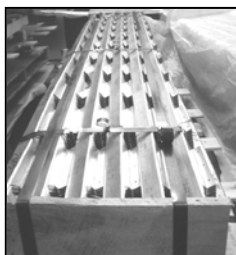


Hugger Installation

RECEIVING MATERIALS:

ROOF HUGGERS are typically placed on wood pallets 3'5" wide and approximately 10' long weighing up to 5,000 lbs. ROOF HUGGERS are shipped via closed van for LTL less than truckload quantities or flatbed for truckload quantities. The installer is responsible for unloading the material and providing the suitable equipment to safely unload the material from the delivery truck.



Upon receipt of material, check for damage; if damage is found, please note the damage on the carriers Bill of Lading at the time of delivery. Notify ROOF HUGGER, Inc. of this damage within 48 hours

HANDLING: Proper care is required while unloading to prevent personal injury or material damage. Band straps should never be used for pulling or lifting of the pallets. If the pallets are to be lifted onto the roof, confirm the structure has adequate capacity first. If the structure is capable, the pallet should only be placed above the existing structural frames, 1-pallet per frame maximum unless otherwise directed by the engineer of record for the project.

INSTALLATION: Unless otherwise noted, install Huggers only directly over and into existing purlins through the existing panel pan section. (HUGGERS are normally installed with the top flange pointing up the roof slope.)

Wherever possible, layout new panels as to minimize the possibility of new panel fasteners or attachment clips from falling on the cut ends of the ROOF HUGGERS. Standing seam systems can be ordered with a narrower starter panel to offset the new panel from the existing panel module. If landing on the cut ends is

unavoidable then attach the adjacent HUGGERS overlapping top flange ends with (2) #10 pancake



fasteners in addition to the clip fasteners or back lap the HUGGERS one full corrugation to produce a double thickness and continuity of the top flange across the lap.

SPECIAL CONSIDERATIONS: Weathertightness: During erection, prior to the installation of the new roof panel the ROOF HUGGERS are NOT WEATHERTIGHT. It is recommended that only the amount of HUGGERS to be covered with new roof panels be installed in a given workday. Mastic can be placed beneath the ROOF HUGGERS at the attachment points to minimize water intrusion during construction but this may not provide a complete water seal.

Flashing and Trim: Rake angles, trims, curbs and flashings are not provided by ROOF HUGGER. Consult your panel manufacturer for the necessary details and required materials to meet their design requirements. ROOF HUGGER is available to discuss any special situations.

Bridging: Bracing or bridging may be required where the Hugger height exceeds 3-3/8". Consult your local engineer for specific requirements for your locale. We can provide details of previous installations upon request.

Out of Module Existing Roof Panels: In some rare cases, the existing roof panels may be installed so poorly the they do not maintain the proper panel rib spacing (i.e.: a 12" o.c. R panel may gain 1/8" per L.F., so in 10' the roof would measure a gain of 1-2"). The ROOF

Hugger Installation

HUGGER notches are over cut to allow for most conditions, however some cases may exceed our tolerances. If this occurs, the ROOF HUGGER may be cut to allow it to fit properly. Use care to avoid fasteners or clips from falling on the resulting gap, back lap the HUGGERS if necessary.

Installing Over Skylights: DO NOT REMOVE EXISTING SKYLIGHTS prior to installing ROOF HUGGERS. Run HUGGERS across existing skylight and screw into position.

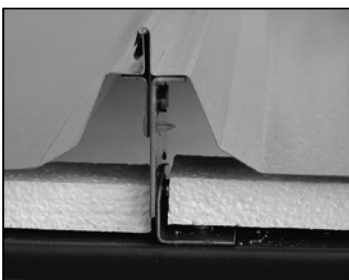
Cut out and trim opening if new skylights are to be installed above, or leave panel in position if skylights are to be eliminated. Removal of skylight prior to installing HUGGERS may result in an undesirable depression of the new roof over the old skylight area.



If skylights are to be installed where interior condensation could be an issue, it is desirable to replace the old skylight with a new one and install another new skylight above it to minimize any condensation issues in this area. Consult your local moisture control professional.

