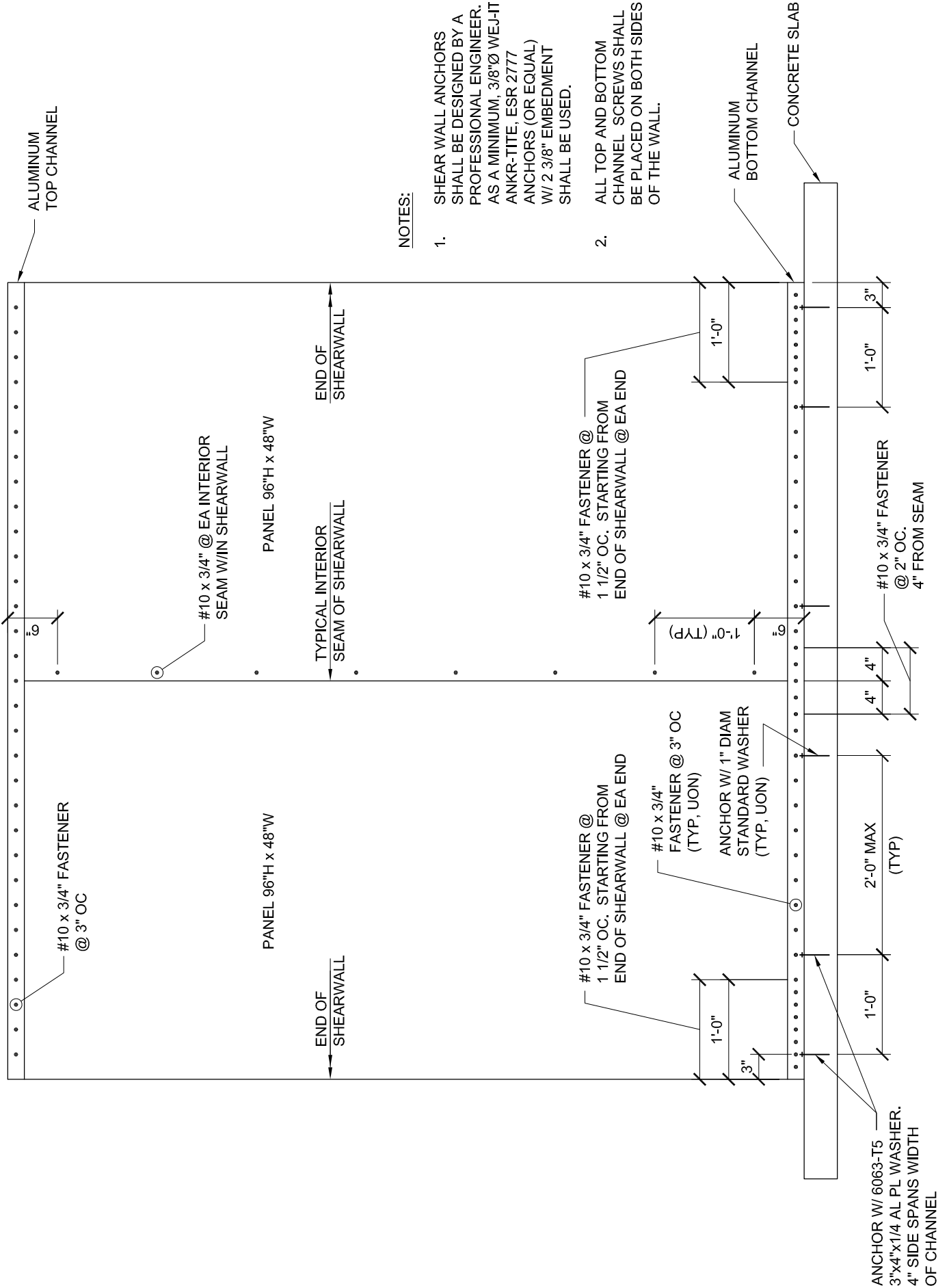
WALL PANEL INSTALLATION:

[6] Before installing wall panels, refer to the installation instructions that come with your panelized home package for the proper panel sequence. All panels are pre-numbered and cut to length. Start at the corner furthest away from the pile of panels. The first panel should be on top of the stack and premitered at a 45 degree angle on the corner side. Insert the panel into the base channel with the mitered side closest to the corner. There should be full bearing of the panel to the base channel. **[FIG 3]**

Note: The corner panel is premitered 45 degrees.

