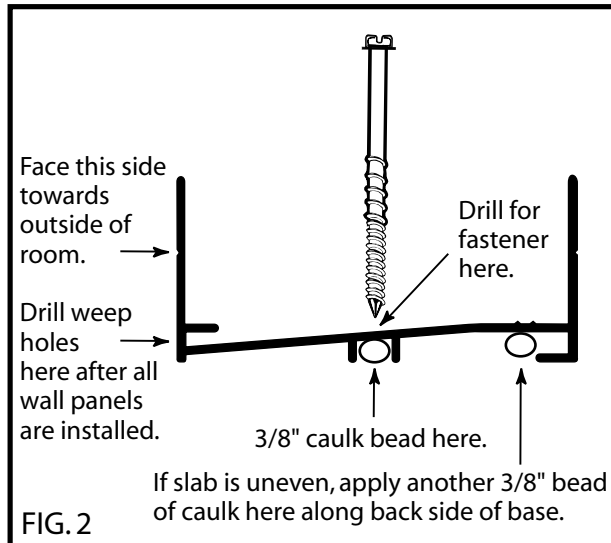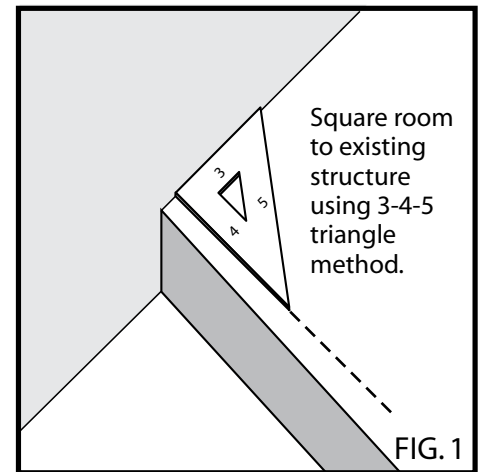# STRUCTALL®
BUILDING SYSTEMS

SNAP-N-LOCK™ ENCLOSURE

INSTALLATION GUIDELINE

Whether you are building an addition to an existing structure or a free-standing unit, Snap-N-Lock insulated panels are the perfect choice. A typical enclosure specifies 3" roof and wall panels clad with aluminum skins. Steel skins are also available, as well as several foam thicknesses to meet your engineering requirements. Use the existing finish or apply a wide variety of building materials directly to the exterior of the panel. Carrier beams can be bonded into the panel to secure heavy fans or light fixtures and run electrical wiring.

3-22-05

[1] Check slab for squareness to the existing house prior to installing base channel, using the 3-4-5 triangle method. Also check the slope of the slab. If slab has a drop of 1" to 2", the bottom of side walls may have to be cut to compensate. Snap a line as a placement guide for base channel. Then verify all corners are square, and check room dimensions again. *[FIG 1]*

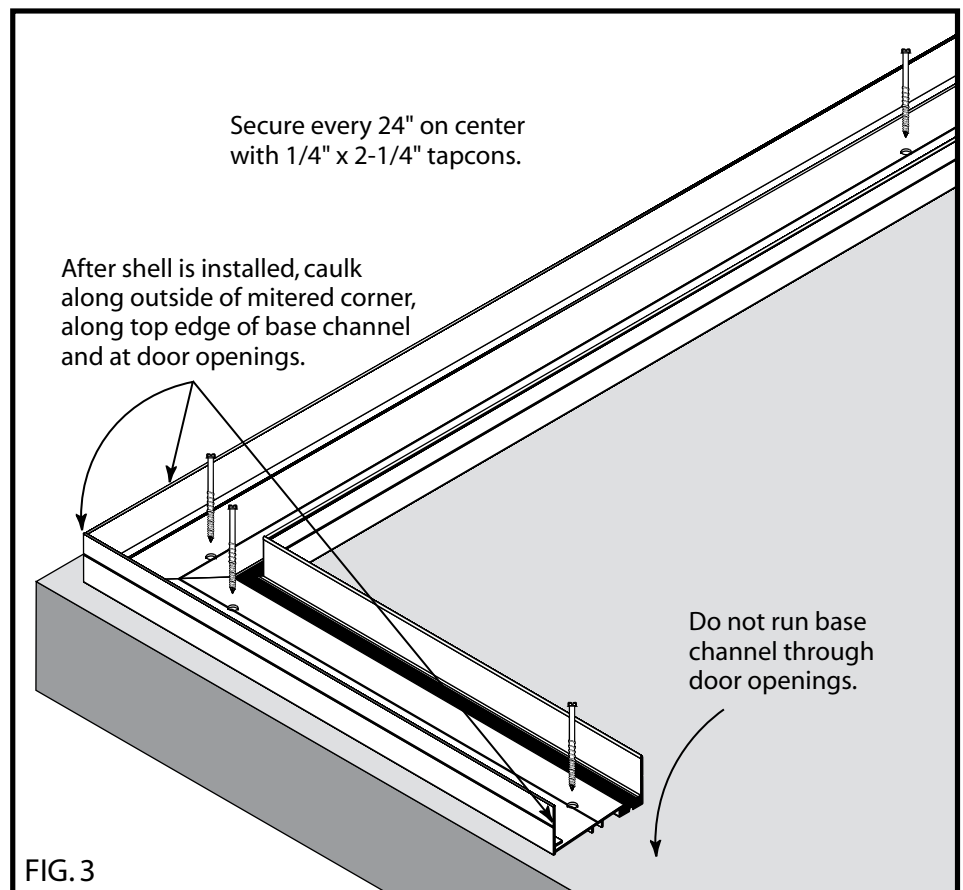Square room to existing structure using 3-4-5 triangle method.

3

4

5

FIG. 1

[2] Precut and position thermo or non-thermo base channel along slab of structure. Do not run base channel through door openings. Miter base channel 45° at all corners *(chop saw recommended)*. Note the base channel has a built in self draining feature which requires the lowest sloped point to be positioned toward the exterior side of the wall. *[FIG 2]* Before sealing, predrill holes in base and concrete 24" on center, with a hole on either side of door openings and two at the corners. Holes should be positioned down center of channel, using line as guide. *[FIG 2]*

Face this side towards outside of room.

Drill for fastener here.

Drill weep holes here after all wall panels are installed.

3/8" caulk bead here.