Existing Standing Seam Roofs with Tall Clips and/or Thermal Blocks:

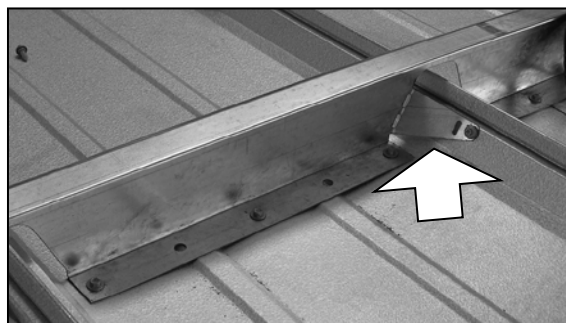
Existing roofs that have tall clips (clips that hold the roof to 12" above the purlin) require special attachment.



A special self-drilling fastener or a fastener with a standoff sleeve will be provided by ROOF HUGGER unless otherwise specified.



Note: Field verify the standoff by drilling a small hole over the purlin and measure the distance between the existing panel and the existing purlin (typically 12"). The number of fasteners per L.F. is determined by the specific project design, generally four (4) fasteners are required every 24" or three (3) fasteners every 16", however higher loads could require additional attachment. Since the ROOF HUGGER Sub-purlins cannot be pulled down to the existing purlin because of the standoff clip they have been specially designed with an **anti-rotational arm or tab**.



This arm prevents the ROOF HUGGER from rolling front to back under load and it is attached with a #17 fastener into the side of the existing panel high rib. Note that if the anti-roll tab is above the side of the existing high rib the ROOF HUGGER may not be pulled fully down into its correct position.

Also note that more holes may be punched into the base flange than are required for attachment. Eave attachment is generally with 1/4" x 1-1/4" Tek-3 (T-3) fasteners since tall clips are not normally used here.

Hugger Installation

EXISTING FASTENERS:

The existing fasteners can remain provided they do not cause the ROOF HUGGERS to porpoise up or roll front to back out of plane with the existing roof.



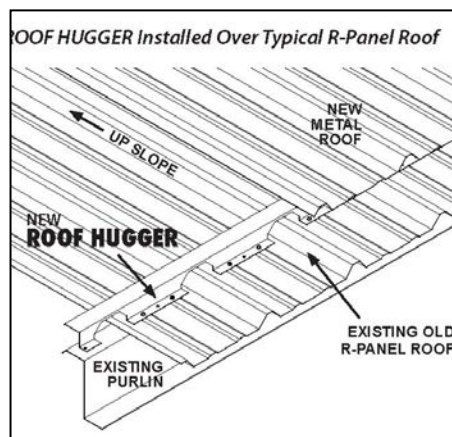
(Typical R-Panel installation showing the bending of the bottom flange caused by the existing fastener is normal.)

Fasteners located in the center of the pan of the existing sheet may need to be removed. On an 8-12 o.c. panel this should only occur at a panel lap, ridge cap or eave area. Narrower ribbed panel such as 6 o.c. panels, with fasteners in the center of the sheet pan, may require removal of all fasteners.

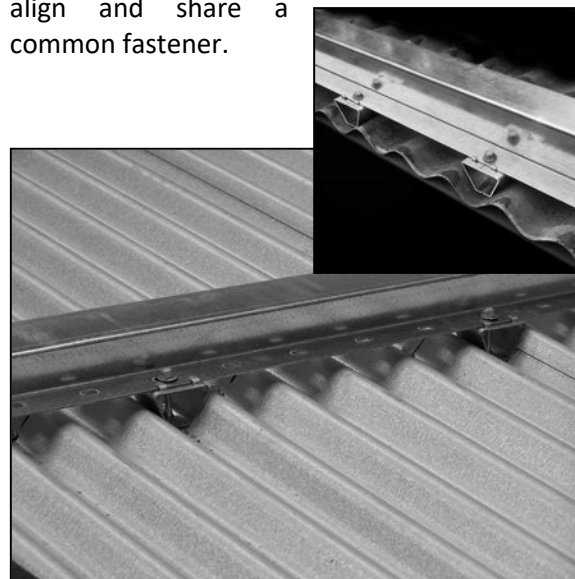
ROOF HUGGER can provide special punching to minimize removal of these fasteners if requested during the pricing and ordering of the HUGGERS.