Male →

FIG. 3

Secure 2" x 2" angle on both the outside and inside corner connection with #10 x 3/4" tek screws every 6" on center.

FIG. 4

[7] Install the adjacent corner panel in the same fashion. Secure wall panels to channel on both sides *(Refer to Shear Wall Fastening Schedule on Page 4)* .

[8] After corner panels are both fastened at base channel, cut 2" x 2" angle at the appropriate height to cover both the outside and inside of the corner connection. Secure with #10 x 3/4" tek screws every 6" on center *(or per engineered drawings)*. Verify corner is still plumb. **[FIG 4]**

SHEAR WALL FASTENING SCHEDULE

ALUMINUM TOP CHANNEL

CONCRETE SLAB

ALUMINUM BOTTOM CHANNEL

#10 x 3/4" FASTENER @ 3" OC

6"

#10 x 3/4" @ EA INTERIOR SEAM W/IN SHEARWALL

PANEL 96"H x 48"W

END OF SHEARWALL

TYPICAL INTERIOR SEAM OF SHEARWALL

#10 x 3/4" FASTENER @ 1 1/2" OC. STARTING FROM END OF SHEARWALL @ EA END

1'-0"

3"

1'-0"

#10 x 3/4" FASTENER @ 2" OC. 4" FROM SEAM

1'-0" (TYP)

6"

4"

4"

PANEL 96"H x 48"W

#10 x 3/4" FASTENER @ 1 1/2" OC. STARTING FROM END OF SHEARWALL @ EA END

#10 x 3/4" FASTENER @ 3" OC (TYP, UON)

ANCHOR W/ 1" DIAM STANDARD WASHER (TYP, UON)

END OF SHEARWALL

2'-0" MAX (TYP)

1'-0"

3"

1'-0"

ANCHOR W/ 6063-T5 3"x4"x1/4 AL PL WASHER. 4" SIDE SPANS WIDTH OF CHANNEL

NOTES:

1. SHEAR WALL ANCHORS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER. AS A MINIMUM, 3/8"Ø WEJ-IT ANKR-TITE, ESR 2777 ANCHORS (OR EQUAL) W/ 2 3/8" EMBEDMENT SHALL BE USED.

2. ALL TOP AND BOTTOM CHANNEL SCREWS SHALL BE PLACED ON BOTH SIDES OF THE WALL.

[9] Set the next sequential panel in the base channel and slide just alongside the corner panel. Apply a quick sharp push to the panel. It will snap and lock in place. Whenever it's possible and/or practical, it is recommended to push from the male side of the panel. Anchor panel to base track. *[FIG 5]*

