

ROOFSCREEN LT™ INSTALLATION MANUAL



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INTRODUCTION

THE ROOFSCREEN LT SYSTEM

The RoofScreen LT system is a light-duty solution for equipment screening on low-slope roofs in low-wind load areas. This system is easy to install and does not require any special skills. Your basic construction experience, shop drawings and this installation manual are all you need. We have reduced the normal learning curve for you by providing all the methods, tricks and tips we have developed over time for installing the RoofScreen LT system. When you follow this manual, you will be pleased at how fast and simple this system is.

THIS MANUAL

This manual is designed to illustrate the basics of installing our RoofScreen LT system. Every job is different and may require variation from the procedures and materials shown in this manual. However, this will give you the concept of how the system is used, and will illustrate the speed and ease of installation of the design.

APPLICATION

The RoofScreen LT system is designed to be installed on flat to low sloped roofs with any type of deck and framing system. It is important to understand that any installation requires engineering calculations by a licensed structural engineer to ensure its adequacy for the specific conditions that apply.

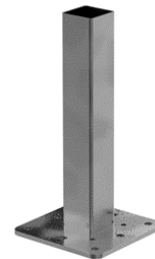
SYSTEM OVERVIEW

COMPONENTS

The following components are for typical installations. Consult your shop drawings for specifics regarding your project and components that may not be included in this manual.

SQUARE POST SUPPORT

These are the steel stanchions that mount the RoofScreen LT System to the roof structure. The Base plates are typically 5.9"x5.9" but may vary by project. The square galvanized tube is a fixed height with an end OD of 2". Standard height is 12" but this may also vary by project to accommodate thicker rooftop insulation.



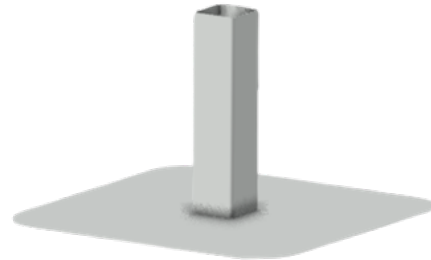
SQUARE POST CAP

The Square Post Cap is used to connect the Square Post Support to the Horizontal Frame member of the LT Frame. Attaches to the Square Post Support using Tek 3 screws with included sealing washers.



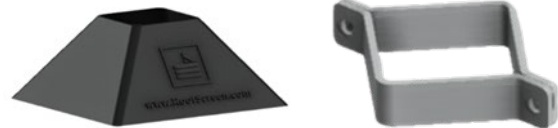
ROOF FLASHING

Flashings, available in PVC, TPO and Lead, are optional components from RoofScreen. Check your order and shop drawings to determine if they were included.



EPDM STORM COLLAR & FLASHCLAMP

Used to seal flashings to the Square Post Supports and protect caulking from weather.



HORIZONTAL TUBE

Square tube segment that attaches the frame to the Square Post Supports via Square Post Caps. Comes with slotted attachment point, or bracket for the Lower Diagonal Tube at the rear. Flanged connectors on the opposing end are used to secure the Vertical Tube.



VERTICAL TUBE

Square tube segment with predrilled attachment point on the top end. Used to secure the Upper Diagonal Tube via through bolt and Horizontal Tube via Tek screws.



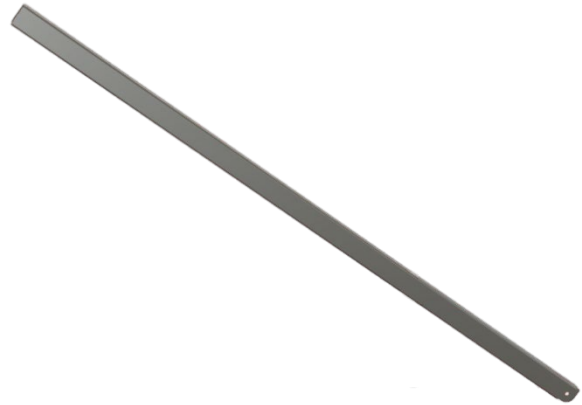
UPPER DIAGONAL TUBE

Square tube segment with predrilled attachment point on the top end, and 3 predrilled holes on the opposite end. Attaches to Bottom Diagonal Tube via Tek screws and to the Vertical Tube via through bolt.



BOTTOM DIAGONAL TUBE

Square tube segment with predrilled attachment point on the bottom end. Used to connect the Horizontal Tube to the Upper Diagonal Tube via through bolt and Tek Screws.



HAT SECTIONS/GIRTS

Hat/Girt Sections are typical members used to span horizontally between the LT Frames and allow the panels to mount in a vertical orientation. Hat/Girt Sections typically aren't included in your order if the panels are designed to be in horizontal orientation.



TEK 3 SCREWS

Tek 3 Self-Drilling Screw is the fastener used for most of the fittings on RoofScreen LT Framing. Tek 3 screws have a short drilling point and are typically used when fastening to thin metal like channels and hat sections. There are occasions when a different screw is specified so please carefully review your shop drawings. A selection of the Tek 3 screws will include sealing washers; be sure to use these to fasten the Square Post Caps to the Square Post Supports.



STAINLESS STEEL BOLT KIT

For a typical LT Frame there will be two bolt points. One securing the Upper Diagonal frame member to the Vertical frame member at the front of the assembly, and one to fasten the Lower Diagonal member to the Horizontal member at the rear of the frame.

SQUARE TO FLAT CONNECTOR

Bracket with predrilled holes for Tek screws. Used occasionally as Lower Diagonal Tube attachment points for frames with larger spans. Also used for Lateral Bracing.



DEFINITIONS

For clarity, it is helpful to understand some of our standard terminology. Please refer to Figure 1 below and review the following terms. The frame shown is typical and may not match the configuration of your project. Review your shop drawings for specifics.

FRAMES

The assembly of tubes and connectors, typically in a triangular configuration, mounted on 2 Square Post Supports, similar to the illustration in Figure 1.

FRAME SPACING

Distance from frame to frame across the roof. Spacing may vary depending on wind load and other factors. Consult shop drawings for specifics.

FRAME HEIGHT

Height of the frame measured from the roof deck (below any rooftop insulation, if applicable) to the top of the screen. See Figure 1.

SPAN

Center-to-center distance between Square Post Supports on any given frame (see Figure 1). Span may vary depending on frame height, wind loads and other factors. Consult shop drawings for specifics.

CANTILEVER

Distance from the center of the front Square Post Support to the Vertical Tube (see Figure 1). The cantilever allows front-to-back adjustment of the screen to plane out the panels during installation.

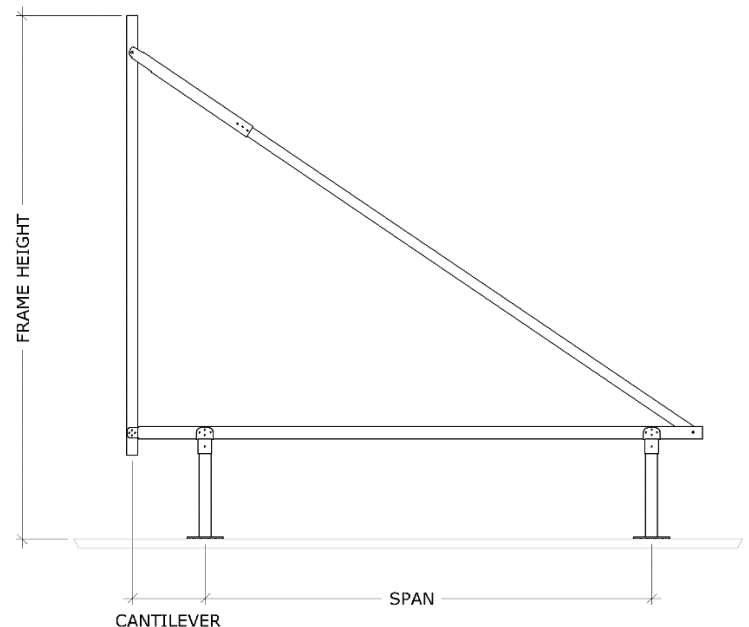


FIGURE 1

PREPARATION

MATERIAL HANDLING

When receiving material, check to see that the shipping documents match the shipment. Count the number of packages and quantities within each package to the extent possible. Check for damage at the same time. If damage or other discrepancies are found, write a note to that effect on the bill of lading, and have it signed by the driver.

Materials are delivered via flatbed truck, enclosed trailer, or a combination of both, and may include block & banded bundles, wood crates and cardboard pallet boxes. These materials are heavy and will require a forklift or crane to unload.

- ! Do not lift bundled loads by the metal bands. Either use a forklift from underneath or use straps around the entire bundle.
- ! Do not lift wood crates by the slats or cross members. Either use a forklift from underneath or use straps around the entire crate.
- ! When using a forklift, spread the forks as far as possible to balance the load. Drive slowly when moving long bundles over uneven surfaces to avoid tipping the load.
- ! When using a crane or any other type of hoist, position the sling straps so that the space between the straps is at least 1/3 the length of the bundle. Use sling straps with looped ends, running one end of the strap through the loop at the other end to cinch the bundle when lifted.
- ! When setting the load on the roof, put wood blocks under it to protect the roof and allow space to remove the sling straps.
- ! Heavy bundles and crates should be spread out on the roof to avoid overloading the roof structure. Place the material directly over major supports such as beams or trusses.
- ! Use caution when cutting metal bundle straps as the tension on the strap may cause it to spring up potentially causing injury.

MATERIAL STORAGE

If the material is going to be stored outdoors for any period, we recommend covering it with plastic or tarps. Bundles of channel and hat section can be left uncovered if the load is raised at one end to allow water to run off. Storing materials outdoors may have warranty implications/restrictions. Consult your warranty documents for specifics.

TOOLS

The following is a list of recommended tools to perform the installation:

1. 200' tape measure
2. String line
3. Levels (large one and 6" "torpedo")
4. Construction crayon
5. Ear plugs
6. Safety glasses
7. Heavy duty extension cords
8. Large Vise Grip Clamps
9. Open end and socket wrench set
10. Power drill
11. ½" drive power impact driver
12. Cordless drill/driver gun
13. Self-leveling laser level with tripod.
14. Power skill saw with metal cutting blade
15. Reciprocating saw with metal cutting blade

INSTALLATION

This manual covers the techniques and procedures for installing a typical RoofScreen LT frame. There are many variables that make each project unique and it would be impossible to cover all of them in these instructions. Please use this manual as a general guideline that covers the basic concepts for installing our product. If you have a specific question that is not covered in this manual, or you would like some help with your installation, please feel free to contact us at 831-421-9230.

REVIEW SHOP DRAWINGS

At this point, it is recommended to read this entire installation manual in conjunction with reviewing the shop drawings. The shop drawings are very detailed and contain specific information about how to properly install the LT Frame that may not be covered in this manual. It is highly recommended to obtain a full-size print of the drawings, so all details and dimensions are readable.

The drawings will include one or more section details of the LT Frames, similar to Figure 2. Note: this is just an example for illustration purposes.

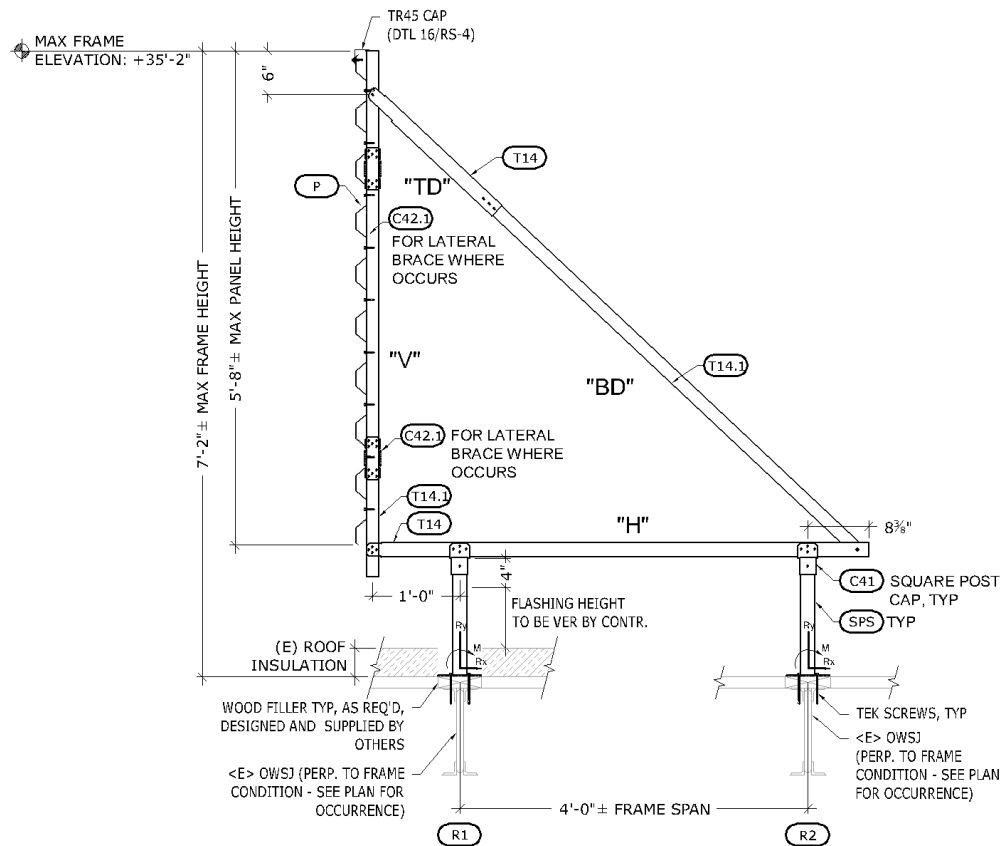


FIGURE 2

The frame configurations are based on engineering calculations and should be followed exactly. If any parameters cannot be followed, please contact us at 831.421.9230 for assistance. The only parameters that can be field adjusted without violating the engineering constraints are the following:

- **Frame Spacing:** The frame spacing dimension may not be exceeded, but the frames may be placed closer together if necessary.
- **Cantilever:** The cantilever (distance from the center of the Square Post Support to the center of the Vertical or Diagonal Tubes) cannot be exceeded but may be shortened if necessary.