ROOF HUGGER FASTENERS AND FASTENER PATTERNS: ROOF HUGGERS are typically attached with 1/4-14, self-drilling, T-3 fasteners, 14 treads per inch, 1-1/2 to 1-3/4 in length 1/4-14 x 1-1/2. The number of fasteners per L.F. is determined by ROOF HUGGERS project design or as specified by the engineer of record. Generally speaking, (2) fasteners are required per L.F. for proper attachment. Holes are pre-punched in the bottom flange of the HUGGERS

for installation of the fasteners. Note: There may be more holes punched in the base flange than are required for attachment. ROOF HUGGER can provide fasteners if requested.

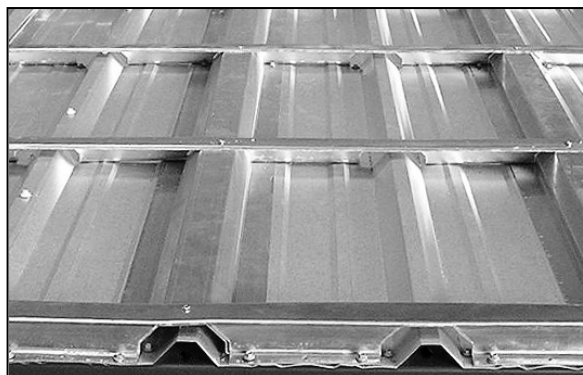


Installing on Existing Corrugated Panels: ROOF HUGGERS Corru-Fit product for existing 2.50, 2.67 and 2.75 corrugated panels up to 1.25 tall is a 2-part system. A 1.25 triangular shaped spacer and a 1.5 tall slotted Zee. Spacer/fastener spacing is per engineering design, (2.75 total assembly height). Call ROOF HUGGER for estimated loads and spacing (subject to review). Lap ends are designed to align and share a common fastener.

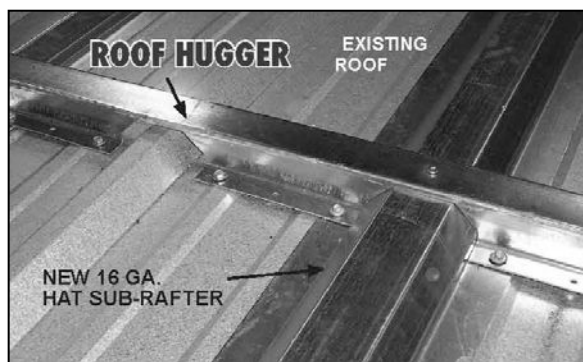


Hugger Installation

Midspan Attachment: When the existing purlin spacing is not adequate to meet code required loads, ROOF HUGGER will supply an Integral Sub-Rafter System or Hat Grid (see Grid Framing). An Integral Sub-Rafter System means the Sub-Rafters are specifically built to fit the cutout provided in the ROOF HUGGER Sub-Purlin.



Note: If integral (fit under the HUGGERS) structural Sub-Rafters are provided, loosely place hats and HUGGERS in position prior to installing any fasteners to prevent alignment problems in these areas.

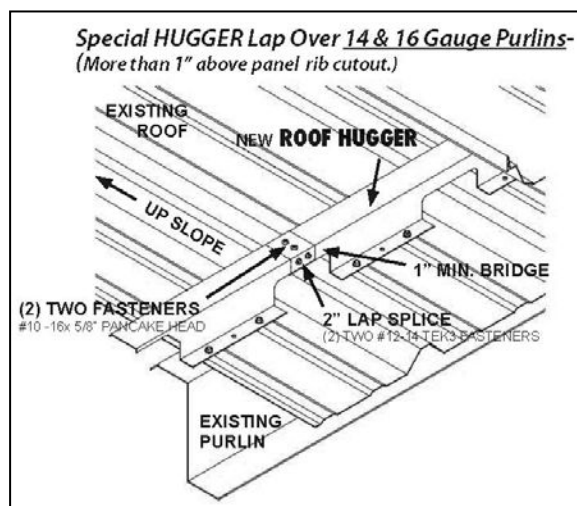


The Sub-Rafters will typically fit over the top of the major panel Ribs between 12"–24" centers. The Sub-Rafters will span from existing purlin to existing purlin and the ROOF HUGGERS will be placed on and into these members. The parts over the existing purlins will have 1/2"–1/4" T3 fasteners installed through the HUGGERS, through the Integral Sub-Rafter, through the existing roof panel and into the existing purlin. Oversize pre-drilling of the HUGGERS at Integral