[10] Install remaining wall panels the same way. If sections of the seam don't snap all the way in, as is the case with some longer panels, place a 3 or 4 ft. 2" x 4" on the edge of the panel in the center of the foam and strike it with a big hammer or a small sledge. The panels snap right together with minimal effort. Periodically check that they remain plumb, and make adjustments as necessary.
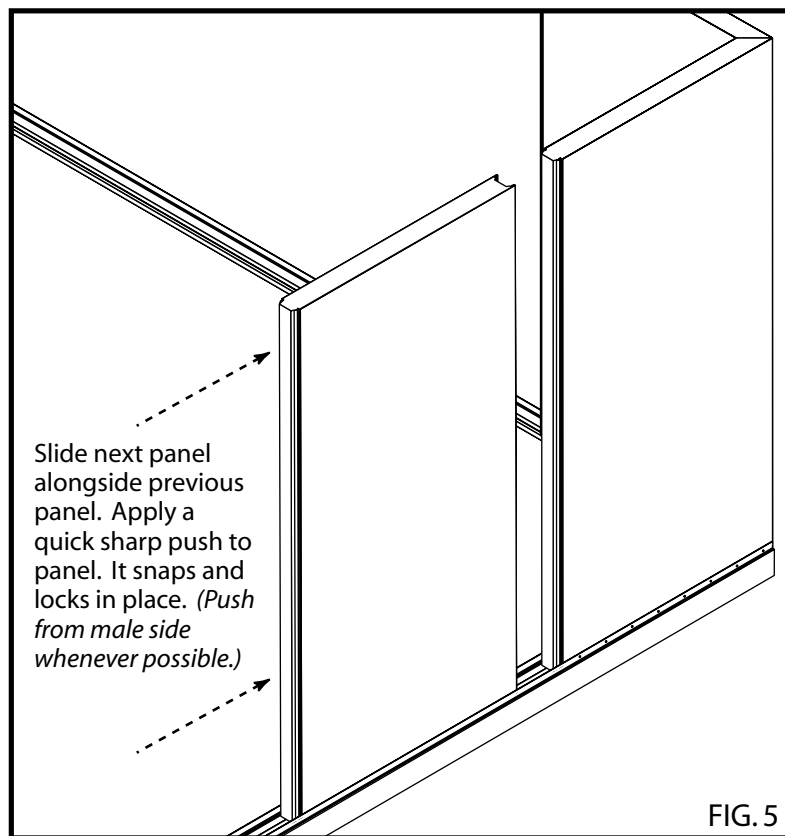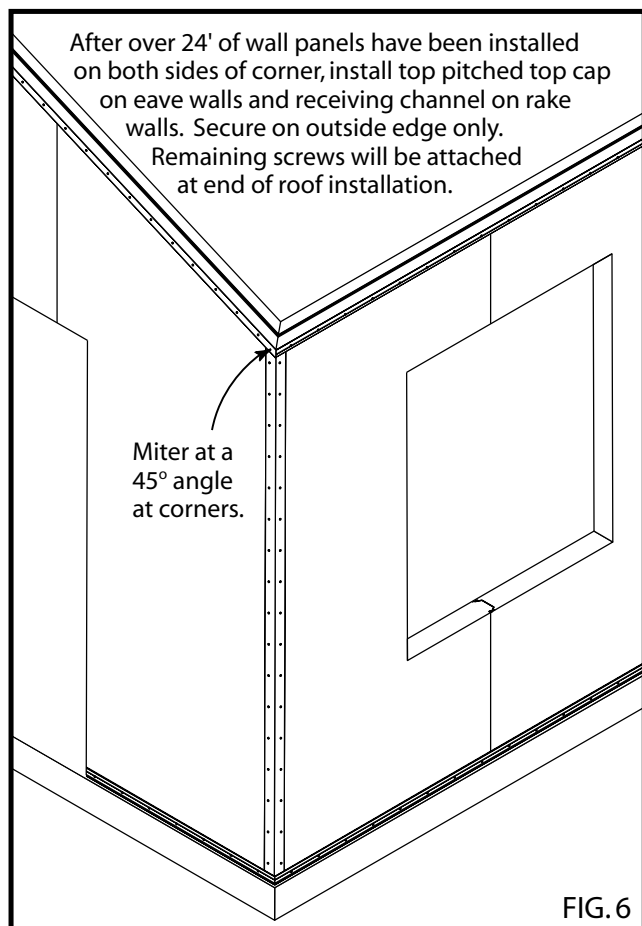
Slide next panel alongside previous panel. Apply a quick sharp push to panel. It snaps and locks in place. *(Push from male side whenever possible.)*

FIG. 5

After over 24' of wall panels have been installed on both sides of corner, install top pitched top cap on eave walls and receiving channel on rake walls. Secure on outside edge only. Remaining screws will be attached at end of roof installation.

Miter at a 45° angle at corners.