The section detail(s) cross reference to the roof plan layout on the drawings. If multiple frame types are included in your project, it is important to ensure you build the frames to the specifications in the details and place them in the correct locations in the layout. Please also note the callout bubbles on the details, which reference the specification notes. These notes contain important information about the installation, including quantity and type of fasteners required for different components.

INSTALL SQUARE POST SUPPORTS

STEP 1: INSTALL THE CORNER AND END POST SUPPORTS

Using a long tape measure, lay out the corners and ends of the LT Frame by measuring from roof edges, parapet walls or other features on the roof. Mark the location for the front Post Supports for each corner and end frame. Refer to the layout in your shop drawings and example in Figure 3.

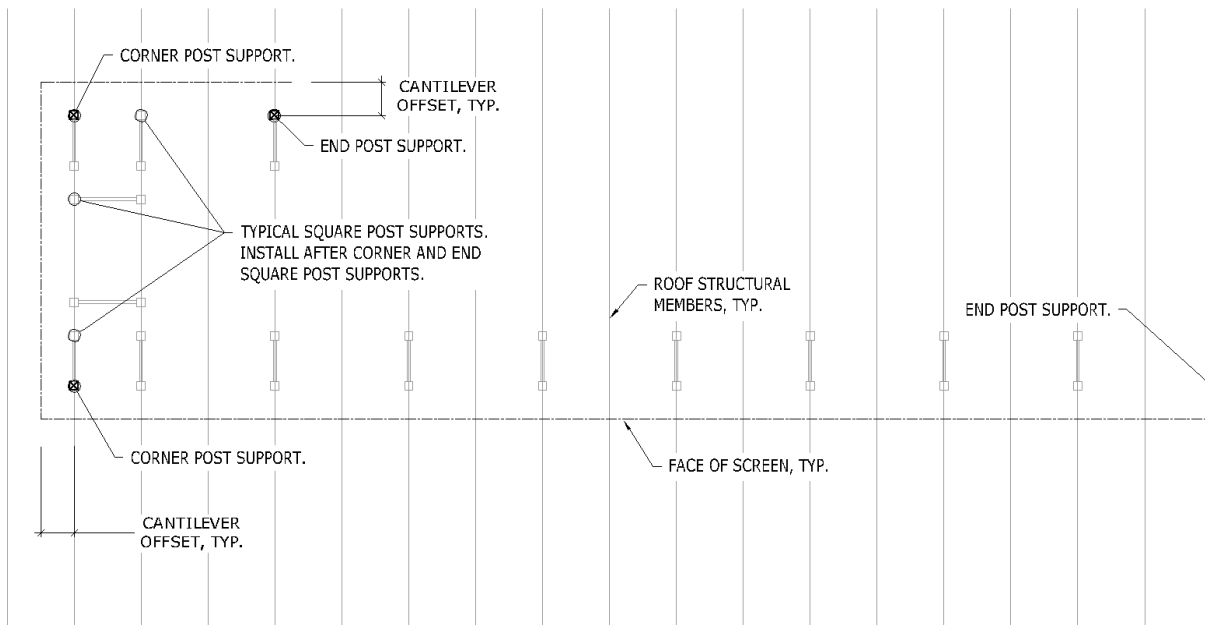


FIGURE 3

The face of the screen (dashed line in example) will be offset by the cantilever distance designed into the frame plus hat channels, if applicable, and panel thickness. Refer to your shop drawings for specifics. Prior to marking and installing the typical Post Supports, fasten the end and corner Post Supports to the roof structure according to the specs and details shown in the drawings.

STEP 2: INSTALL REMAINING SQUARE POST SUPPORTS

Install the remaining Square Post Supports, following the layout in your shop drawings. Post Supports should be installed in a relatively straight line. The level of installation accuracy required for frame alignment depends on the details of your specific project. Refer to your shop drawings to see the maximum cantilever on the front and back of your frame detail. The Horizontal Tube may be moved forward or backward to compensate for misaligned Post Supports so long as the maximum cantilever distance is not exceeded.

STEP 3: INSTALL FLASHING AND ROOFING

Have a qualified professional roofing contractor install flashings over the Square Post Supports and roof them in with appropriate methods for the type of roofing system being used. The flashing should terminate at least 8" above the roof surface and at least 4" below the top of the Post Support to allow the Post Cap and Storm Collar to be slipped over the Post Supports in a later step.

STEP 4: INSTALL FLASHCLAMP, STORM COLLAR AND SQUARE POST CAP

With all the Square Post Supports and flashings installed and roofed in, install the FlashClamp in conjunction with caulking to create a watertight seal between the flashing and each Square Post Support. Apply a ring of caulking between the inside of the flashing and the outer face of the Post Support approximately 1" below where the flashing terminates. Next place each side of the FlashClamp around the Square Post 1" below where the top of the flashing terminates, so that the predrilled holes align. Secure with included bolt kit, as seen in Figure 4.

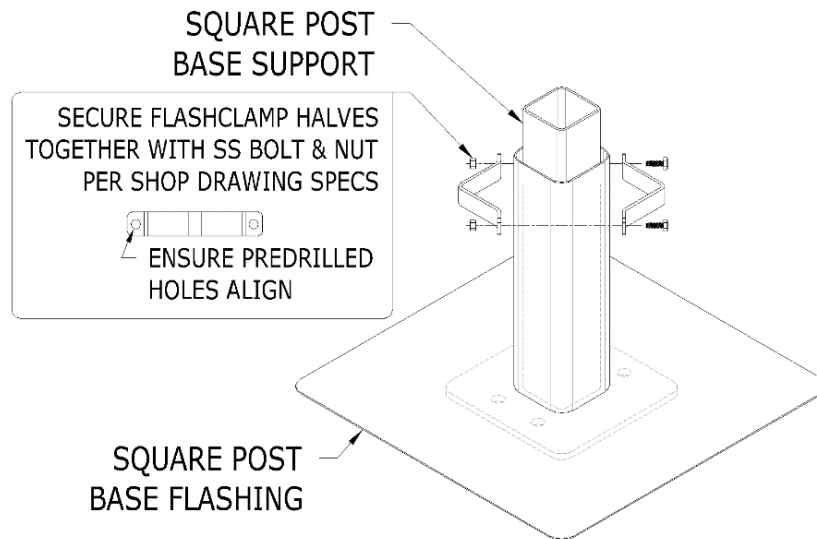


FIGURE 4

With the FlashClamp in place, slip the included Storm Collar over the Square Post so it sits on top of the FlashClamp. This provides an extra layer of protection from severe weather and sun exposure.

After the Storm Collar has been slipped into place, we can finish the assembly of the Square Post Supports by installing the Square Post Caps. These Caps are fastened to the top of the Post Supports using Tek 3 screws with included washers as seen in Figure 5. The Caps include predrilled holes. Refer to your shop drawings to determine the correct number of fasteners to use.

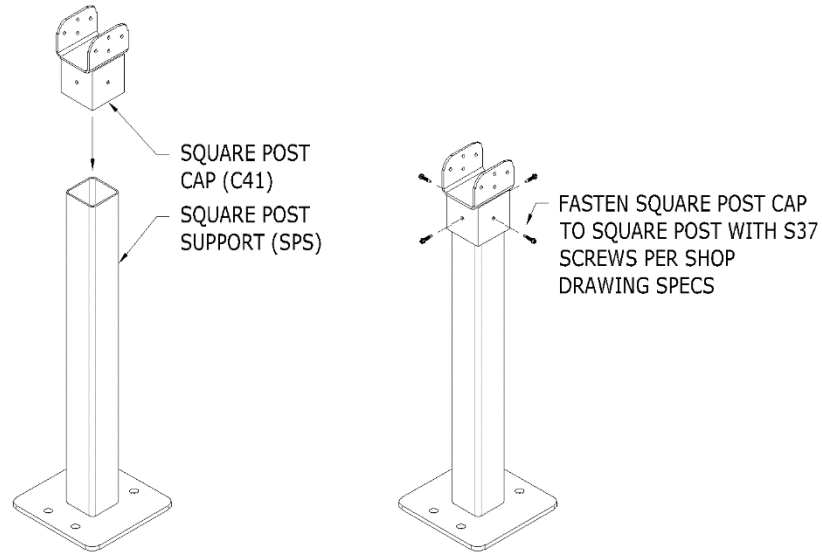


FIGURE 5

ASSEMBLE FRAMES

STEP 5: DETERMINE FRAME HEIGHT

Sloped roofs will have varying frame heights as illustrated in Figure 6. Since the top of the screen is typically at a consistent elevation, frames located at low points in the roof will need to be adjusted taller, and frames at higher points adjusted lower. RoofScreen LT frames have some height adjustability built into the design. If the roof slope exceeds the adjustability range of one frame type, alternate frames will be specified in the shop drawings to accommodate all the heights needed for the project. For this reason, it is very important to ensure the correct frames are installed in their designated locations as detailed in the shop drawings.