Sub-Rafter is recommended. The number of fasteners will be per the engineered design. ROOF HUGGERS that are installed mid-span between the existing purlins are attached to the Integral Sub-Rafters with 1/2"–1/4" T3 fasteners as specified and if the HUGGERS are to be attached into the old panels the existing 1/2"–1/4" hole in the HUGGER should be drilled out and a #17 fastener installed through the HUGGER into the existing panel, (1) one each side of the major rib. A #10-16 pancake head fastener may also be required between the top flange of the HUGGER and the top of the Integral Sub-Rafter.

Existing Purlin Strengthening: HUGGERS have been tested for the effect they have on strengthening the existing purlins to accommodate the weight of the HUGGERS and new roof panel as well as additional code required snow loads and increased wind loads. If required by design, the following explains the proper Hugger lapping conditions.

Should a panel clip fall in the lap area, (2) clip

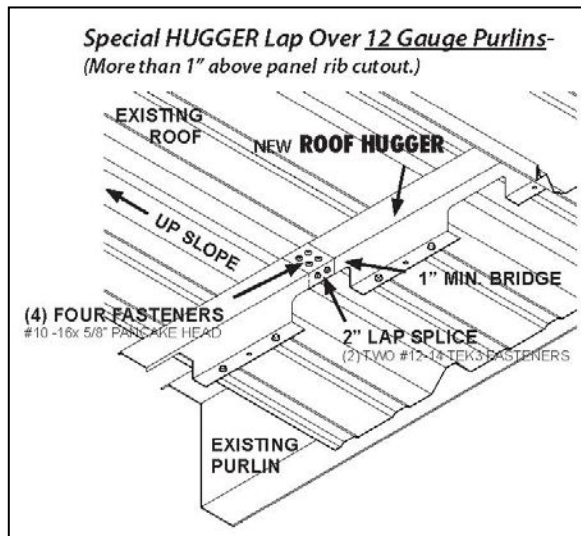
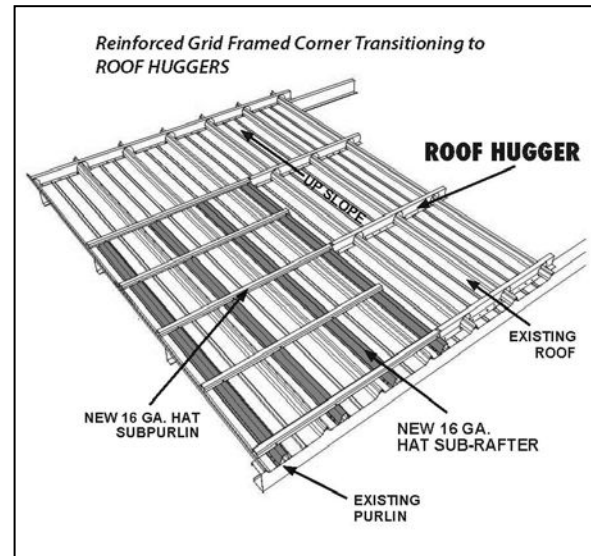
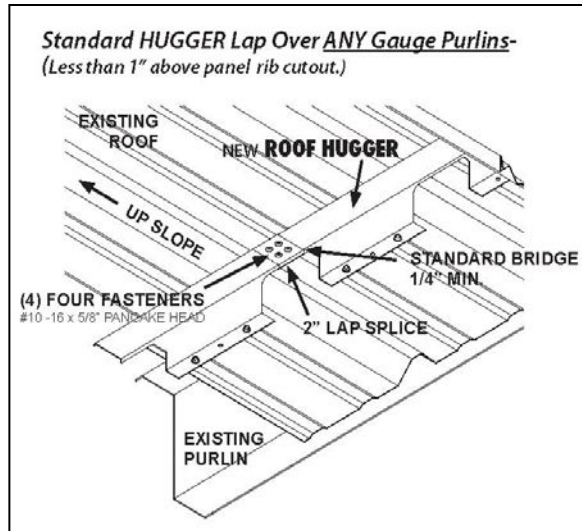


fasteners will replace (2) pancake fasteners provided the clip fasteners penetrate both overlapping flanges of the HUGGER. Higher profile HUGGERS (1" or more of material above the rib cutout) receive (2) #10-16 x 1" (or equal)