FIG. 6

[11] When 24 ft. of the wall panels have been installed on both sides of corner, miter a section of top pitched top cap for eave wall and receiving channel for rake wall. Secure with #10 x 3/4" tek screws on **outside** edge only every 3" *(or per eng. drawings)*. *[FIG 6]* Remaining screws will be attached after the roof installation. Stagger the splice with the panel joints, as remaining top cap is installed. *[FIG 7]*
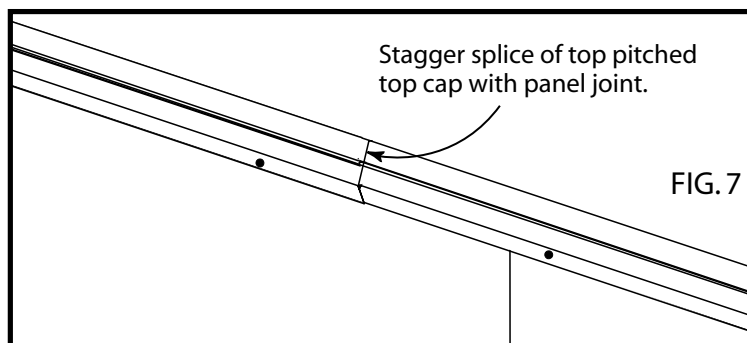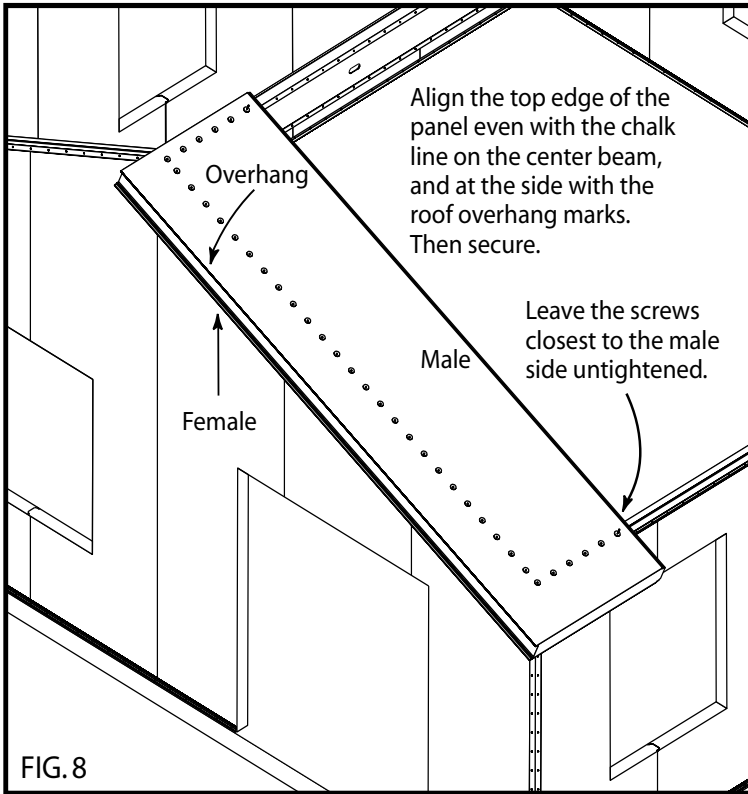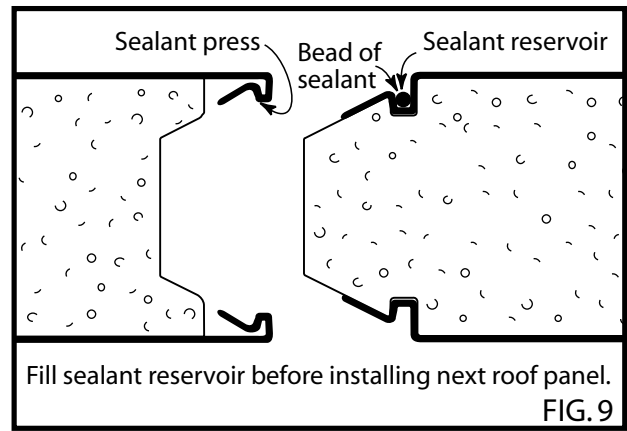
Stagger splice of top pitched top cap with panel joint.

FIG. 7

Align the top edge of the panel even with the chalk line on the center beam, and at the side with the roof overhang marks. Then secure.

Overhang

Leave the screws closest to the male side untightened.

Male

Female

FIG. 8

[12] When at corner, check the dimension of the last panel to see if it needs to be trimmed.

[13] After all exterior walls and top cap are in place, install the interior light gauge steel bearing walls and beams. Make sure walls are braced properly before leaving the jobsite.

Sealant press   Bead of sealant   Sealant reservoir

Fill sealant reservoir before installing next roof panel.

FIG. 9

ROOF INSTALLATION:

[14] Begin the roof installation. Turn the first roof panel over so the bottom side faces up. Mark the roof overhang dimension on the female end with a pencil. Install the first panel at the gable end of the house.

Align the top edge of the panel even with the center of beam or bearing wall, and the rake overhang marks with the wall top channel.

Use a center punch to mark screw locations every 6" on center *(or per engineered drawings)*. Insert SIP screws through 1-1/2" neoprene backed washers. Drive screws through the panel and top channel along the outside edge of the roof, and at the top edge of the roof into the bearing walls or beams. Tighten screws down until the face of the panel slightly dimples.