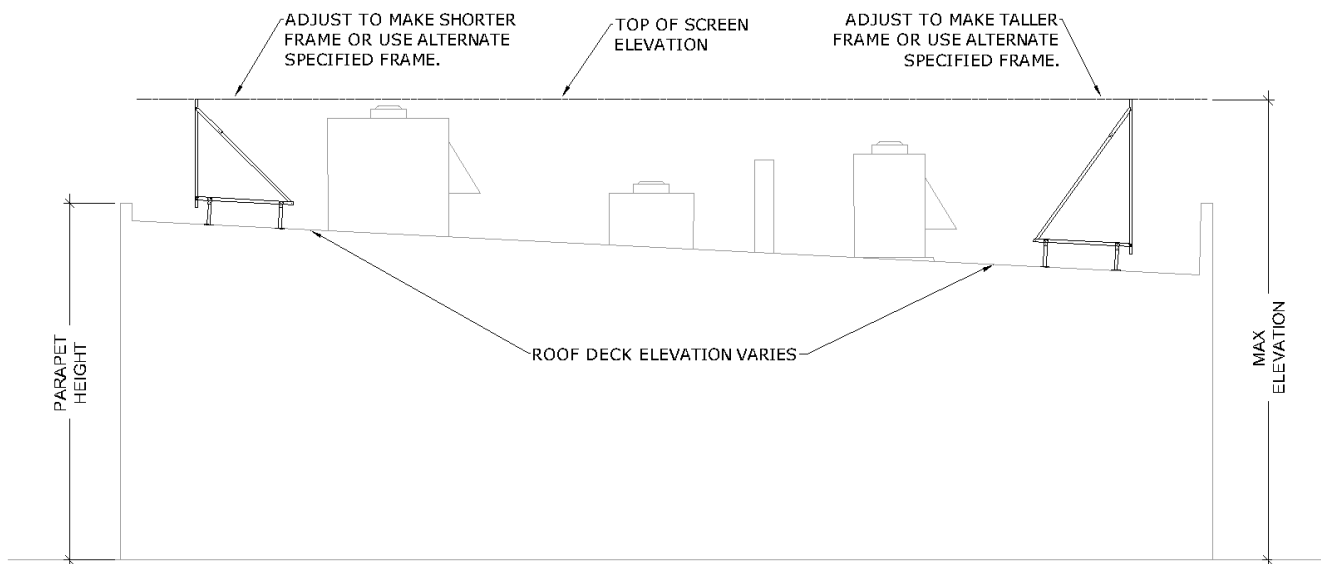
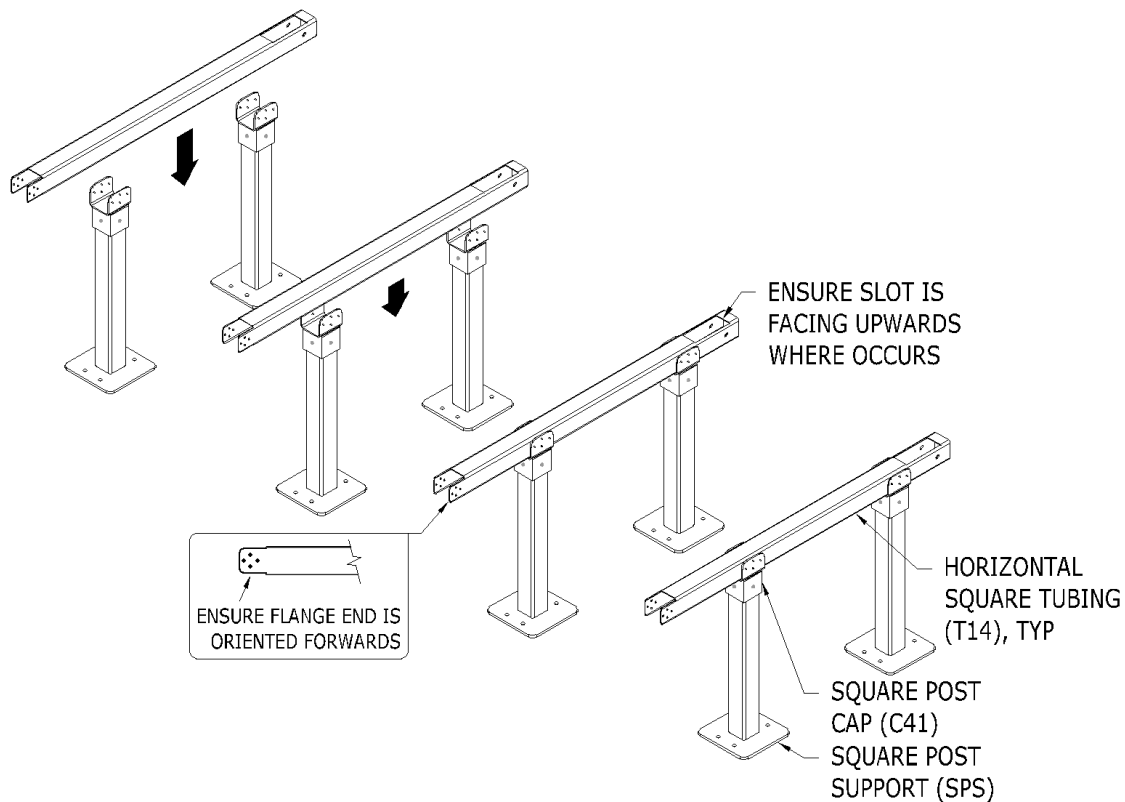


FIGURE 6

The detail(s) in the shop drawings also show the maximum elevation to the top of the screen from ground level. This maximum engineered height cannot be exceeded. Set a laser level to the desired top-of-screen elevation and measure from the laser beam to the lowest point in the roof (where a screen will be located). This measurement represents the tallest frame on the project and must be equal or less than the max frame height shown in the shop drawings.

STEP 6: INSTALL HORIZONTAL TUBE

Locate the Horizontal Tubes labeled with their respective frame number. Refer to your shop drawings for specific frame designations pertaining to the project. A frame label with a number 1 will correlate to the shop drawing frame detail 1. Slide the Horizontal Tube into the Square Post Caps to span the front and rear Square Post Supports. If your plan includes standard slotted Horizontal Tubes, ensure the slotted segment is facing upwards. Additionally, be sure the flanged end of the Horizontal Tube is facing the front of the frame so it can attach to the Vertical Tube member in a later step as detailed in Figure 7.

**FIGURE 7**

Before securing the Horizontal Tubes to the Square Post Supports, adjust the front-end cantilever to ensure the screen wall will be straight when complete. This is accomplished by sliding the Horizontal Tube along the Square Post Cap as demonstrated in Figure 8. For short runs, use a string line to align the Horizontal Tubes of each frame. The most effective method is to set the tube on the first and last frames in a run, then pull a string line between the two to set the remaining tubes. If the run is long (over 50'), or if it is a windy day, it is recommended to use a laser level in vertical mode instead of a string line. Ensure that the front-end cantilever does not exceed the dimension noted on the shop drawings.

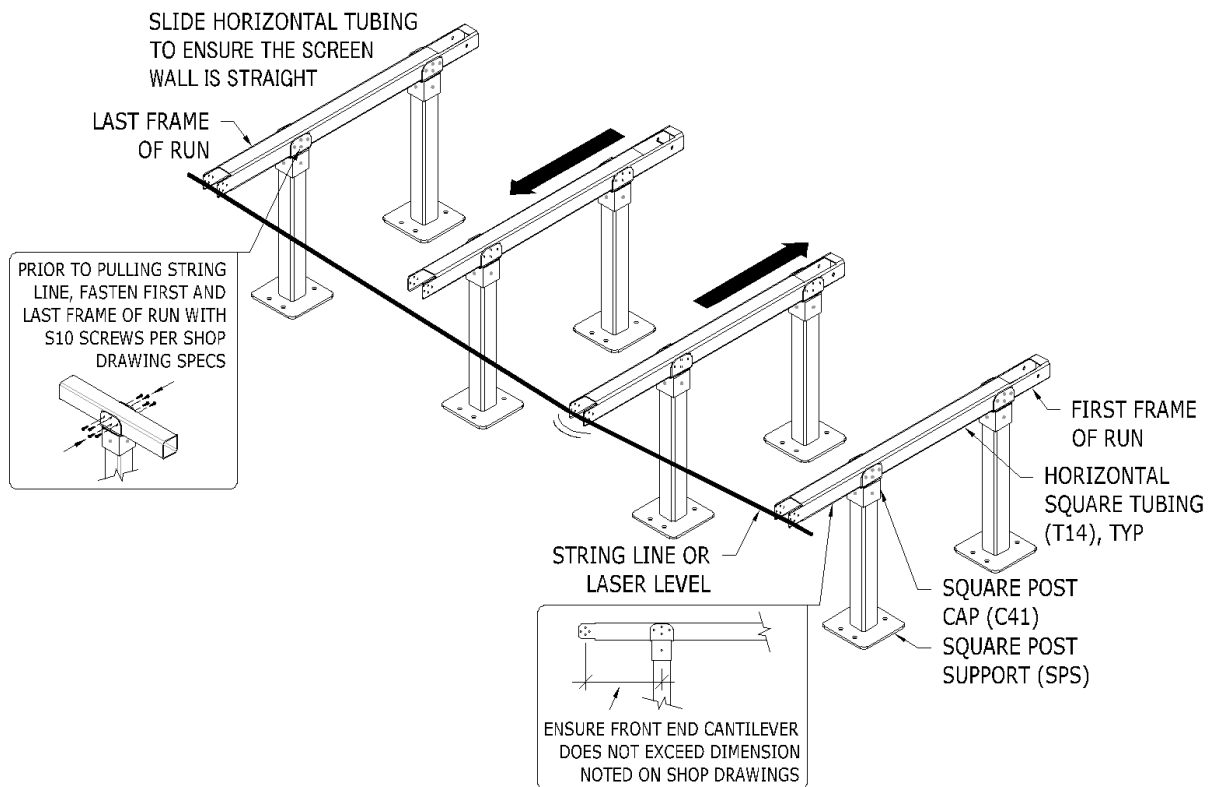


FIGURE 8

Once all Horizontal Tubes are properly aligned, install the Self-Drilling Tek Screws in each Square Post Cap, as shown in Figure 9. Refer to your shop drawings for the correct quantity and location of required screws.

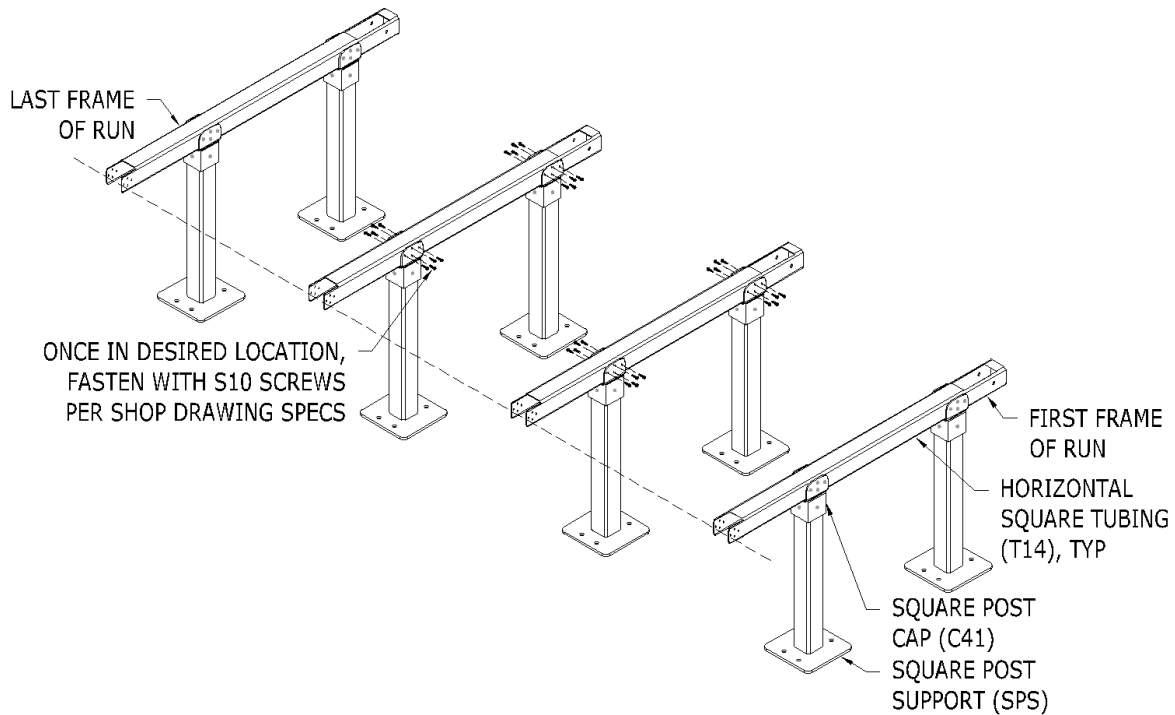


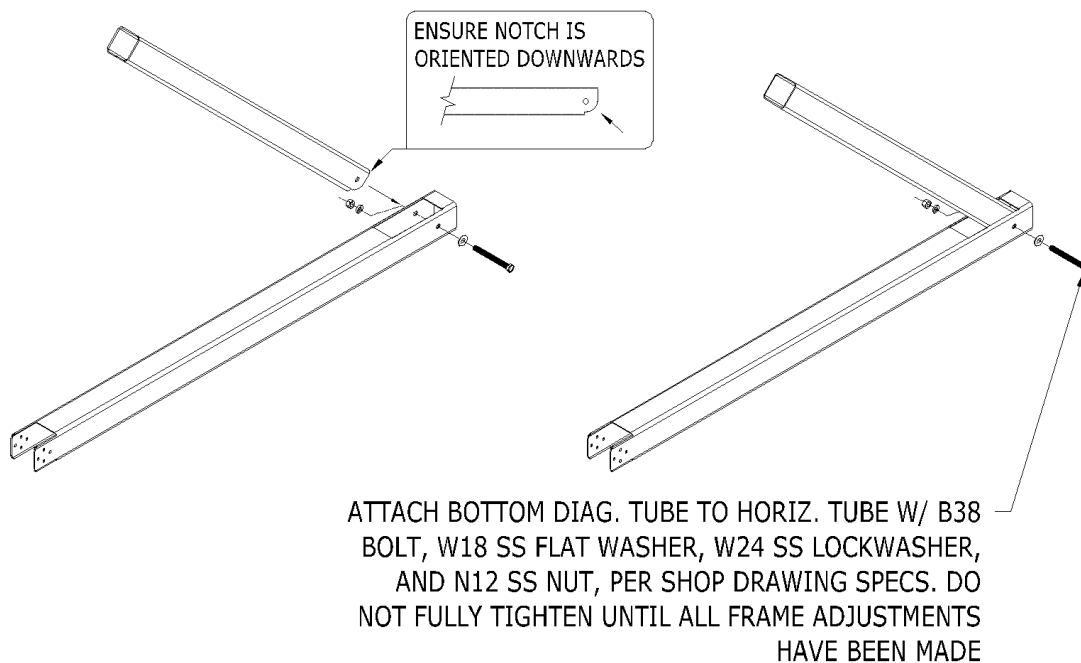
FIGURE 9

Important: Be sure to sweep or vacuum metal shavings from the Horizontal Tubes after drilling Tek Screws to prevent rust, stains or damage to the roof membrane from the shavings.