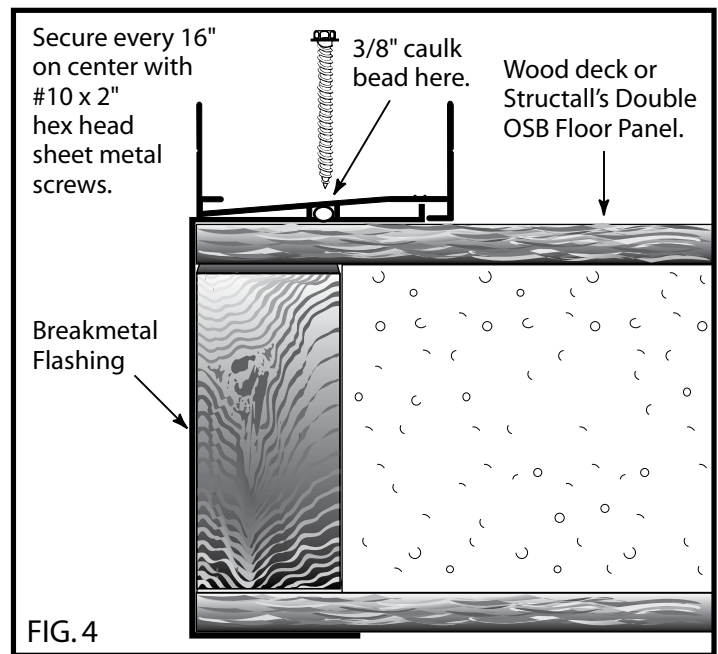If slab is uneven, apply another 3/8" bead of caulk here along back side of base.

FIG. 2

Sweep away all concrete dust and debris to insure a good sealing surface. Apply a generous 3/8" bead of sealant along the center groove on the underside of the channel. If the slab is uneven, you may need an additional bead of sealant along the back side of the base channel. *[FIG 2]* After the entire shell is installed, apply additional caulk along the 45° miter, at each side of the door openings and where the base channel meets the house. Structall recommends a high quality terpolymer

Secure every 24" on center with 1/4" x 2-1/4" tapcons.

After shell is installed, caulk along outside of mitered corner, along top edge of base channel and at door openings.

Do not run base channel through door openings.

FIG. 3

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. Install 1/4" x 2-1/4" tapcons *(or per local building code)* and cover each fastener head with a generous bead of sealant. *[FIG 2/3]*

Wood Deck: For wood deck applications, the procedure remains the same with the exception of different fasteners. In this application, secure the channel with 2" #10 screws every 16" on center. If you are using the Structall floor system or standard untreated deck framing, it is recommended that breakmetal flashing be used under base to trim edge and help prevent wood rot under channel. *[FIG 4]*

Secure every 16" on center with #10 x 2" hex head sheet metal screws.

3/8" caulk bead here.

Wood deck or Structall's Double OSB Floor Panel.

Breakmetal Flashing

FIG. 4

WALL PANEL INSTALLATION GUIDELINES

[3] Depending on the extrusion type, the receiving channel either fits inside or butts up to base channel. Square cut receiving channel to length of rear wall against existing structure, allowing for base channel if necessary. Apply continuous 1/4" bead of caulk on back, before securing to structure. For masonry, secure every 24" O.C. with 1/4" x 2-1/4" Tapcons. If wood, secure every 16" O.C. with #10 x 3" sheet metal screws. Receiving channel fits inside top cap extrusion. *[FIG 5]*

[4] Cut the top of side walls at appropriate angle to allow for slope of roof.

[5] Door openings should be cut before installation of panels. Windows may be cut before or after panel installation. Doors and windows must be framed with extruded receiving channel *(see installation instructions #33, pg. 10)*.

FIG. 5

Cut receiving channel to length against existing structure and secure, allowing for base channel if necessary.

[6] Place the first panel for side walls into position with the female side facing the upright wall. *[FIG 6]* Slide into upright channel and check for squareness.

[7] Secure into place with #8 hex head tek screws every 12" on center. *[FIG 7]*

[8] Insert the second panel in channel in a straight position with the starter panel. Bump panel together

Female

Cut the top of side wall panels to allow for slope of roof.

Male

Position first panel into channel with the female side facing upright wall.
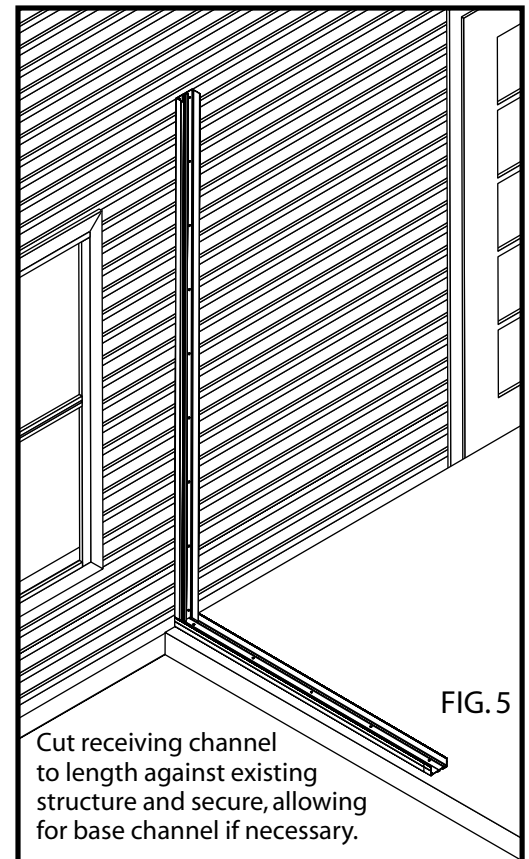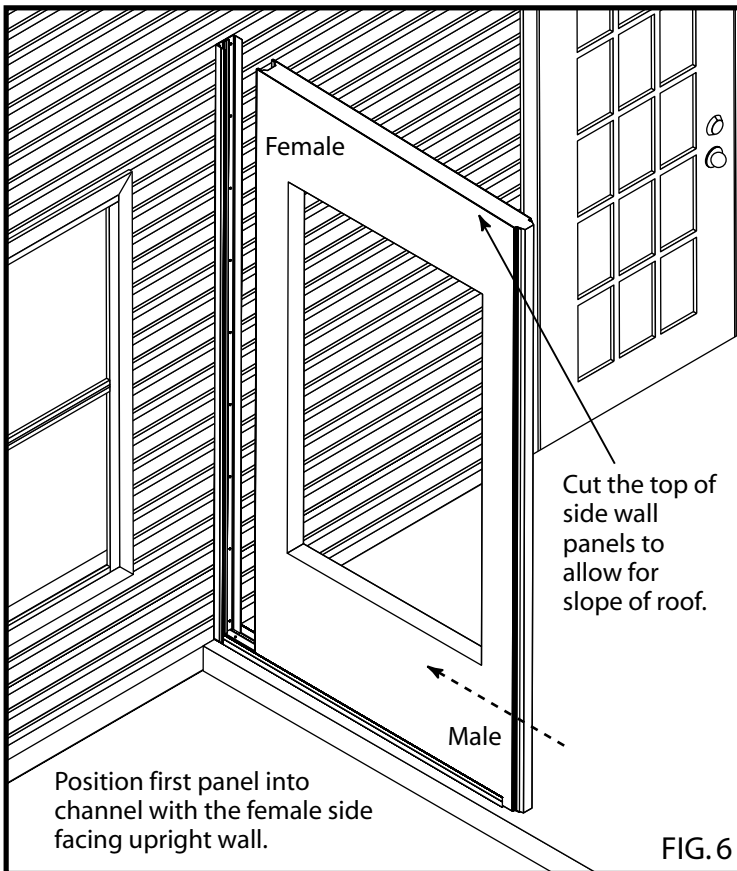
FIG. 6