This will keep water from penetrating these areas. Leave the screw closest to the male side of the panel untightened, in order for the next panel to snap properly. *[FIG 8]*
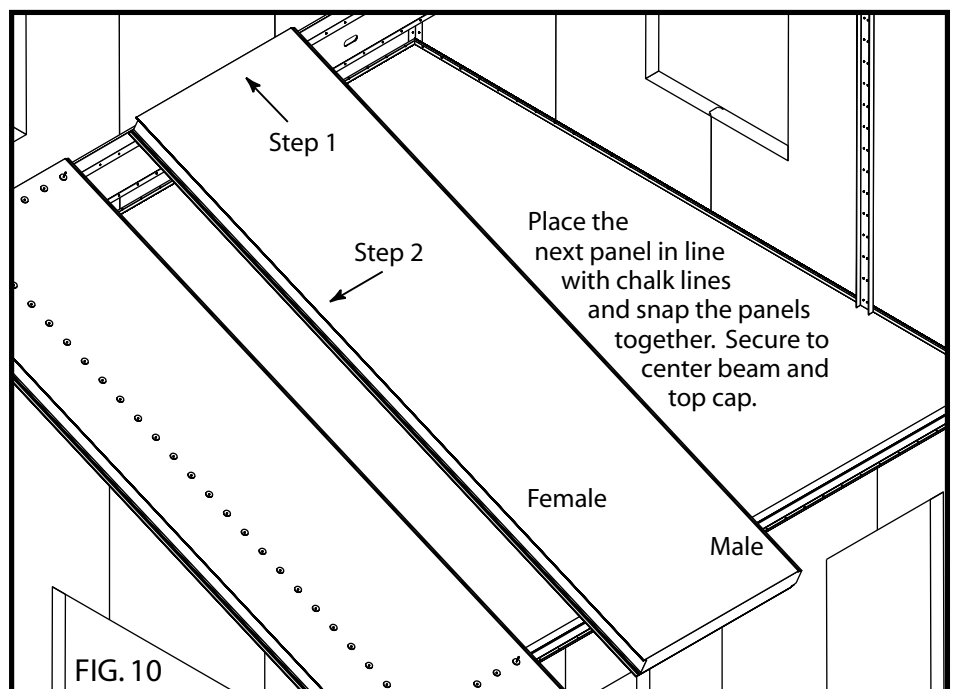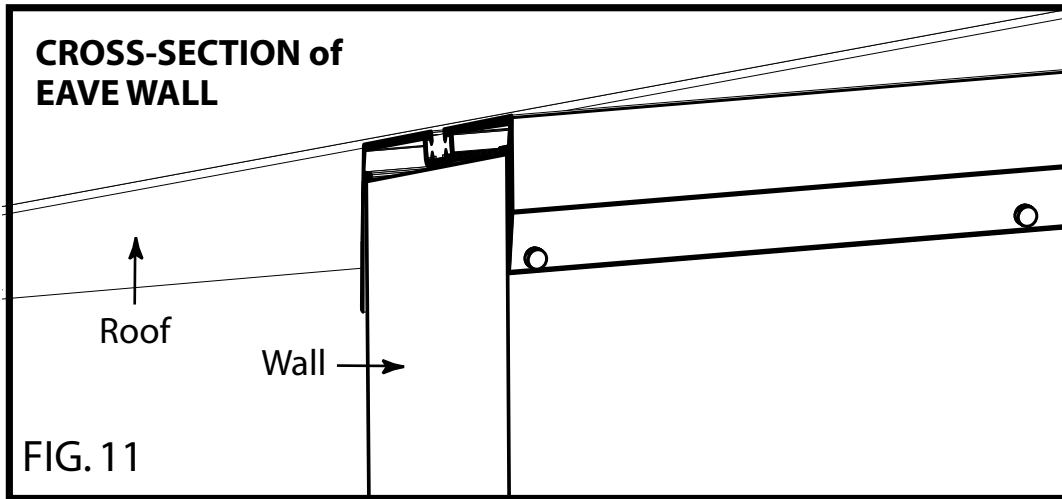
[15] Prior to installing the next panel, fill the sealant reservoir with a bead of Solar Seal 900. *[FIG 9]*