STEP 7: INSTALL BOTTOM DIAGONAL TUBE

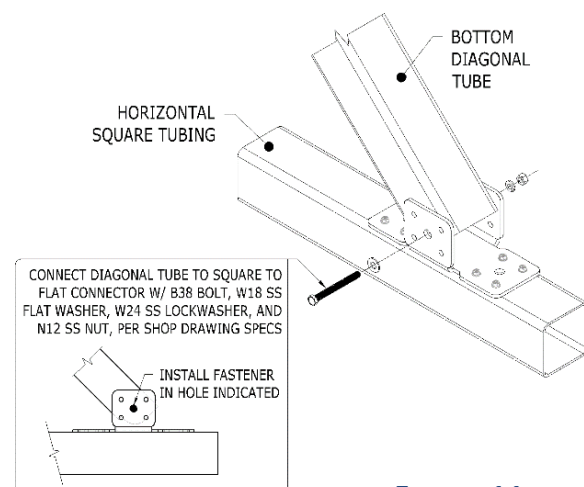
The Bottom Diagonal Tube attaches to the Horizontal Tube using one of two methods.

For most frames, the rear of the Horizontal Tube will have a slotted segment to slide the Lower Diagonal Tube into as seen in Figure 10. This allows predrilled holes in both the Horizontal and Bottom Diagonal Tubes to align. Once aligned, install the SS Bolt Assembly as illustrated below. When installing the bolt, washers and nut be sure not to fully tighten. This will allow for adjustability at a later step.

**FIGURE 10**

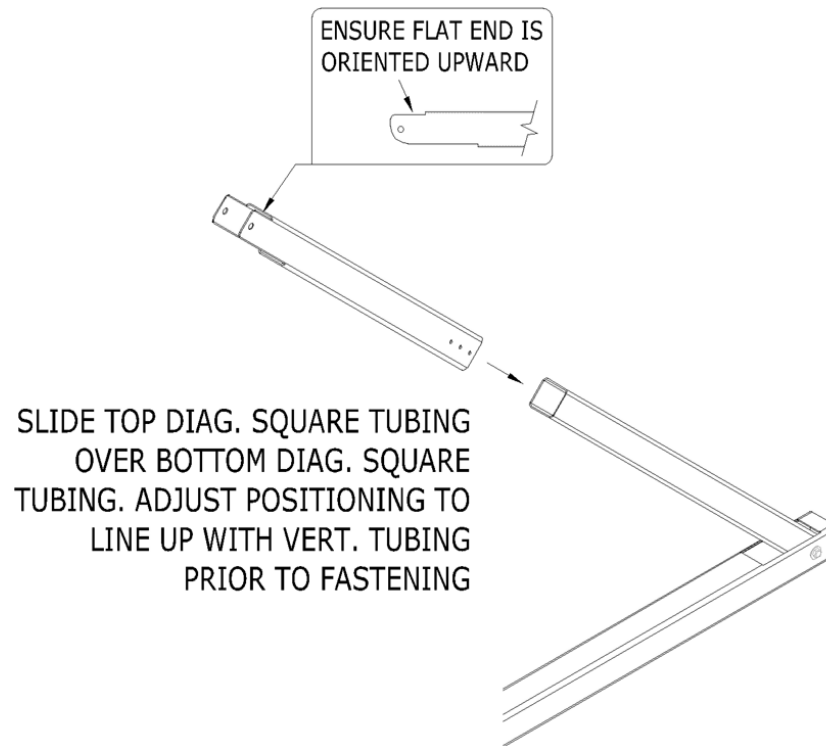
For frames with longer spans, a Square to Flat Connector will be supplied to create a connection point for the two tubes. The Square to Flat Connector is secured to the Horizontal Tube using Tek 3 screws and contains a predrilled hole to align with the predrilled hole found at the base of the Bottom Diagonal Tube. Please refer to your shop drawings for Tek screw placement.

The included SS bolt is used to pass through the predrilled holes in the Connector and Bottom Tube and is secured using the nut and lock washer as seen in Figure 11.

**FIGURE 11**

STEP 8: INSTALL TOP DIAGONAL TUBE

The Top Diagonal Tube connects the Bottom Diagonal Tube to the Vertical Tube (added in the next step) while serving as an adjustment point to ensure plumbness of the Vertical Tube member. Attaching the Top Diagonal Tube is a two-step process that will be completed in a later step. In this step, simply slide the Top Diagonal Tube over the Bottom Diagonal Tube (without fastening Tek's) as shown in Figure 12, then move on to the next step.

**FIGURE 12**

STEP 9: INSTALL VERTICAL TUBE

Locate Vertical Tubes labeled with correlating frame numbers. A frame label with a number 1 will correlate to the shop drawing frame detail 1.

The top of the Vertical Tube contains a predrilled hole that will be utilized in the next step. Ensure this end is orientated upward. Seat the opposite end of the tube into the flanges of the Horizontal Tube. Ensure the Vertical Tube is flush with the flanges of the Horizontal Member as illustrated in Figure 13. Do not seat the Vertical Tube completely back against the Horizontal Tube allowing the ends of the flanges to protrude.

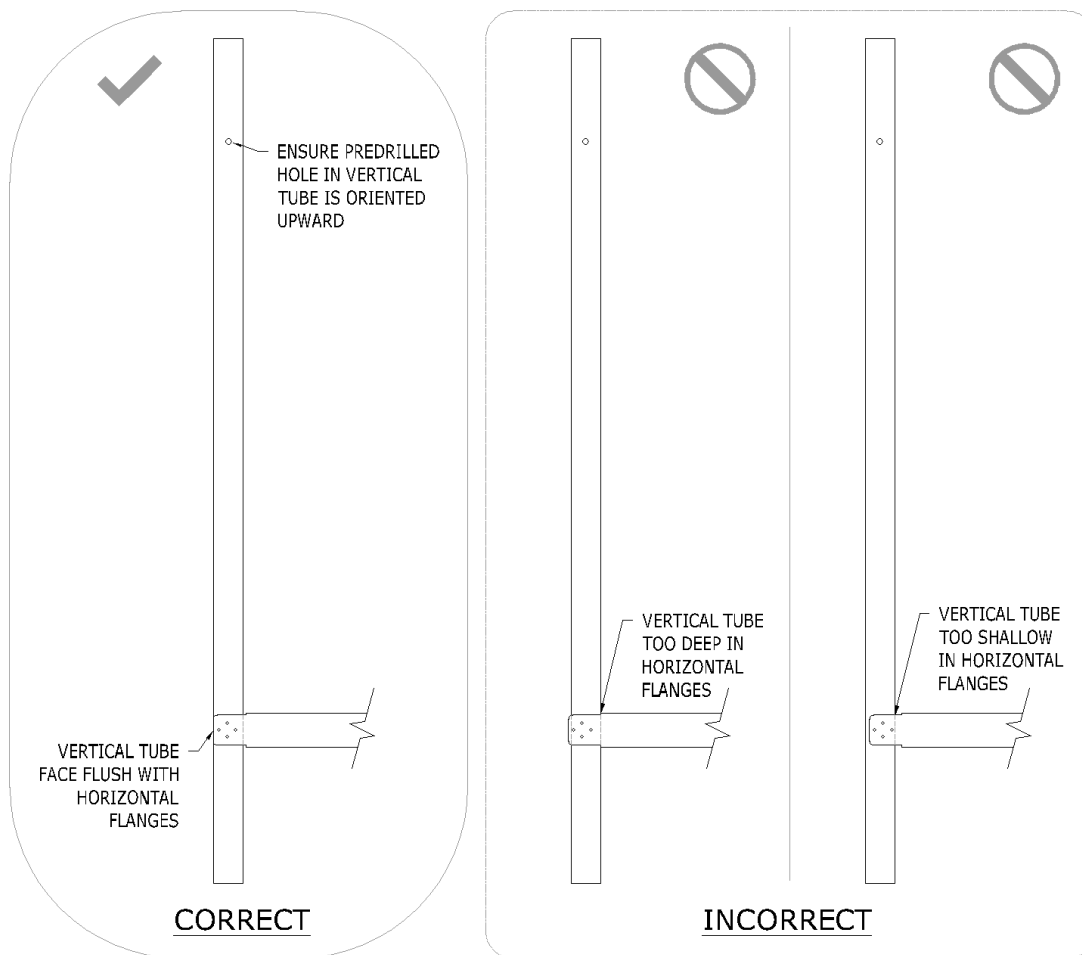


FIGURE 13

Prior to securing the Vertical Tube to the Horizontal Tube, adjustments can be made to achieve the correct frame height. As shown in Figure 14, the Diagonal Assembly can be lengthened, shortened and can pivot on the bolted locations to adjust the height of the Vertical Tube. As roof slope changes, it is important to ensure the top of the screen is even along the entire screen wall. Each LT Frame has a built-in height adjustment limit to fit the project's needs, specified in your shop drawings.

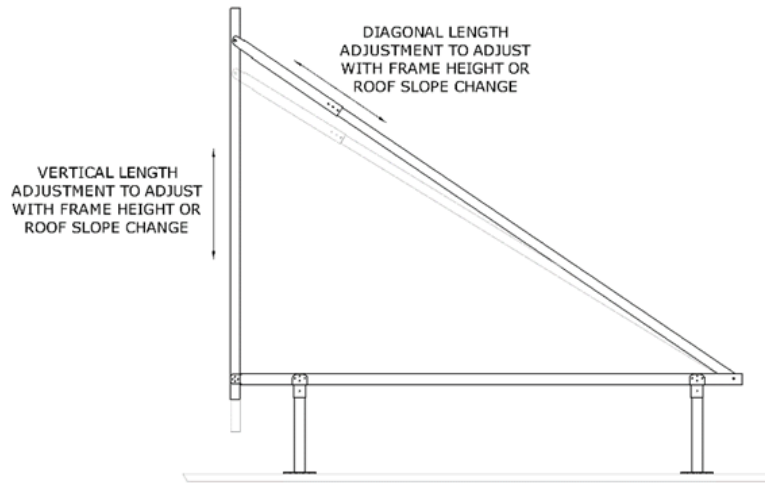


FIGURE 14

Once properly seated and adjusted for height, fasten the Vertical Tube with Tek Screws using the predrilled holes in the flanged Horizontal Tube.

IMPORTANT: Use only one (1) Tek Screw per side in this step for a total of two (2) TekS. Each Tek should be installed into mirrored holes as seen in Figure 15. This will allow adjustment for plumb as we continue assembly.

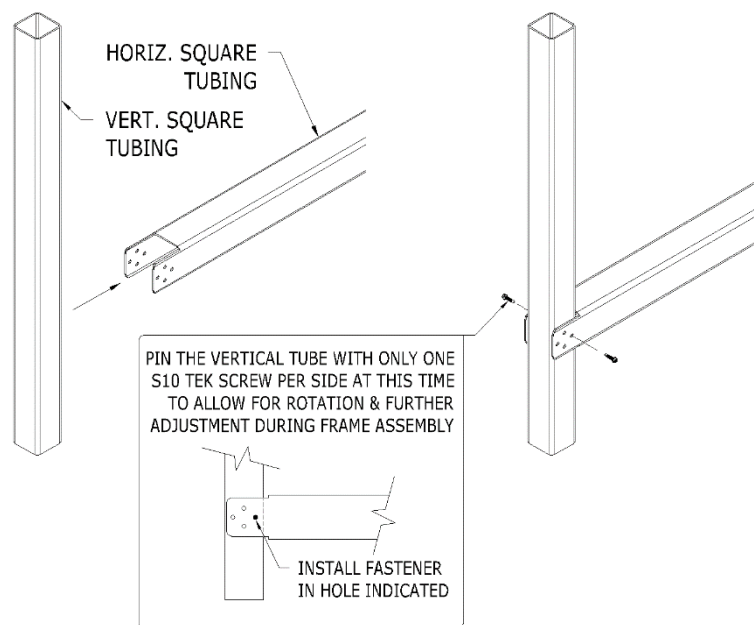
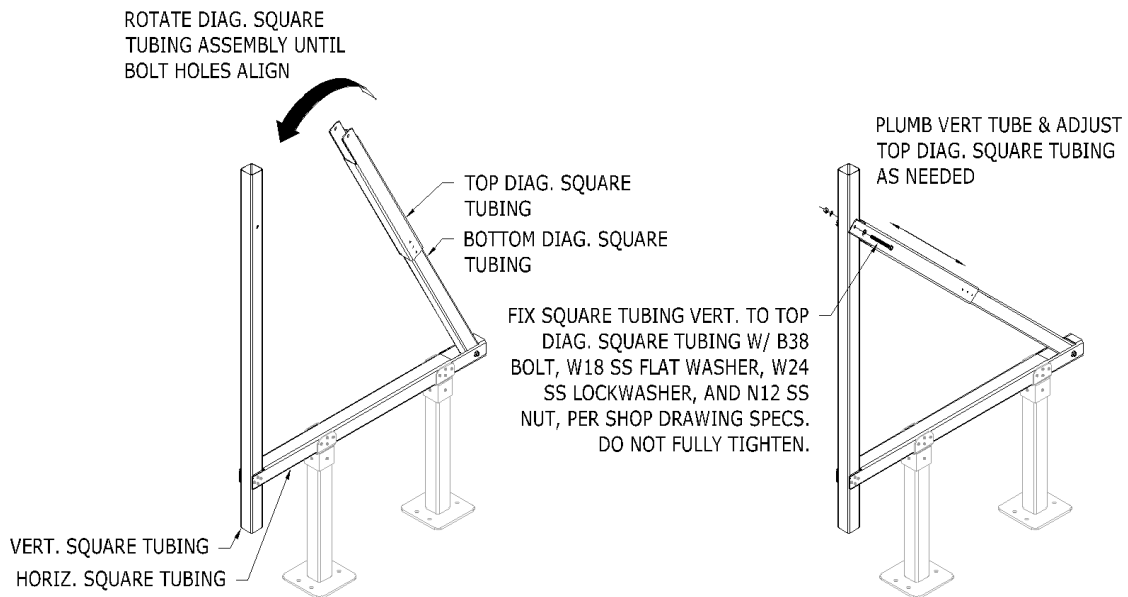