until it snaps. Check panel for straightness and secure. Note: The wall panels may be put together dry without sealant. If sealant is desired, run a bead of caulk along outside reservoir. Panels should be snapped together fairly soon after sealant is applied.

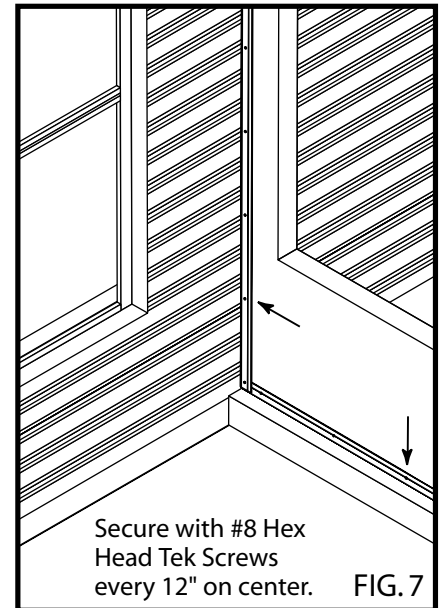**[9]** Repeat step #8 with each new panel until both side walls are finished. The last panel on each side

Secure with #8 Hex Head Tek Screws every 12" on center.

FIG. 7

will have to be cut at a 45° angle to accept the front wall panel. *[FIG 8]*

[10] Cut front wall panels to finished wall height. The panels adjacent to side walls must be cut at a matching 45° angle. *[FIG 8]*

[11] Installation of the front wall should follow the same procedure as side walls.

[12] Fit receiving channel along top edge of all walls, mitering at corners 45°. Optional: Sealant may be applied along inside center of channel. DO NOT SECURE AT THIS TIME. *[FIG 9]*
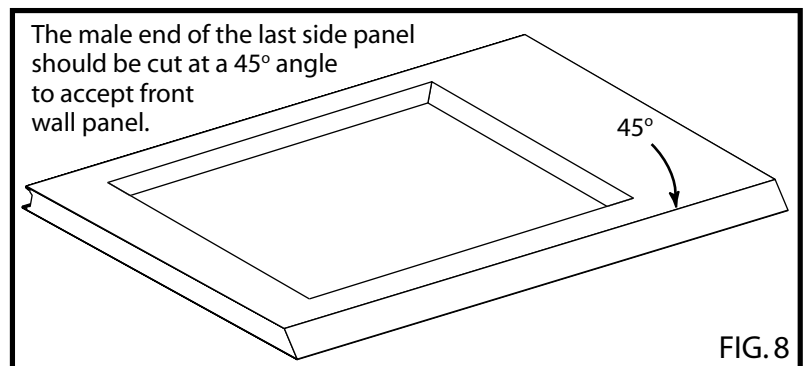

The male end of the last side panel should be cut at a 45° angle to accept front wall panel.

45°

FIG. 8

[13] After wall modules are installed, drill a small weep hole along the lower outside edge of the base channel along slab every two to four feet *(in line w/ wall panel seams)* and at every corner. *[FIG 2, pg. 2]*

ROOF INSTALLATION

[14] Make sure the framework is plumb and square prior to installing roof panels.
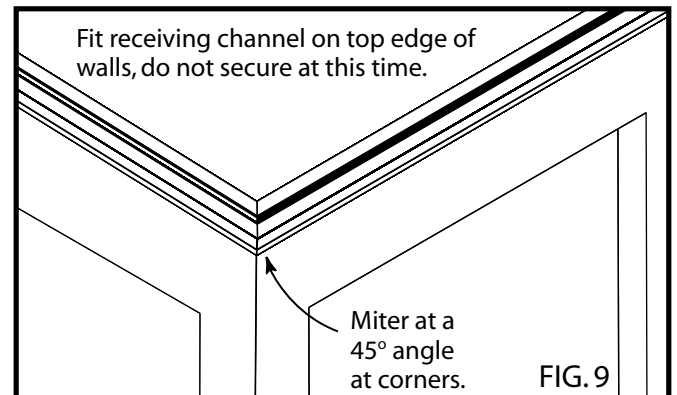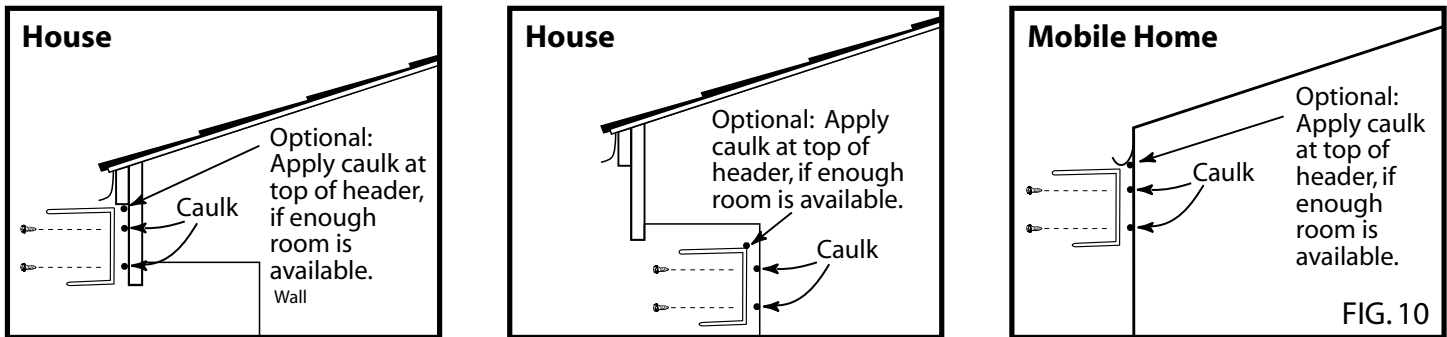

Fit receiving channel on top edge of walls, do not secure at this time.

Miter at a 45° angle at corners.