Place the panel along side the previous panel in line with the chalk lines. Snap the panels together and fasten to the center beam and wall top cap. *[FIG 10]*
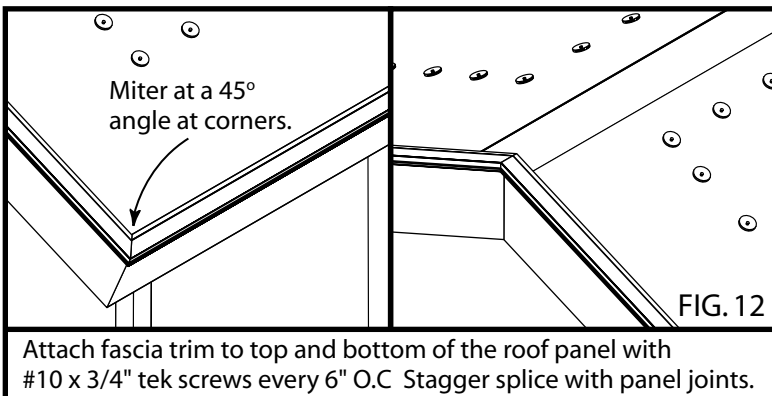

Step 1

Step 2

Place the next panel in line with chalk lines and snap the panels together. Secure to center beam and top cap.

Female

Male

FIG. 10

CROSS-SECTION of EAVE WALL

Roof

Wall →

FIG. 11

Miter at a 45° angle at corners.

FIG. 12

Attach fascia trim to top and bottom of the roof panel with #10 x 3/4" tek screws every 6" O.C Stagger splice with panel joints.

[16]Install the remaining top cap screws. *[FIG 11]*

[17]At the end of the roof, it may be necessary to trim the last roof panel so that the rake overhang is consistent in length with the other end of the roof.

[18]When all roof panels are secured in place, the fascia trim can be installed. *[FIG 12]* If the extrusion isn't the full length of the wall section, stagger the splice with the panel joints. Miter all corners at a 45 degree angle. A thin putty knife will facilitate application if the fit is tight. Attach the trim to both the top and bottom of the panel with #10 x 3/4" tek screws every 6" on center *(or per engineered drawings)*.

[19] The final step of the roof installation will be to install ridge cap at the peek. Apply a bead of sealant under both edges of the ridge cap. *[FIG 13]* Then center the cap over the peek of the roof and secure with #8 x 9/16" tek screws on both sides every 12" on center *(or per engineered drawings)*. *[FIG 14]* Overlap the next piece of ridge cap at least 6". Continue this until you get to the end of the roof.

FINAL STEPS OF WALL AND ROOF INSTALLATION:

[20] Drill 1/8" weep holes along lower outside edge of base channel near panel seams and at every corner. *[FIG 1, pg. 2]* Weep holes should also be drilled on the underside of the fascia trim along drip edge, aligning them with roof panel seams *(every 2 or 4 ft.)*. *[FIG 15]*

[21] Solar Seal 900 sealant should be applied: 1) at the top edge where fascia meets panel; 2) on the outside top edge where base channel meets wall panels and along vertical wall of channel at corners; 3) along all outside edges of 2" x 2" angle at corners; and 4) where top cap touches soffit.
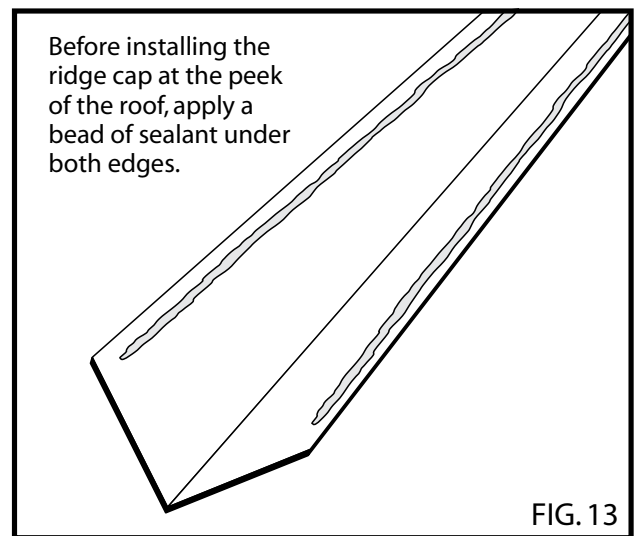
Before installing the ridge cap at the peek of the roof, apply a bead of sealant under both edges.