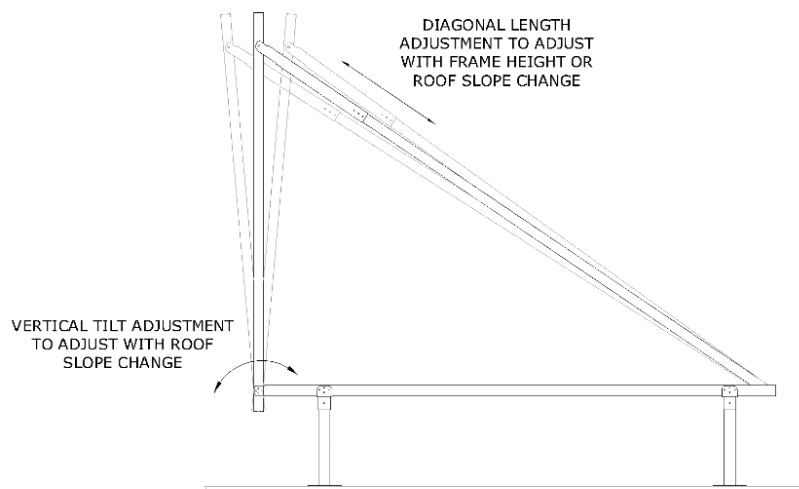
FIGURE 15

STEP 10: COMPLETE INSTALLATION OF TOP DIAGONAL TUBE

Align the flanged end of the unfastened Top Diagonal Tube with the pre-drilled hole on the top of the Vertical Tube as shown in Figure 16. Secure with the SS Bolt Kit. Do **not** fully tighten.

**FIGURE 16**

Once the Diagonal Assembly has been secured to the Horizontal and Vertical Members with the provided bolts (but not fully tightened), adjustments can be made to achieve the correct front-end tilt. As shown in Figure 17 the Diagonal Assembly can be lengthened, shortened and can pivot on the bolted locations to ensure a plumb Vertical Tube. Each LT Frame has a built-in tilt adjustment limit to fit the project's needs. Refer to shop drawings for max frame height and tilt limitation.

**FIGURE 17**

Before fully tightening the two SS bolts, ensure the frame is plumb. This is done by using a level against the Vertical Tube, as seen in Figure 18.

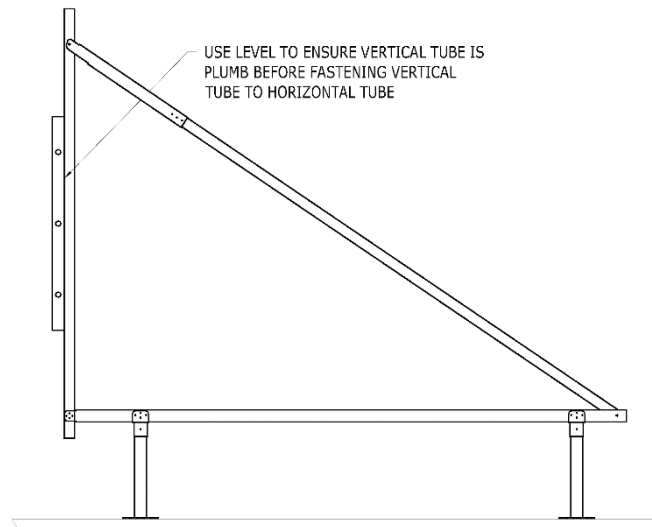


FIGURE 18

Once the desired height and plumbness has been achieved, install the Tek screws that fix the Upper Diagonal Tube to the Lower Diagonal Tube (1) Figure 19. Next, fully tighten the bolts in the Bottom Diagonal to Horizontal connection and the Top Diagonal to Vertical connection (2) Figure 19. Finally, install the remaining Tek screws in the Horizontal Flanges to fully secure the Vertical Tube (3) Figure 19.

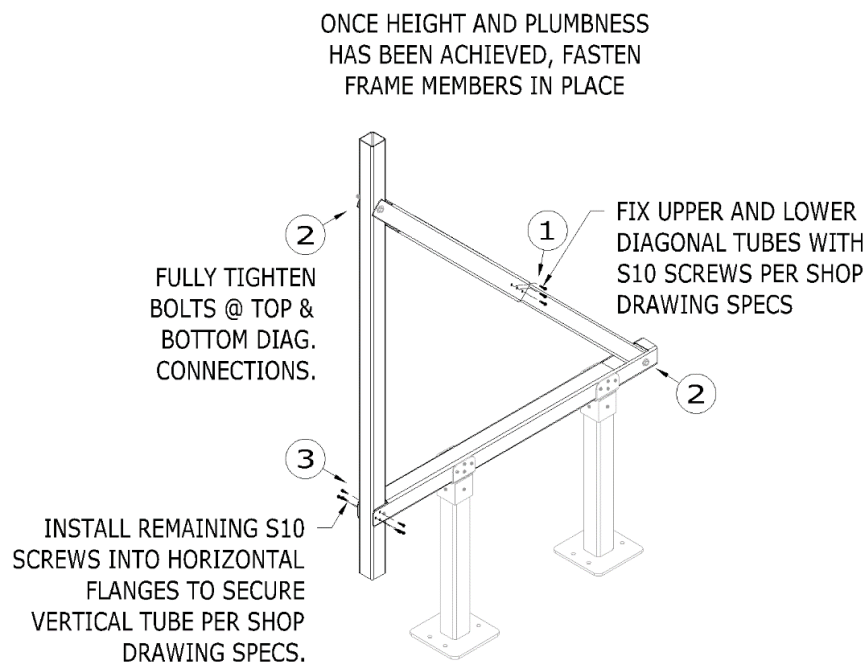


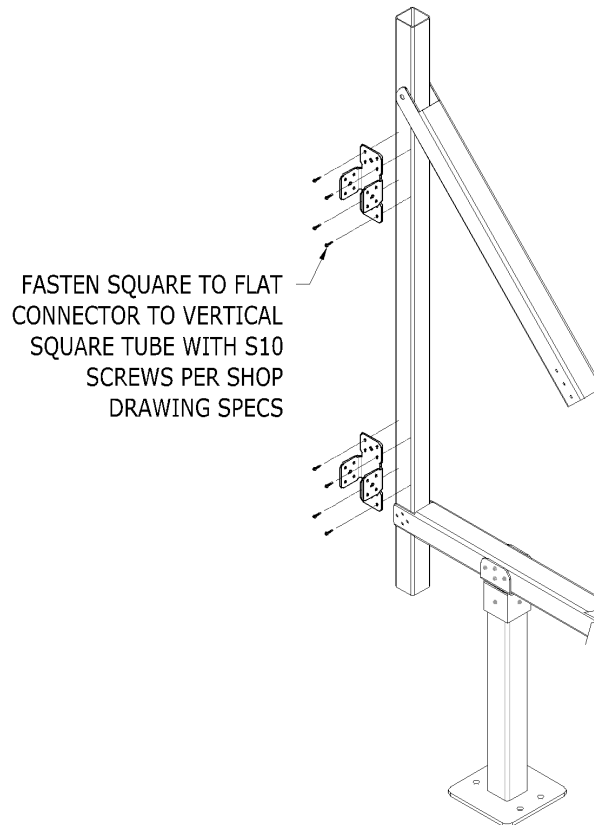
FIGURE 19

STEP 11: INSTALL LATERAL BRACES

Lateral Braces, typically used at corner conditions, resist forces in the lateral direction of an LT Frame. They are designed to connect to the top of the Vertical Tube on the corner and to the low end of the Vertical Tube of an adjacent frame.

If all Lateral Braces for the project are identical, they will be labeled LB. If there are various lengths or sizes of braces, they will be marked with unique numbers that correspond to labels in the shop drawings showing where each brace is to be installed.

Begin Lateral Brace installation by identifying all corner conditions in the shop drawings. A Square to Flat Connector will need to be installed to the side of the Vertical Tube at each corner frame and the frame adjacent to it as indicated in your project specific show drawings. The Lateral Brace will always slope from the high point on the corner frame to the low point of the adjacent frame. Connect each Square to Flat Connector to the respective frames using (4) S10 Tek screws, as seen in Figure 20.

**FIGURE 20**

Once the Lateral Brace Brackets are installed, locate the Lateral Brace Tube needed to tie them together. Slot the Lateral Brace into the Square to Flat Connectors as illustrated in Figure 21. Trimming of the Lateral Brace Tube may be required.

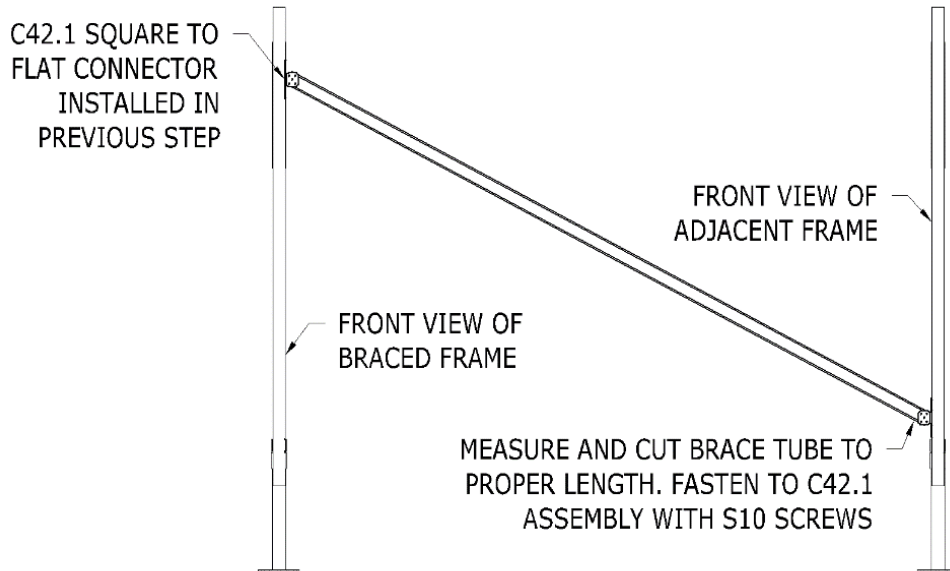


FIGURE 21

Secure the Lateral Brace Tubes using (2) S10 Tek screws at each lateral brace bracket, as seen in Figure 22.

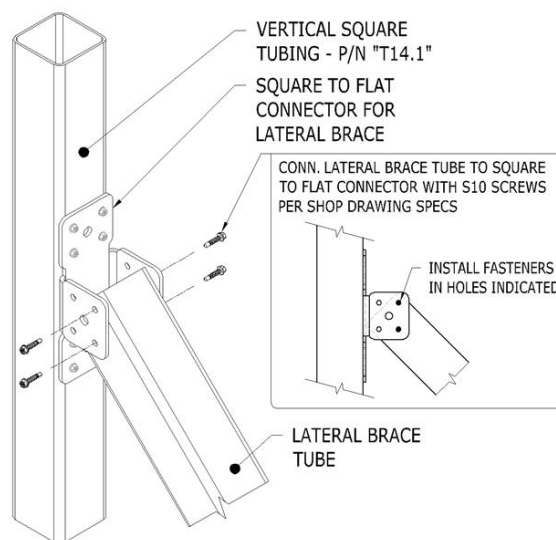


FIGURE 22

HAT OR GIRT SECTIONS

If panels are to be installed in horizontal orientation, please skip this section.