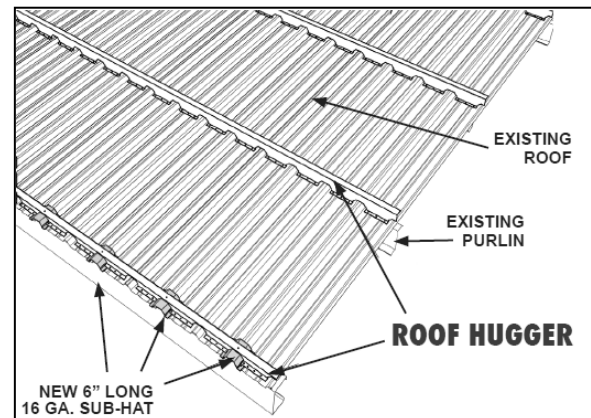
Hugger Installation

pancake head, self-drilling fasteners in the top flange lap and (2) 1/2" x 14 x 1-1/2" T3 in the vertical web.

Sub-Purlins and they attach on top of and perpendicular to the sub-rafters. They are normally attached with (2) 1/2" x 14 x 1-1/2" T3 fasteners. In some cases, fasteners will attach the sub-rafters to the existing roof panels. (See your contract installation drawings for details.)



Eave/Ridge Blocking: To control the direction of motion on floating clip standing seam metal roof systems a Point of Fixity is typically required. ROOF HUGGER may specify that one or more purlin lines at the eave or ridge have extra framing to accomplish this. (See detail below or refer to contract drawings for details.)



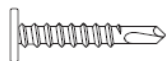
Grid Framing: When needed in the corners and edges, hat channel grid framing may be used. Hats that run parallel to the existing panel ribs between the existing purlins are called Sub-Rafters. They are normally installed 12" - 24" o.c. with (4) 1/2" x 14 x 1-1/2" T3 fasteners into the existing purlins and are designed to transfer the panel loads back to the existing purlins. The hats that run across these members are called

Fastener Types: The following fasteners are those used in typical Roof Hugger installations

Hugger Installation

as indicated below. Please note their specific use as described in this section and manual.

Typical Screw Nomenclature: #10-14 x 1 1/2 DP3 or T3 is explained this way: #10 is screw diameter, 14 is threads per inch, x 1 1/2 is length and DP3 or T3 is the type of drilling tip. Please note that in lieu of DP3, Roof Hugger uses Tek-3 or T3 in our standard details and other construction documents to describe any self-drilling screw.



Size: #10-16 X 1 1/2 TEK-3

Locations:

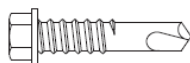
- A. Attaching Hugger top flange to sub-rafter at corner/edge wind uplift zones
- B. At Hugger laps for Purlin Strengthening



Size: #17-14 AB (washer typically not required)

Locations:

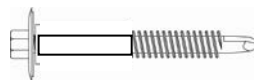
- A. Attaching Hugger into existing Roof panels at Mid-span locations
- B. Securing Hugger anti-rotational arm to existing Trapezoidal SSR panel rib



Size: #12-14 X 1 1/2 TEK-3

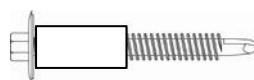
Locations:

- A. Attachment of Hugger Sub-Purlin to existing purlin or joist
- B. Attachment of Hugger sub-purlin in corner/edge zone to sub-rafter, spanning between existing purlins, to create a mid-span purlin.
- C. Securing Hugger anti-rotational arm to existing Vertical Rib SSR panel rib.