FIG. 9

House

Optional: Apply caulk at top of header, if enough room is available.

Caulk

Wall

House

Optional: Apply caulk at top of header, if enough room is available.

Caulk

Mobile Home

Optional: Apply caulk at top of header, if enough room is available.
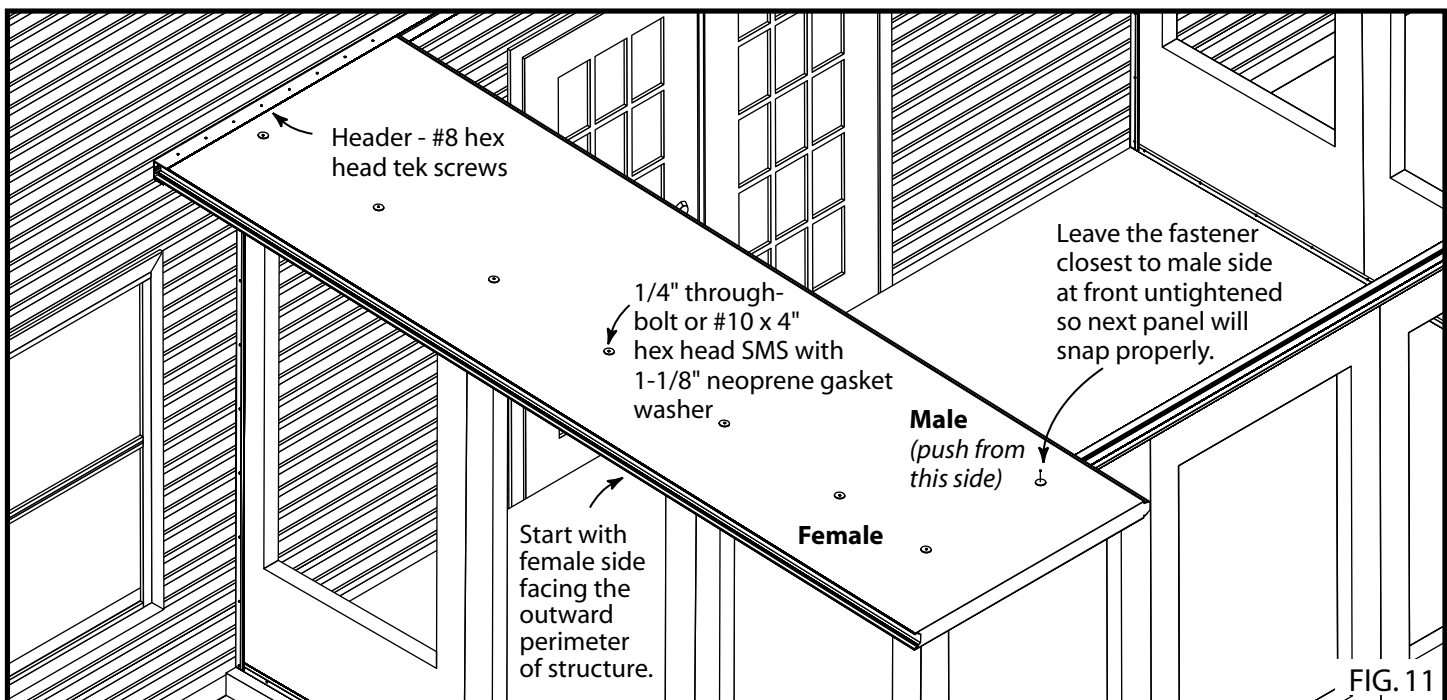
Caulk

FIG. 10

[15] Cut wall header to length. Level extrusion and mark position.

[16] Run two beads of caulking along the back surface of the box header where it will meet the existing building or fascia board. *[FIG 10]* Extruded header is recommended for maximum strength.

[17] Position the header against the existing building and secure into place using two #10 x 1-1/2" hex head screws every 12" on center. If attached to 1" fascia board use two #10 x 2" hex head screws in place of #10 x 1-1/2" screws at all rafter tails. If attached to a masonry wall, the header should be fastened with one 1/4" diameter masonry anchor every 16" on center. If enough room, apply a heavy bead of caulking along the top of the header to insure a water tight seal.

[18] Place the first panel into position with the female side facing the outward perimeter of the structure. *[FIG 11]* **To avoid scratches** on the interior side you have two options. Roof panels can be lifted over the wall sections top side down, and then turned over when in position. Cardboard end caps or carpet pieces can also be draped over the top channel, so that the panels don't brush against the metal surface. Check the panel for proper depth in the header and square up to support walls.

[19] Fasten panel to the top and bottom of the box header with #8 x 9/16" tek screws 8" on center.

Header - #8 hex head tek screws

1/4" through-bolt or #10 x 4" hex head SMS with 1-1/8" neoprene gasket washer

Leave the fastener closest to male side at front untightened so next panel will snap properly.

Male *(push from this side)*

Female

Start with female side facing the outward perimeter of structure.