FIG. 13

Center the cap over the peak of the roof and secure with #8 x 9/16" tek screws on both sides every 12" O.C. Overlap each piece of ridge cap at least 6".
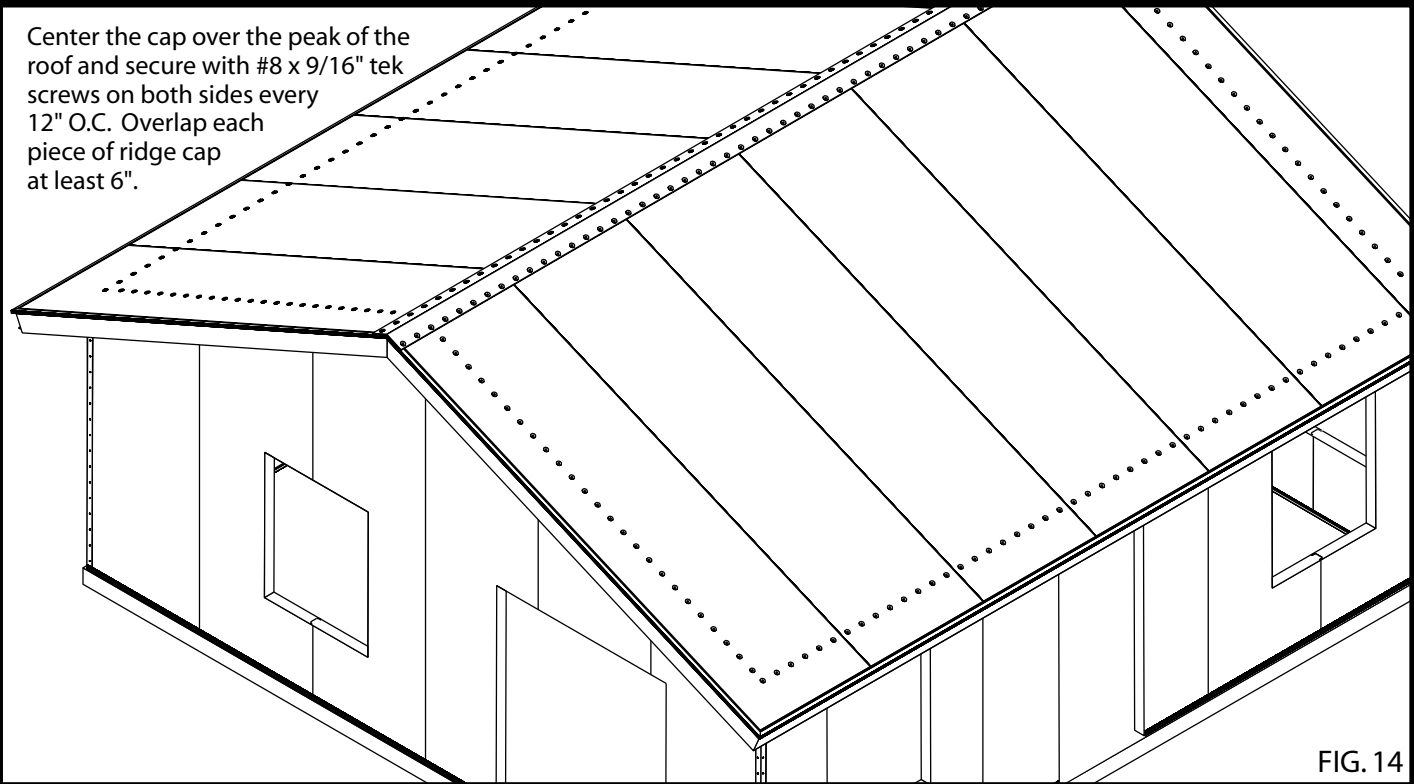
FIG. 14

Drill weep holes in fascia trim attached to roof. Holes should be in line with every roof panel seam through drip channel.
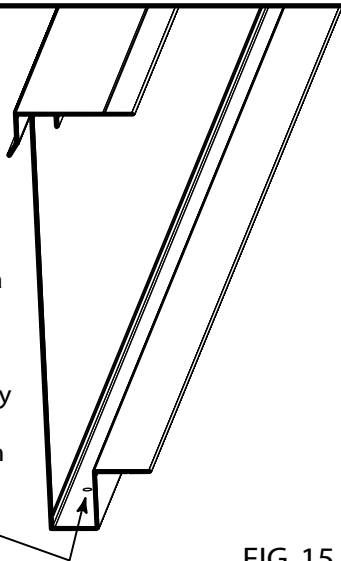
FIG. 15