STEP 12: INSTALL HAT OR SQUARE GIRT SECTIONS

Hat/Girt sections mount horizontally across the frames and become the attachment supports for vertically mounted panels, see Figure 23. If exposed fastener panels will be used on the project, keep in mind the hat rows should be as straight as possible because the screw line on the face of the panels will be visible.

Refer to the shop drawing details to determine the hat/girt position on the frames. Measure down from the top of each Vertical Tube and make a mark for each row. Install the top row first. During this process, use a level to plumb the frames side-to-side. This top row will hold the frames plumb while the lower rows are installed, see Figure 24.

Starting in one corner, hang the first piece of hat/girt section past the last frame far enough to tie into the row coming from the other direction. With two people, hold the piece in place and attach to the frame tubes with S10 screws. Check the specifications in the shop drawings for the quantity of screws per attachment point. Use a level to keep the frames plumb while installing the screws. It can be helpful to use large Vise Grip clamps to hold the hat/girt to the frame while adjusting it and putting in the screws.

FASTEN HAT TO FRAME
WITH S10 SCREWS PER
SHOP DRAWING SPECS

HAT SECTION,
POSITION PER SHOP
DRAWING DETAILS

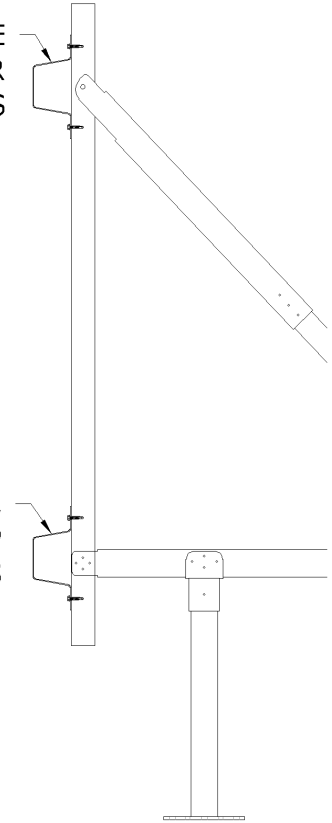


FIGURE 23

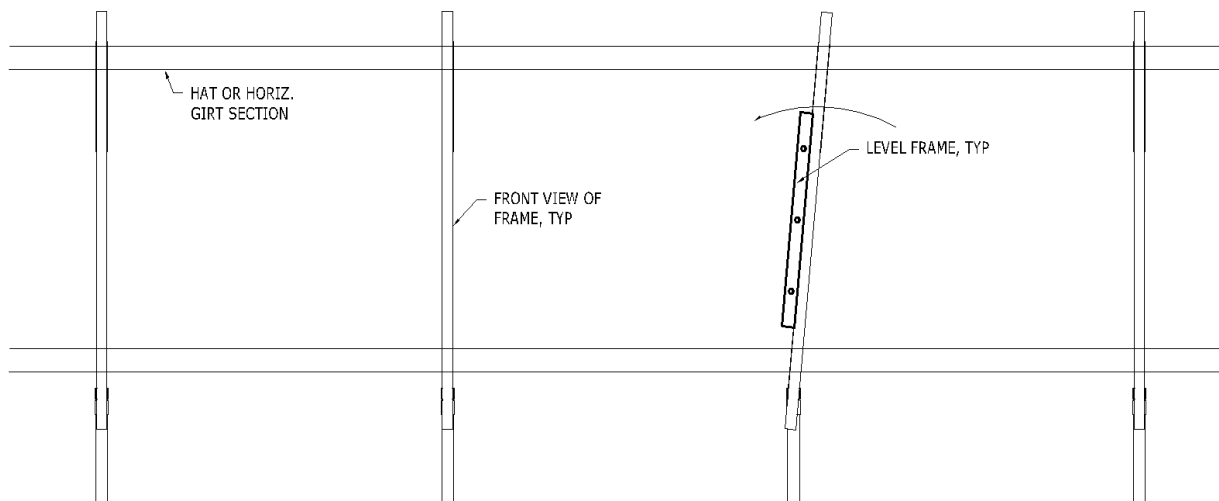
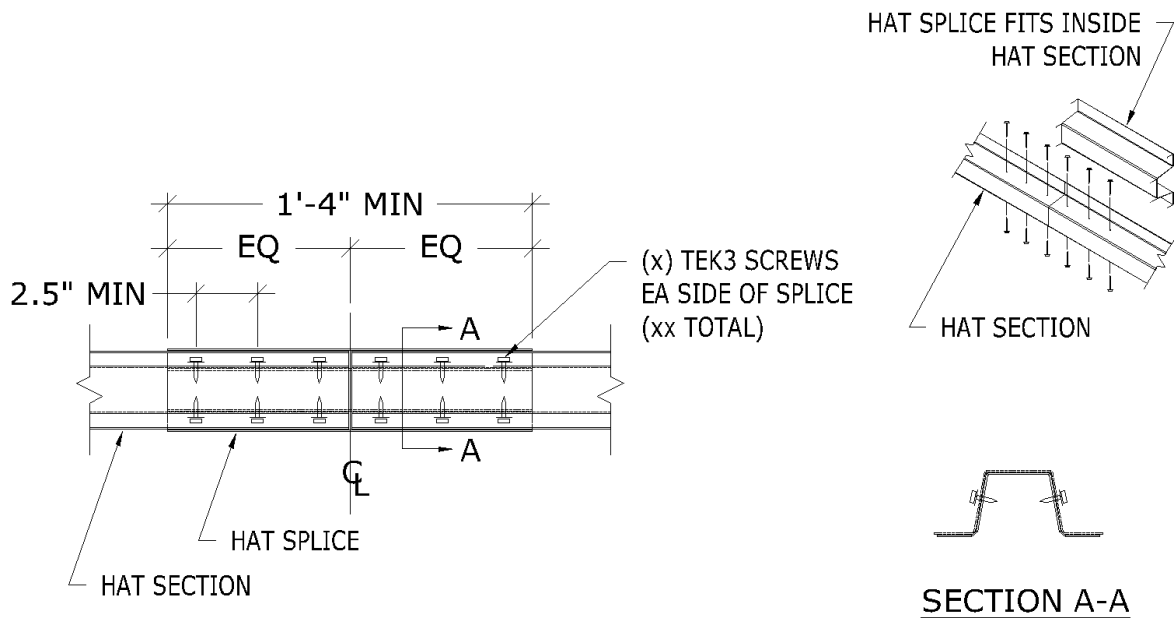


FIGURE 24

Continue installing the rows of hat/girt, completing the top row first, then the lower rows. Hat/Girt sections are supplied in 12' or 20' lengths. To splice hats end-to-end, refer to the detail in the shop drawings. The detail will show how many screws to use in the splice, similar to Figure 25. If splicing girts, refer to Figure 26 on the following page. Splices may be installed at any point along the screen and are not required to be located over a Vertical Tube. Use Vise Grip clamps to hold the splice tight to the hat. Position the splice with ½ slipped into the installed hat and ½ extending out to receive the next length of hat. Install the S10 screws on the top and bottom as shown in shop drawings, similar to Figure 25. Do not put the screws in the face of the hat as the screw heads may interfere with the panels later.

**FIGURE 25**

To splice girts end-to-end, refer to the correlating detail in your shop drawings. Use the predrilled holes in the girt and splice to thru bolt with the stainless steel bolt kit whenever possible, as shown in Figure 26.

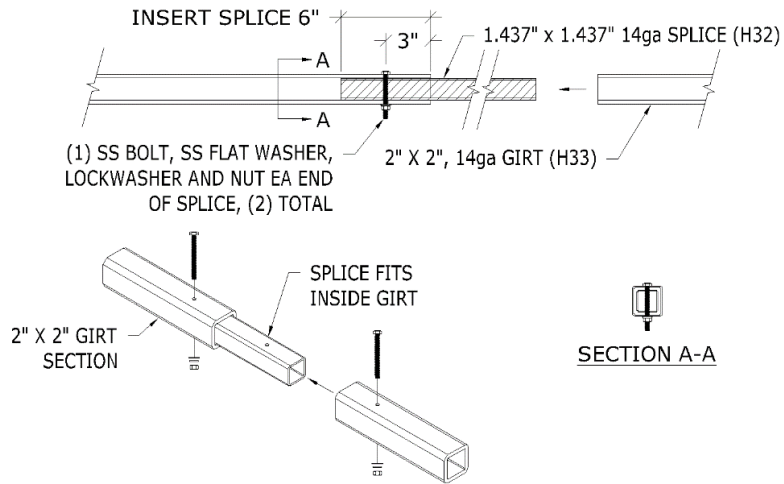


FIGURE 26

Girt splices can also be fastened with Tek screws in the field if predrilled holes are not present, similar to Figure 27. Refer to shop drawings for Tek screw specs and quantities needed.

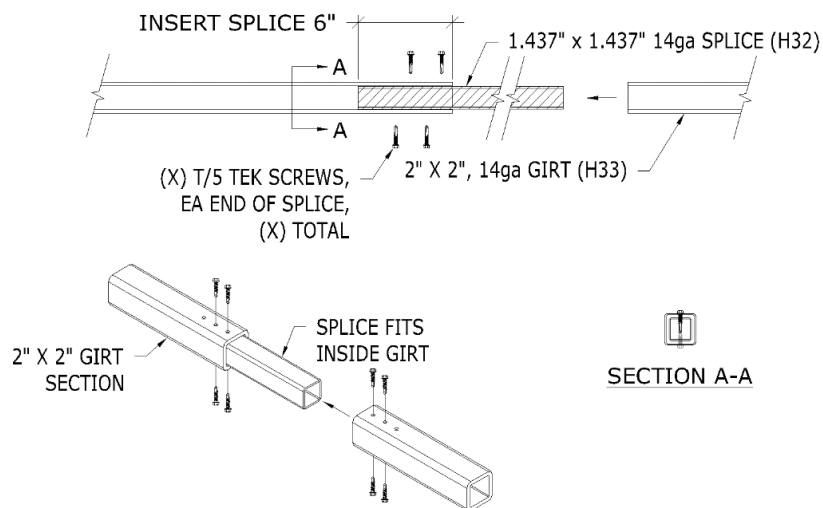


FIGURE 27

Splices may be installed at any point along the screen and are not required to be located over a Vertical Tube. Use Vise Grip clamps to hold the splice tight to the girt. Position the splice with ½ slipped into the installed girt and ½ extending out to receive the next length of girt.

To join corners, use the TR37 3" x 3" Stiffener as shown in Figure 28. Fasten ends of hats to stiffeners with S10 screws as detailed in the shop drawings. Hat ends may be square cut or miter cut. If square cut, the corner will have a 3" gap that will need to be covered by the panels and trim. Typical trim is 5" x 5" for outside corners, so a square cut is usually adequate. Check your shop drawings for information on panels and trims to ensure the corner will be covered correctly.

If the project includes gates, review step 15 to ensure the hats are properly placed for the gate openings.

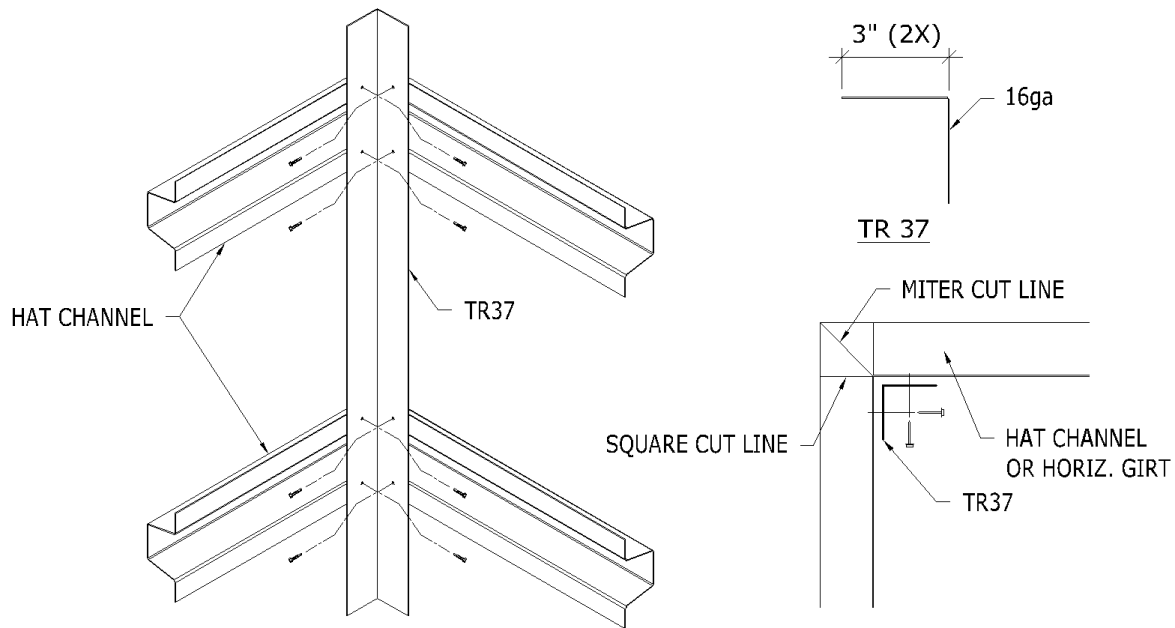


FIGURE 28

PANELS AND TRIM

STEP 13: INSTALL PANELS

Installing panels is quite different for vertical and horizontal panel orientation. Please skip to the applicable instructions below.