FIG. 11

FIG. 12

[20] Attach the roof panel to the front and side walls through the receiving channel. Use a special #10 hex head sheet metal screw available from Structall Building Systems, Inc. These should be placed 8" on center on the front wall and at least every 24" on the side walls. The sheet metal screws should
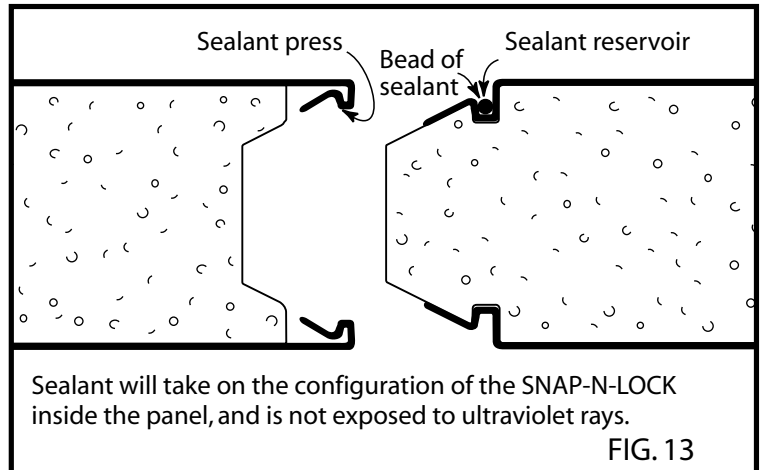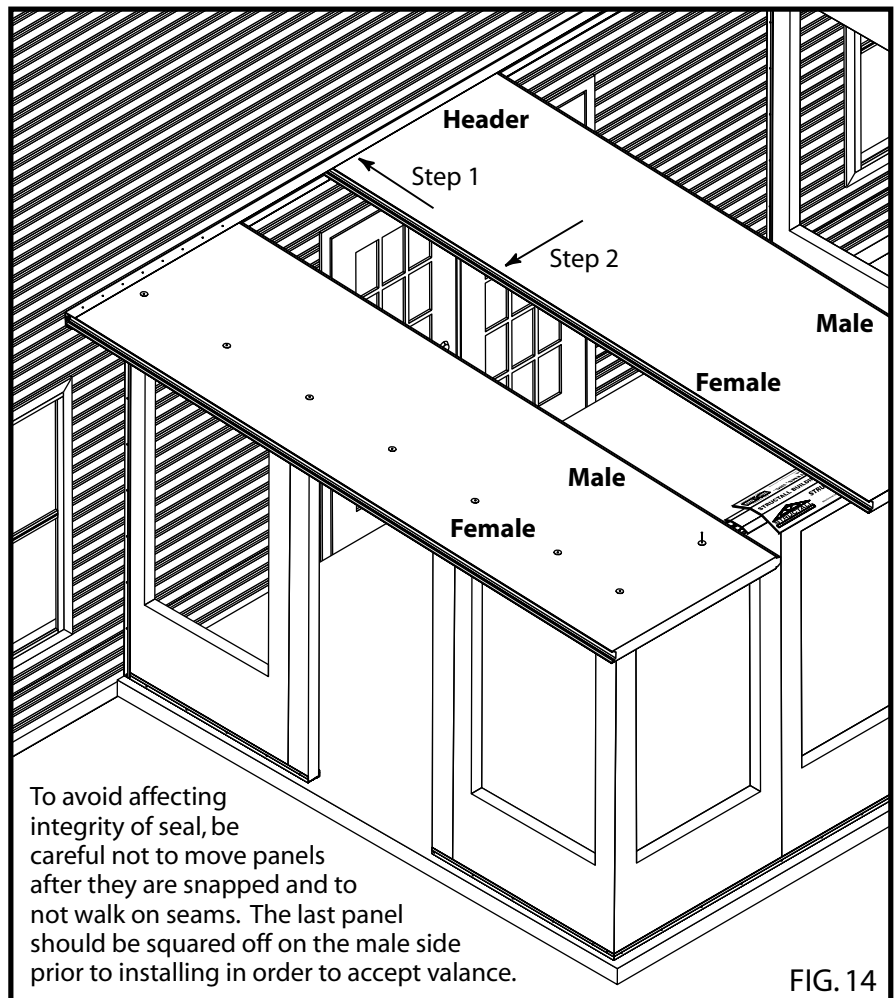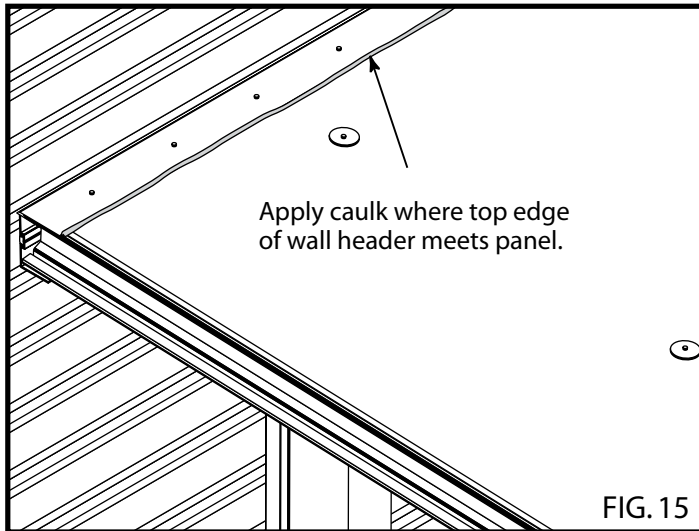

Sealant press   Bead of sealant   Sealant reservoir

Sealant will take on the configuration of the SNAP-N-LOCK inside the panel, and is not exposed to ultraviolet rays.

FIG. 13

be used in conjunction with a 1-1/8" neoprene gasket washer, also available from Structall. *[FIG 12]* When going into wood framing a 1/4" lag can be substituted. Do not over tighten.

Fasten the starter panel on the side wall and the outside corner only. The panel must be free on male edge to snap properly. *[FIG 11]*

[21] Run a bead of Solar Seal 900 down the top channel of the male side in the sealant reservoir. *[FIG 13]* Make sure that there are no air bubbles/pockets when applying sealant.

[22] Insert the second panel into the header in a level position with the starter panel, using proper handling techniques to avoid scratches.

[23] Position panel. Bump panel together until it snaps, bumping from header to overhang. *[FIG 14]* Panels should be snapped together fairly soon after caulking is applied

Header

Step 1

Step 2

Male

Female

Male

Female

To avoid affecting integrity of seal, be careful not to move panels after they are snapped and to not walk on seams. The last panel should be squared off on the male side prior to installing in order to accept valance.

FIG. 14

Apply caulk where top edge of wall header meets panel.

FIG. 15

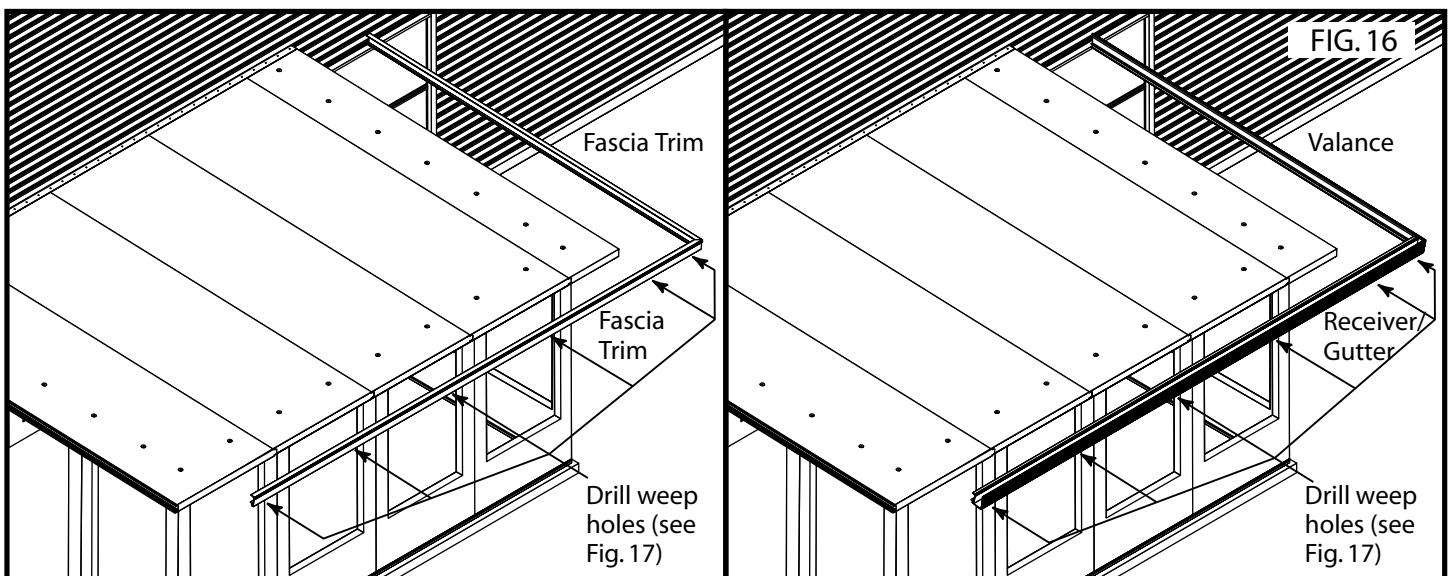to reservoir. Wipe down top seam of panel to smooth caulk.