Secure receiving channel on the interior leg only every 6" on center with #10 x 3/4" tek screws. The exterior screws will be installed through the flange of window during installation.
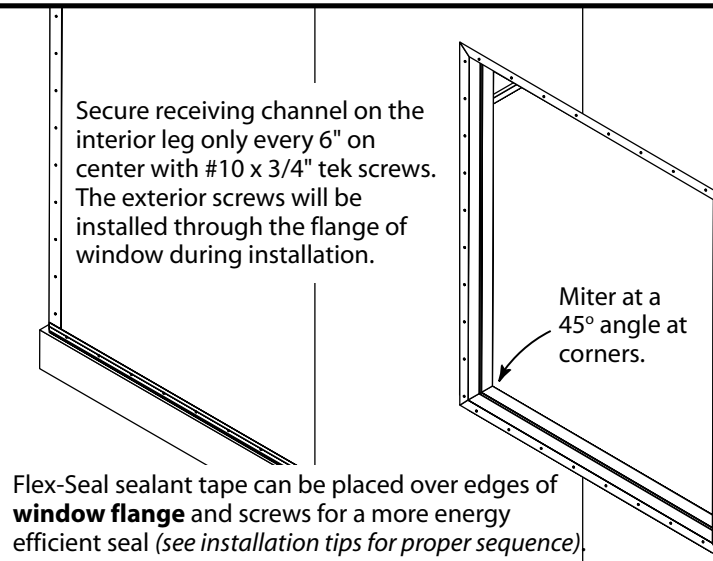
Miter at a 45° angle at corners.

Flex-Seal sealant tape can be placed over edges of **window flange** and screws for a more energy efficient seal *(see installation tips for proper sequence)*.

FIG. 16

CUTTING WINDOW & DOOR OPENINGS:

[22] Now that the shell is complete, window and door openings can be cut in the field using a circular saw or choose to have them precut at the factory. Once openings are cut, measure the width and height. Cut receiving channel pieces to size and miter channel at each end at a reverse 45 degree angle. Fit channel on all sides of opening. Slightly flare the last piece at one end to facilitate proper fit. Verify that trim is plumb and level. For windows, secure the channel with #10 x 3/4" tek screws on the interior leg only every 6" on center *(or per engineered drawings)*. **[FIG 16]** Exterior screws will be installed through the window flange during installation. For doorways, secure both sides of channel. After openings are trimmed out, install windows and doors the same way you would in a typical frame home. Openings in panels must be provided with conventional or custom engineered framing on the inside of the panel.

Optional: *For a more energy efficient seal, place Flex-Seal tape over edges of* **window flange** *making sure screws are covered. Apply bottom end first, then sides, and finally the top end, making sure all pieces overlap the previous piece.*

[23] FINISHING INTERIOR:

After the home is closed in, move inside and install the remaining walls and beams. Any soffits and ceiling drops are accomplished by simply screwing light gauge framing to the underside of the roof panel. Romex wiring can be run through 1-1/2" 25 gauge steel high-hat channel that is furred-out on the inside of the wall panels creating a raceway, or run through prepunched holes in interior stud walls. Plumbing, drywall and other finishing materials are installed in the same fashion as a typical home.

Maximum hat section spacing of 24-inches, oriented vertically from the floor, with 1 ¾" clearance from the sub-floor. The hat sections should be fastened to the steel facers with #10 x 3/4" tek screws every 12" on center. The ½" gypsum board needs to be fastened to the hat channel with 1", No. 6 Type S screws, spaced 12" on center in the field and 8" on center at the edges.

[24] FINISHING EXTERIOR:

While the panels provide a weather-resistant barrier, the building code requires the addition of a Code approved weather-resistant barrier. There are numerous systems that can be applied to the exterior of the wall panels using high-hat furring channels which can be screwed directly to the face of the exterior skins.

Before installation, consult your local building department to determine local code requirements. We assume no liability for the finished product, with the exception of product supplied to you under warranty. If you have any further questions contact our technical support office.