Vertical Panel installation

As illustrated in Figure 29, vertically oriented panels are mounted to the hat sections installed in the previous step. Figure 30 illustrates panel attachment if you are using girts.

Panel extension past the upper and lower hats should follow the dimensions on the frame detail(s) in the shop drawings. The shop drawings will also specify the type and quantity of screws used to fasten the panels.

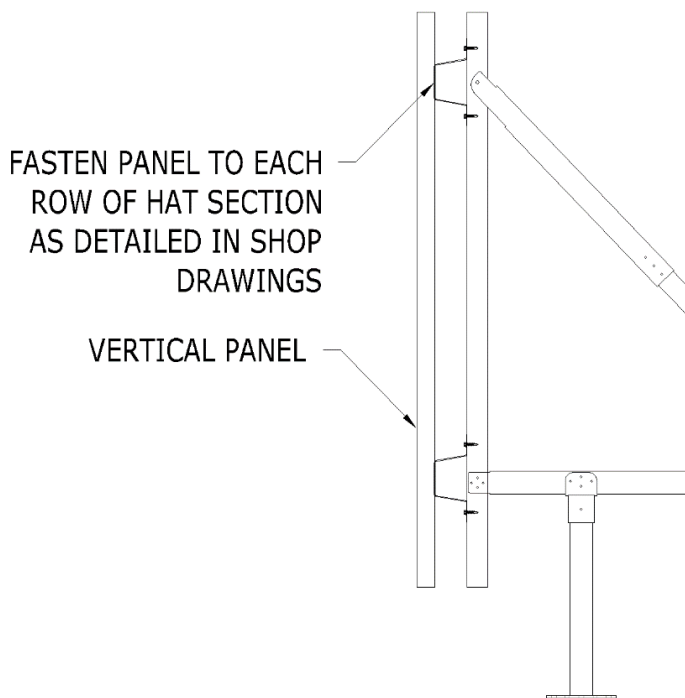


FIGURE 29

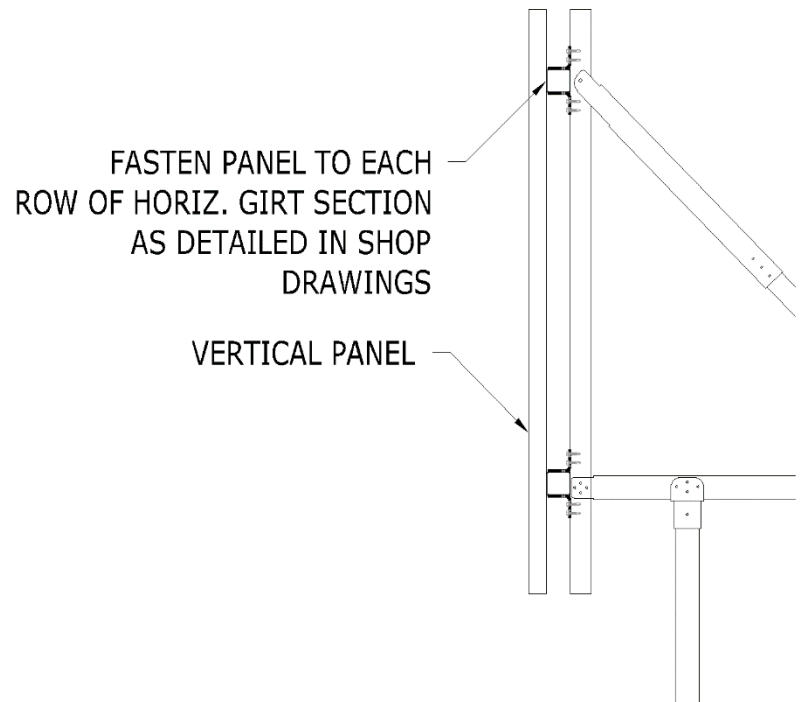


FIGURE 30

To keep panels level at the top during installation, use a nylon string line stretched end to end on each straight section of screen. See Figure 31. To use the string, you must first install the starting panel. Start at one end and screw in the first panel at the correct height. Use a level to ensure it is perfectly plumb. Next, install a vertical support on the opposite end of the wall to support the other end of the string at the correct height (a 2x4 clamped on the Hat Sections with Vise Grip clamps works well for this). If the run is long, or it is windy, this may need to be done in shorter segments. Attach the nylon string line to the top of the first panel installed and pull it to the vertical support on the opposite end. Stretch it as tight as possible and sight down the string to make sure it does not sag.

Install the remaining panels, sliding each one up to the string, but do not touch the string. This is important because if the panels push the string up even a fraction, your panels will start to go uphill. When you come to the end of a wall or a corner, the method used to terminate the panels will depend on the type of panel being used. Here are a couple of general guidelines:

- For through fastened ribbed panels, simply cut the last panel with a metal cutting skill saw to the width necessary to fill the gap between the last full panel and the corner.
- For standing seam or flat wall panels cut the last panel to the proper width and either screw a stiffener channel on the flimsy (cut side) of the panel or use a hand seamer to bend an edge. This will allow for a straight edge to fasten the corner trim.

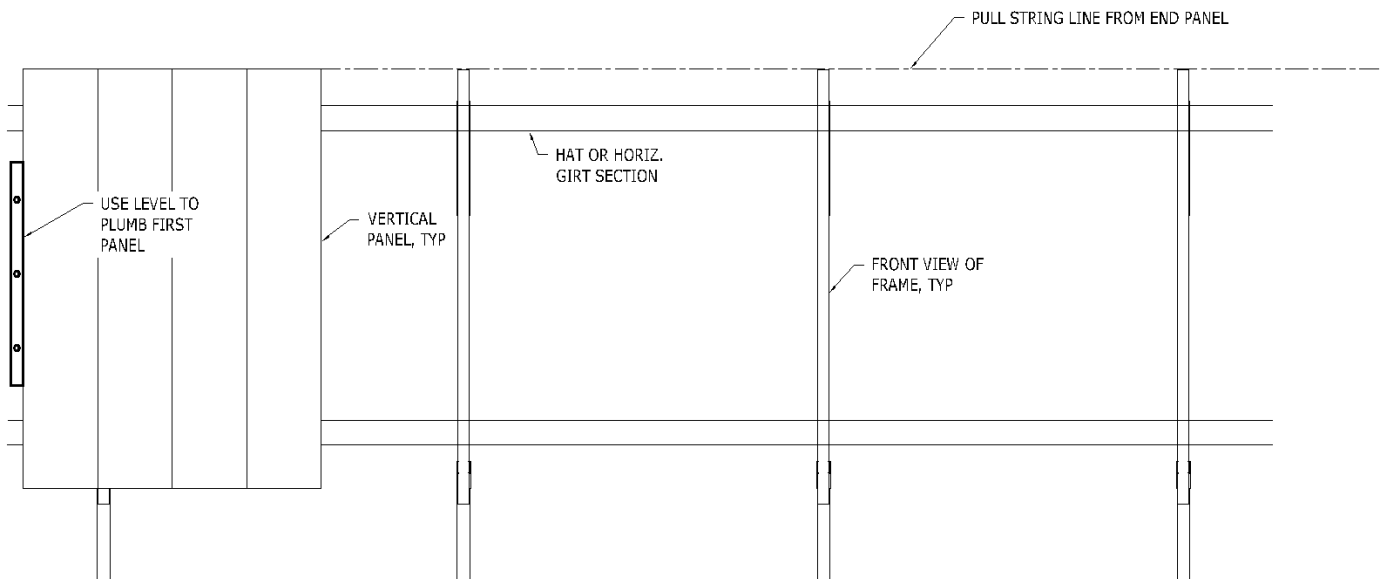


FIGURE 31

Horizontal Panel Orientation

As illustrated in Figure 32, horizontally oriented panels are mounted directly to the Vertical Tubes. Horizontal Panels are typically ribbed style and should be fastened through the face of the panel with color matched screws as specified in the shop drawings.

Depending on the screen height, multiple horizontal rows of panels may be required. Install the lower row first and upper row last. To terminate the top of the panel at the desired screen height, overlap ribs on the panel below, or cut the top of the panel to the desired height.

As illustrated in Figure 33, panel end laps must fall on Vertical Tubes and cannot be lapped mid-span. For horizontal projects, a frame layout plan is included in the shop drawings.

If the project includes gates, review step 15 to ensure the panels are properly placed for the gate openings.

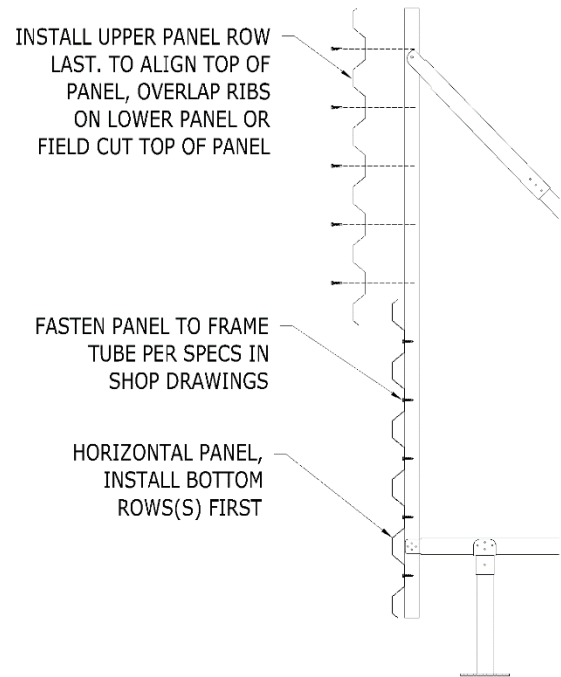


FIGURE 32

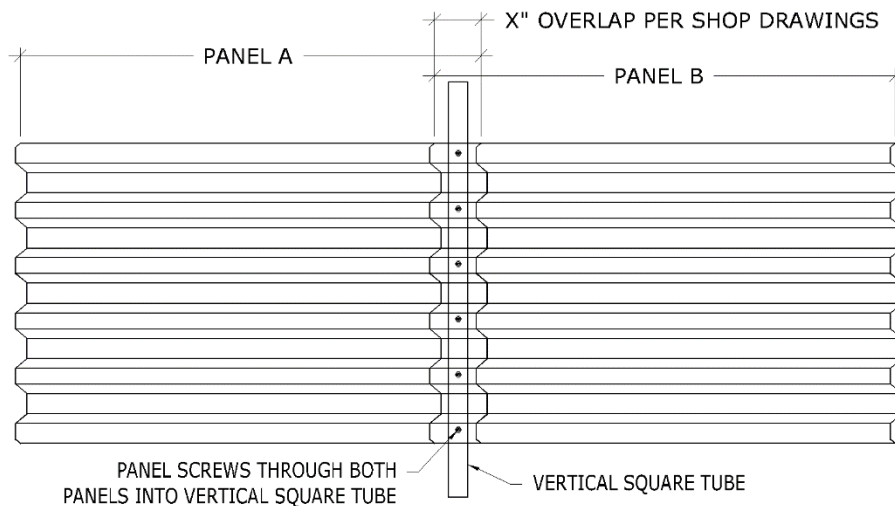


FIGURE 33

STEP 14: INSTALL TRIM

Once all panels are installed, finish trims can be installed on the top, corners, and end conditions to provide a clean, finished look. Methods for installing trims depend on the type of panels being used, as well as the style of trim. Typically, a trim cap is installed along the top edge of the panel, fastened approximately every 36" with S16 color matched screws. Corner trim and edge trims are typically fastened approximately every 12", also with S16 screws. Please see details in the shop drawings for specifics.