[24] Repeat steps #21-23 with each new panel until finished. The last panel should be squared off on the male side prior to installing to accept valance. Then fasten remaining #10 screws or 1/4" bolts to final side wall and outside corner. *(If panels need to be cleaned, use soap and water.)*
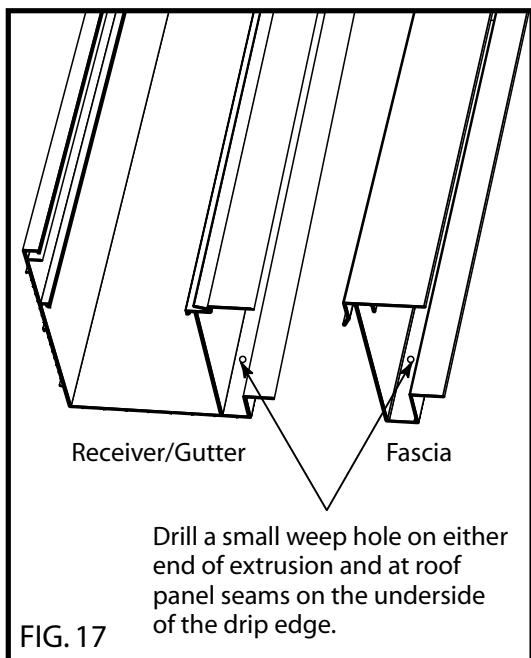
After all roof panels are installed, run a bead of sealant where the top edge of the wall header meets the panel. ***[FIG 15]***

IMPORTANT NOTE: If walking on the panels, care should be taken in not stepping directly on the seams. It may affect the seal and on longer spans the deflection of the panel can distort the Snap-N-Lock profile to the point of showing a dent on the bottom side. When working on the panels, it is also suggested that a piece of foam is used to kneel on to prevent denting.

[25] INSTALLATION FOR STRUCTALL FASCIA TRIM W/DRIP EDGE OR RECEIVER GUTTER

You can trim the roof two ways: 1) Fascia Trim on all three sides, or 2) Receiver/Gutter in front and Valance on sides. Cut front extrusion to exact width of roof plus 1/8". Run a heavy bead of caulking along upper inside edge of extrusion. Slip the extrusion over the end of the panels starting at one end and working the extrusion down the width of the roof. Application can be done from the roof or a ladder. A thin putty knife will facilitate application if the fit is tight. Using #8 x 9/16 tek screws at 12" intervals, secure extrusion to the roof front. Seal edges with 3" or 4" Flex-Seal Tape and/or Solar Seal 900 caulking. ***[FIG 16]*** Drill a weep hole on each end and in line with roof panel seams *(every 2 or 4 ft.)* on the underside of drip edge. ***[FIG 16/17]***


FIG. 16

Fascia Trim

Valance

Fascia Trim

Receiver/Gutter

Drill weep holes (see Fig. 17)

Drill weep holes (see Fig. 17)

Receiver/Gutter   Fascia

Drill a small weep hole on either end of extrusion and at roof panel seams on the underside of the drip edge.

FIG. 17

[26] INSTALLATION FOR STRUCTALL MATCHING VALANCE (use w/Receiver Gutter) OR FASCIA TRIM WITH DRIP EDGE
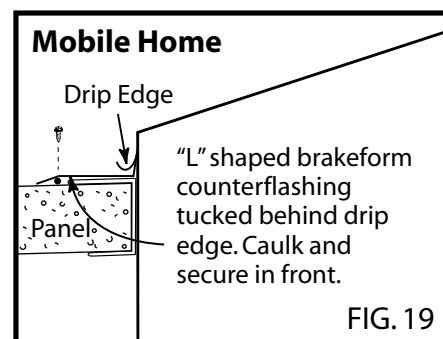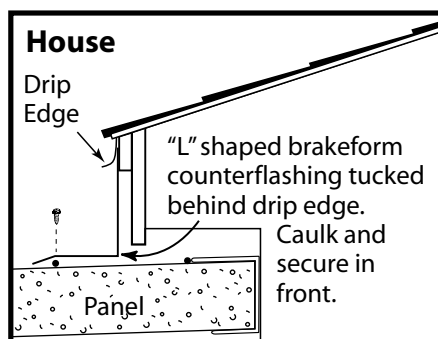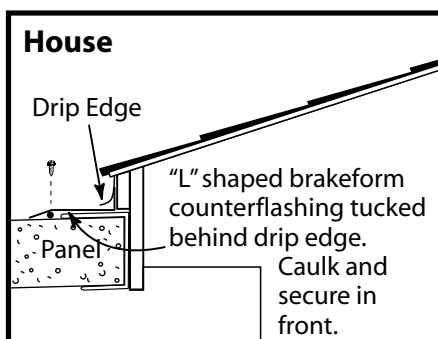
Both the valance and fascia trim fit to the outside of the front extrusion. At the end closest to existing structure, cut valance/fascia at appropriate angle to allow for slope of roof. At the opposite end, to allow for gutter or fascia trim, cut out the flanges 4-3/4". *[FIG 18]*

Cut out 4-3/4"

Cut angle

FIG. 18
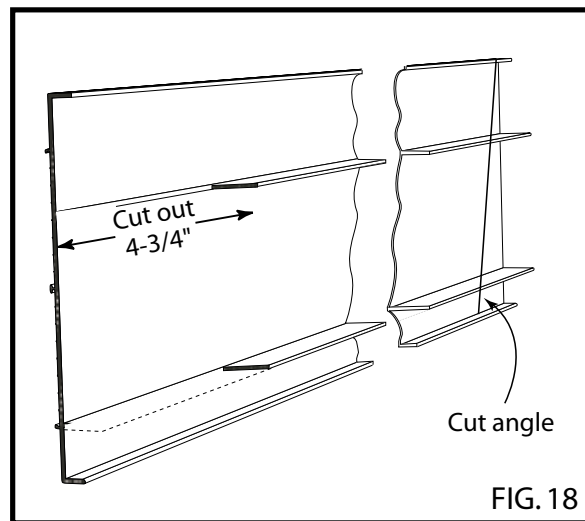
[27] FINAL SEALING PROCEDURES

Due to the advanced design of the Snap-N-Lock panel, it is almost impossible for the panel seams to leak. As in any aluminum roof structure, the most critical point is where the header meets the support wall. For best results counterflashing should be used. *[FIG 19]* If structure has no drip edge, use a flexible flashing such as Flex-Seal tape.

House

Drip Edge

"L" shaped brakeform counterflashing tucked behind drip edge. Caulk and secure in front.

Panel

House

Drip Edge

"L" shaped brakeform counterflashing tucked behind drip edge. Caulk and secure in front.

Panel

Mobile Home

Drip Edge

"L" shaped brakeform counterflashing tucked behind drip edge. Caulk and secure in front.

Panel

FIG. 19

[28] To insure a water tight seam, caulk under edge of counterflashing that rests on roof and secure with a #8 x 1/2" screw at 6" intervals. Flex-Seal tape can be used in addition to caulking.

[29] Using Solar Seal 900, seal exposed screws and bolt heads. Make sure to completely cover the washers, because of the depression formed when tightening the panels down. Water can sit around the washers and create a problem. If you haven't already, apply caulk along all roof panel/extrusion connections, where receiving channel meets existing structure, and at base channel along top edge where it meets wall panel, at door openings and along outside corner.

Optional Upgrade: Provide the homeowner a more long-term low-maintenance solution to leaks, by

also covering the header, fascia-gutter-panel connections, and panel seams with Flex-Seal tape. The tape remains flexible, while moving with the varying metals of the panel and extrusion as they expand and contract. No fishmouths will form and the bond will remain unaffected. The aluminum backing provides superior UV protection. It also enables the tape to conform to irregular surfaces for a weather-tight seal.

FINAL STEPS AFTER ROOF INSTALLATION

[30] Secure top channel to wall panels with #8 hex head tek screws 12" on center, along inside and outside of shell. *[FIG 20]*

[31] Position 2" x 2" angle on each outside corner and secure into place. On the inside corners position 1" x 1" or 2" x 2" angle and secure into place. *[FIG 20]*

[32] CEILING FANS

Secure angle to outside and inside corner every 12" on center.

The top channel can be secured at this time on both the inside and outside with #8 hex head tek screws every 12" on center (not shown).

FIG. 20

For ceiling fan installation, Structall Building Systems will bond in a carrier beam into the panel. This beam can be used to secure heavy fans or lights, and can also act as a conduit for electrical wire. Our method of manufacture allows for a smooth surface and no condensation. These 1-1/2" x 3" box beams can be placed anywhere in the panel within 4" of seam and are positioned closest to the top side of the
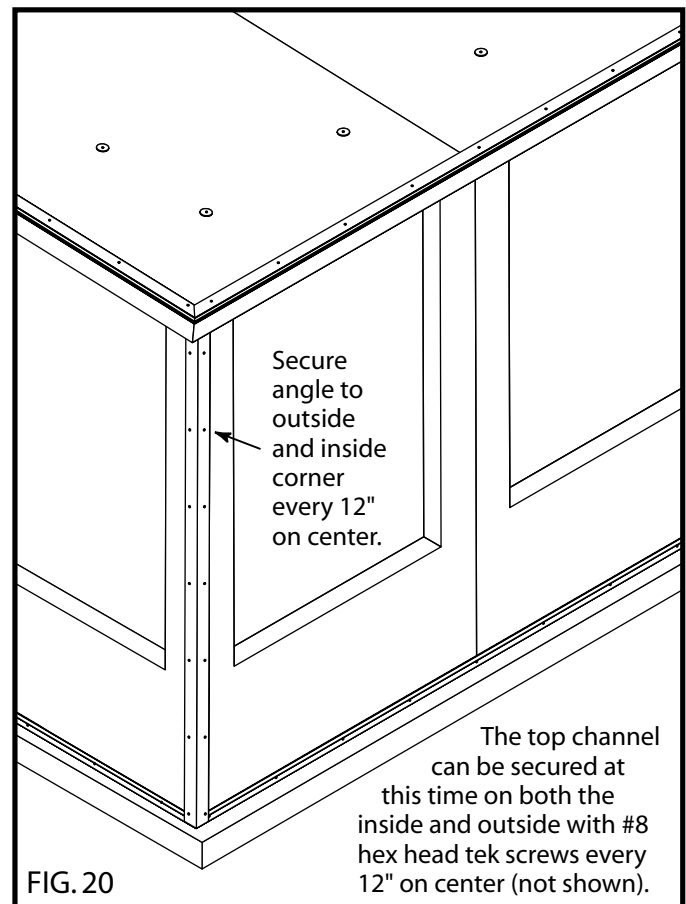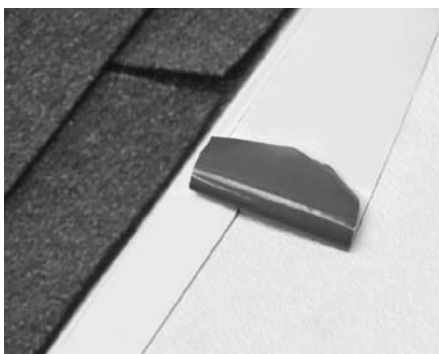
FLEX-SEAL™ SEALANT TAPE

Header - Panel Connection
The tape provides added protection in this critical area and performs like flashing. It also bonds instantly and protects immediately.

Panel Connection at Gutter/Fascia
The tape remains flexible, moving with the varying metals of the panel and extrusion as they expand and contract. No fishmouths will form and the bond will remain unaffected. Water will drain right off the roof.
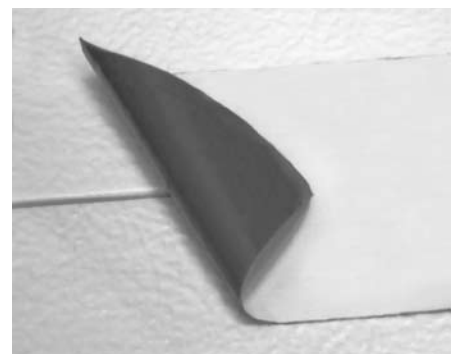
Panel Seams
Flex-Seal provides a more long-term solution to leaks. The white backing provides superior UV protection. The adhesive remains stable even in very hot or cold temperatures.

panel. Whether you start your roof with the female side facing the outward perimeter of the structure *(as we recommend)* or the male side, make sure the fan beam will end up with the proper side facing the top. If this procedure is not followed, the fan beam may telegraph through the panel.