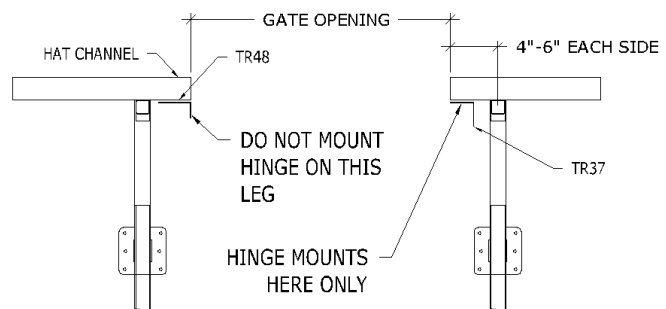
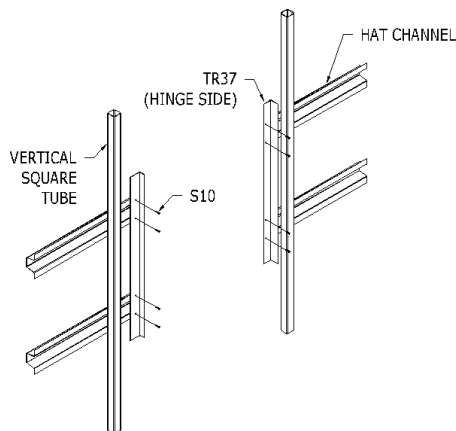
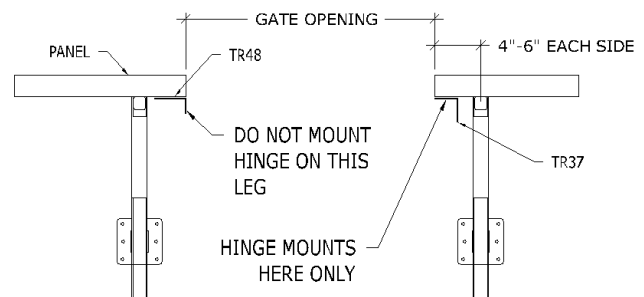
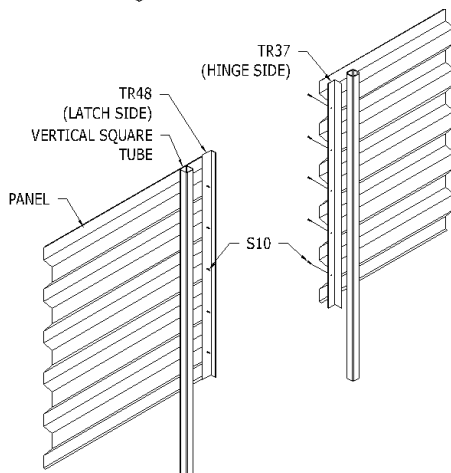
GATES

Gate details shown are for our standard installation configuration with gaps on each side between the gate and screen panels. It is also possible to configure the installation so the panels overlap and conceal the gaps. However, we recommend this type of installation only for more experienced metal roofing and siding contractors.

STEP 15: PREPARE GATE OPENING

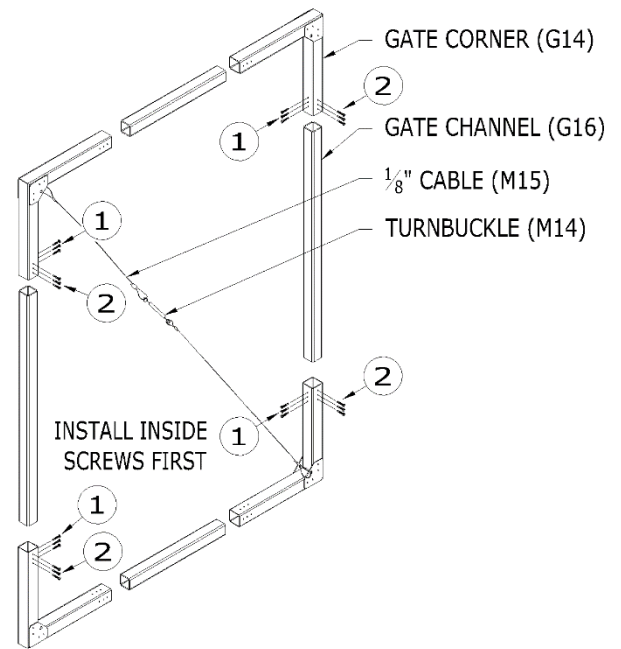
The size of the gate opening is detailed on the shop drawings, and frames built in previous steps should be located in the proper position for the gate. See Figure 34 below for vertical panels and Figure 35 for horizontal panels.

At the gate opening, extend the hats or horizontal panels 5"-7" past the frame tube and attach a TR37 stiffener at the end of the hats or panels at the hinge side so that they are vertically level. Install TR48 Stiffener at latch side as illustrated in Figures 34 and 35. Note that the stiffener does not mount the same way for the hinge side and the latch side.

**FIGURE 34****FIGURE 35**

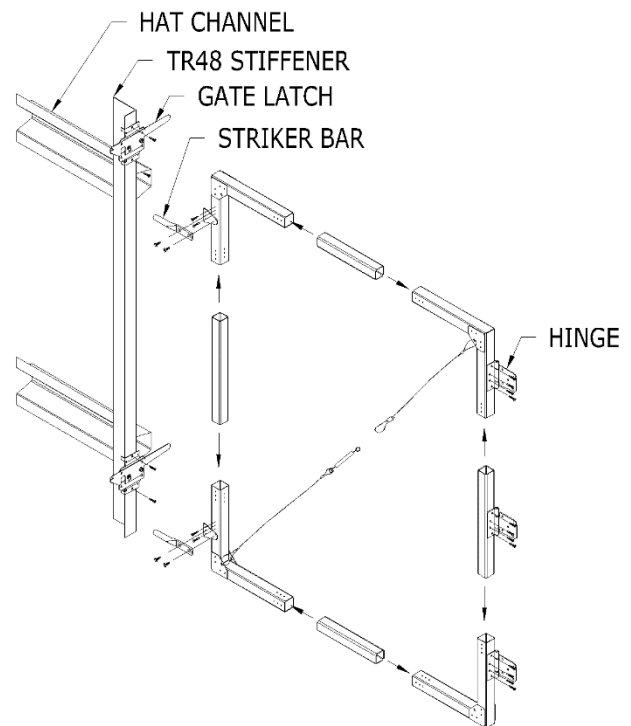
STEP 16: ASSEMBLE GATE FRAME

Assemble gate frames as shown in Figure 36. To determine the width of your gate, measure the width of the gate opening and subtract 2". Gate opening refers to the distance between the inside edges of the two stiffeners installed the previous step (see Figures 34 and 35). This ensures a 0.5" spacing for the hinge and a 1.5" spacing for the gate latch. Subtracting 2" is a general guideline and depending on your panel and hat channel configuration, field adjustments may be necessary to ensure the gate does not bind. Slide T14.1 tubing into gate corners to achieve the necessary gate height and width. T14.1 tubes do not need to extend all the way into the corner tubes but must extend a minimum of 6" into corner tubes. Fasten the gate corners to the T14.1 tubing with S10 screws through the pre-punched holes in the corner pieces. As shown in Figure 36, S10 Tek screws on the inside of the gate frame should be installed first. Tek screws on the back of the frame should be installed second, as this ensures the gate frame is square. Attach the gate cable and turnbuckle between corners after the frame has been assembled.

**FIGURE 36****STEP 17: INSTALL GATE**

Attach gate hardware as shown in Figure 37. Mount the hinges to gate frame, and gate latches to the TR48 stiffener installed in step 15. Position the striker bars to align with the latches and fasten them to the gate frame.

Important: For horizontal panel orientation, make sure to align hinges with high flutes of panels to allow the screws to extend into the voids.

**FIGURE 37**

To install the gate, hold it in position and fasten the hinges to the TR37 stiffeners as shown in Figure 38.

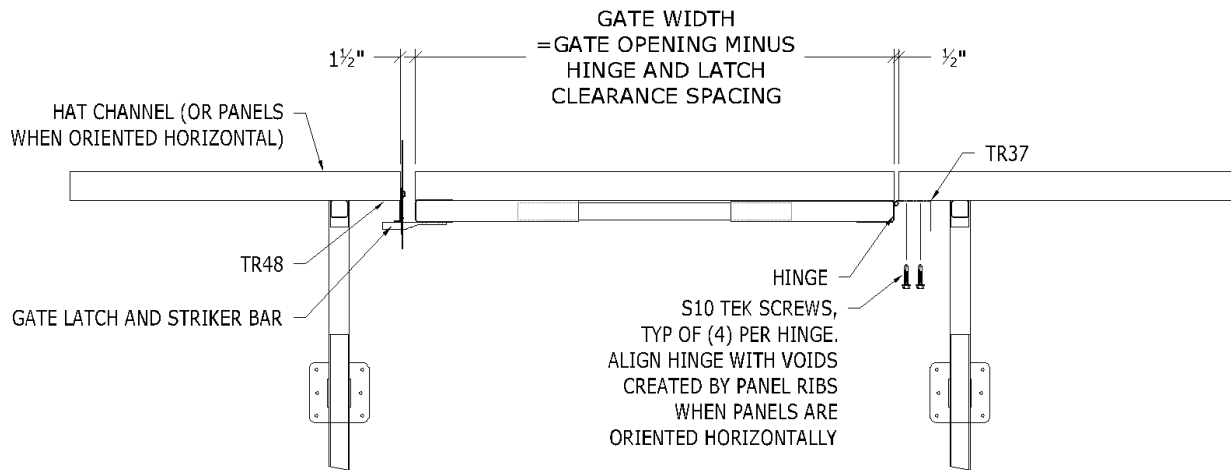


FIGURE 38

In cases when the combined depth of the hat/girt channels and panels exceeds 3", the gate latch handle needs to be lengthened with a Latch Extension so it can be operated. An optional Latch Tie Bar is also available to connect both gate latches together so it can be operated with one hand. See Figure 39, 40.

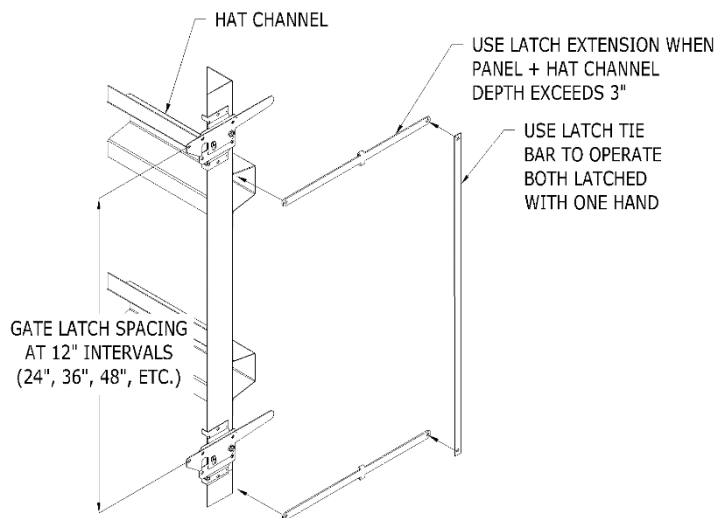


FIGURE 39

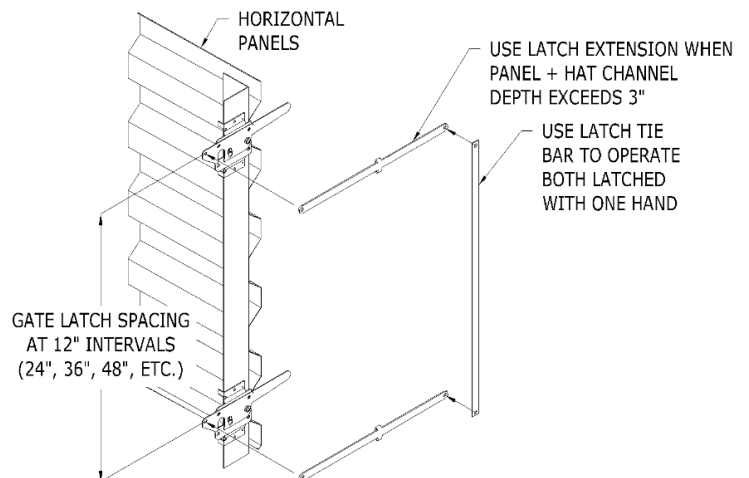


FIGURE 40

STEP 18: FINAL QUALITY CHECK

Perform a final quality control inspection. Check that all the Tek screws have been installed in the frames. Make sure that all the assembly bolts are tight. Vacuum or sweep all metal shavings left over from the installation of Tek screws off the roof surface and RoofScreen parts to prevent rust from forming. Pick up any screws and other miscellaneous items that may have been dropped to prevent damaging the roof membrane should someone step on them. Check the gate to make sure it opens and closes properly.