TOP OF ROOF
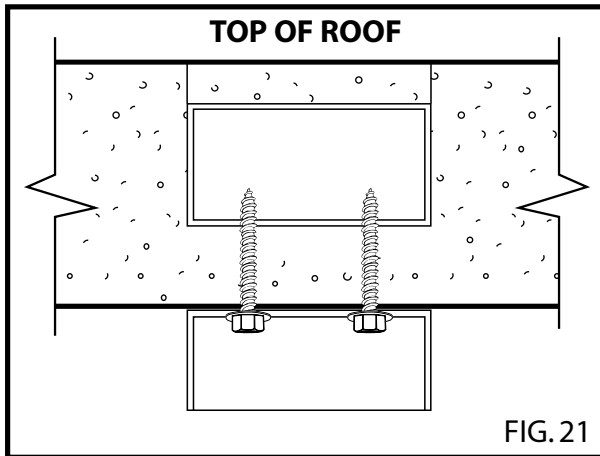
FIG. 21

To install an electrical and/or fan box, locate center line of fan beam and attach box to underside with four #10 x 1-1/2" sheet metal screws. Do not use screws that will exceed roof panel thickness. *[FIG 21]*

CUTTING WINDOW & DOOR OPENINGS:

[33] Window and door openings can be cut in the field using a circular saw or precut at the factory. Once openings are cut, measure the width and height. Cut thermo break 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 #8 hex head screws 6" on center on both the interior and exterior legs. *[FIG 22]* If using flange mount windows, secure the interior only. The 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 according to manufacaturer's recommendations.
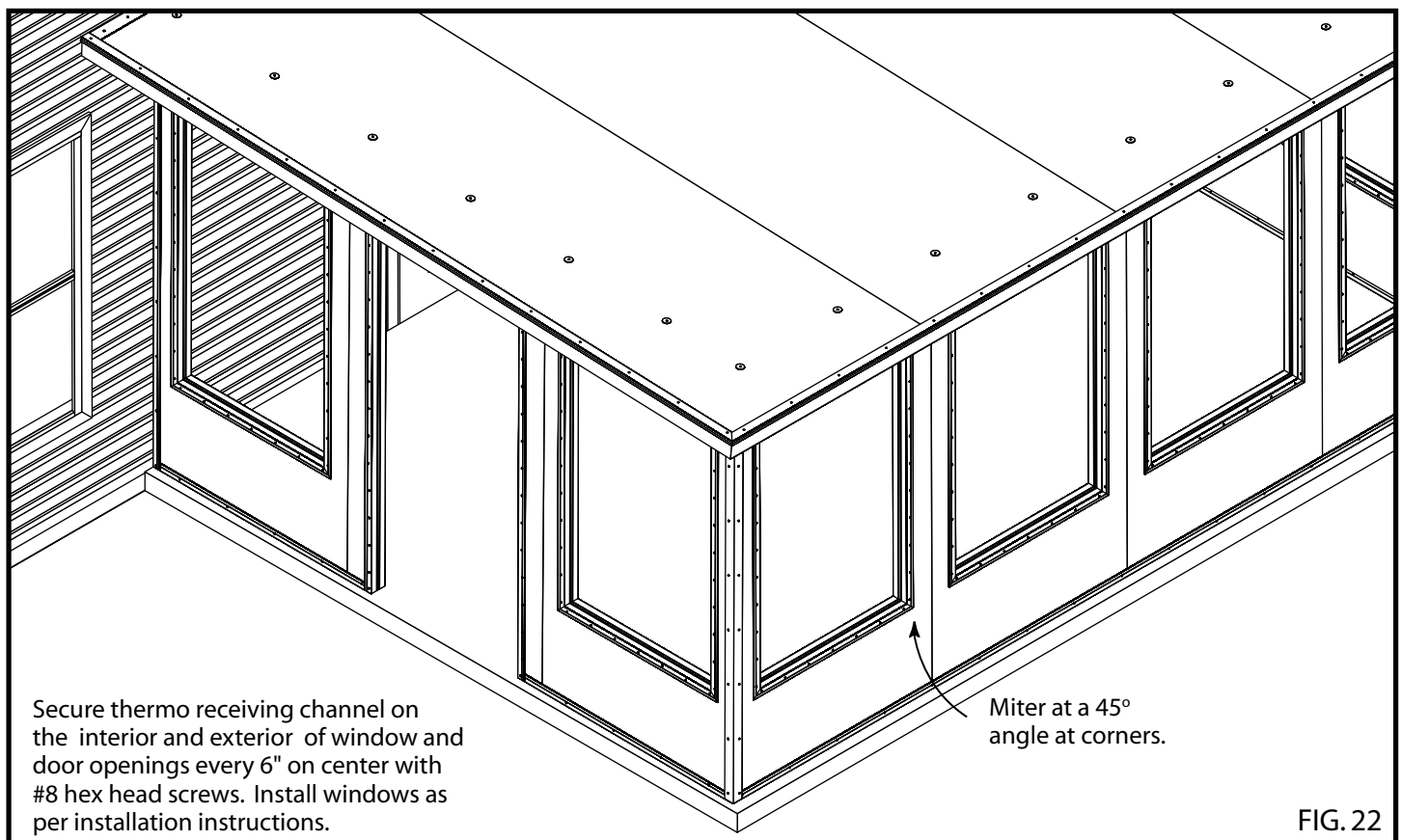

Secure thermo receiving channel on the interior and exterior of window and door openings every 6" on center with #8 hex head screws. Install windows as per installation instructions.

Miter at a 45° angle at corners.

FIG. 22

[34] SKYLIGHT INSTALLATION

Skylights should be centered in the width of the panel, within 1 ft. of the sides. For best results, Poly Lite® Skylights, available through Structall Building Systems, Inc., are recommended. See applicable Poly Lite® Skylight Installation Guide *(fixed or venting available)*.

Optional: Structall Building Systems, Inc. will precut and frame skylight openings per customer specifications.

Before installation, consult your local building department to determine local code requirements. These instructions are written in accordance with the Southern Building Code and are meant as a guide only. Each county has the option of interpreting this code and you should follow your local building code requirements. We assume no liability for the finished product, with the exception of product supplied to you under Structall warranty. If you have any further questions contact your sales representative.