Size: #12-14 X 2 1/2 TEK-3 Special Stand-off Screw

Location: Attachment of Hugger to existing purlin or joist when existing Roof panel is a trapezoidal or vertical rib standing with stand-off clip and thermal spacer. **These fasteners are furnished by Roof Hugger.**



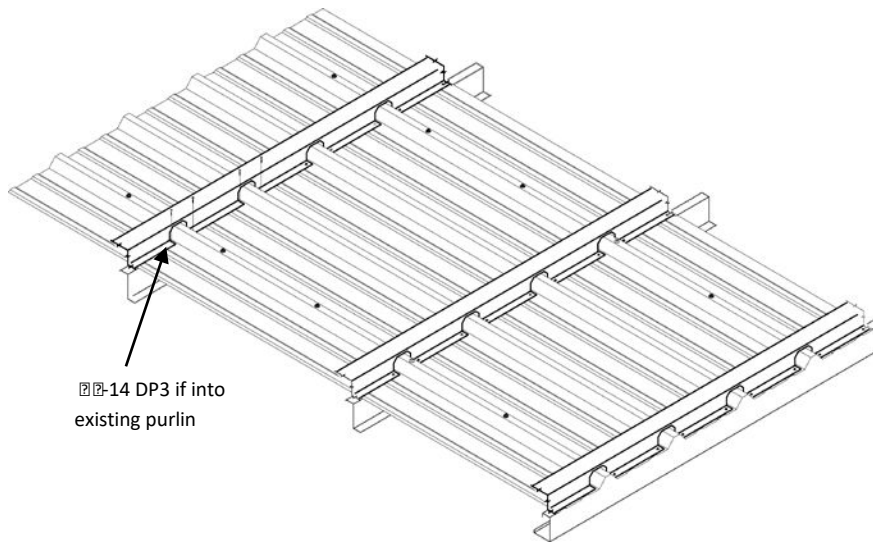
Size: #12-14 X 3/4 TEK-3 with Spirol spacer

When in doubt about any special situation, consult your project architect or engineer first. Roof Hugger is also available to discuss any issues or details. In this manner, problems can be avoided and the highest industry standards of a quality installation will be assured.

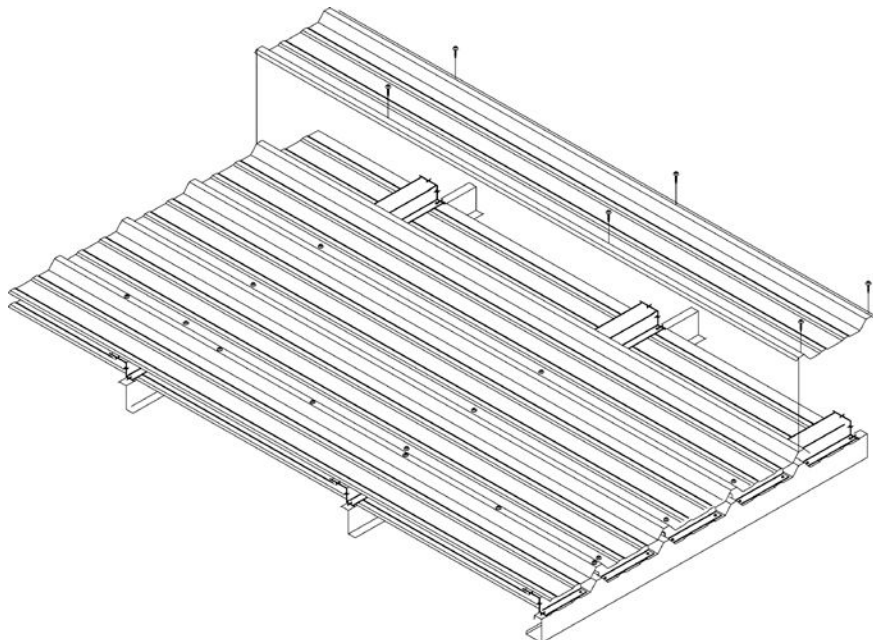
Step-by-Step Hugger Installation

Standard Installation (Corner/Edge Zone Framing not required)

Step 1: Install Huggers directly over and into existing building purlins with 1/4" x 1/4" x 14 TEK-3 self-drilling fasteners. Center existing panel's major rib in Hugger cut-out. Ensure Hugger straightness along purlin run by frequently monitoring dimension from existing Roof eave. Stringlines can be used if elected by Installer.



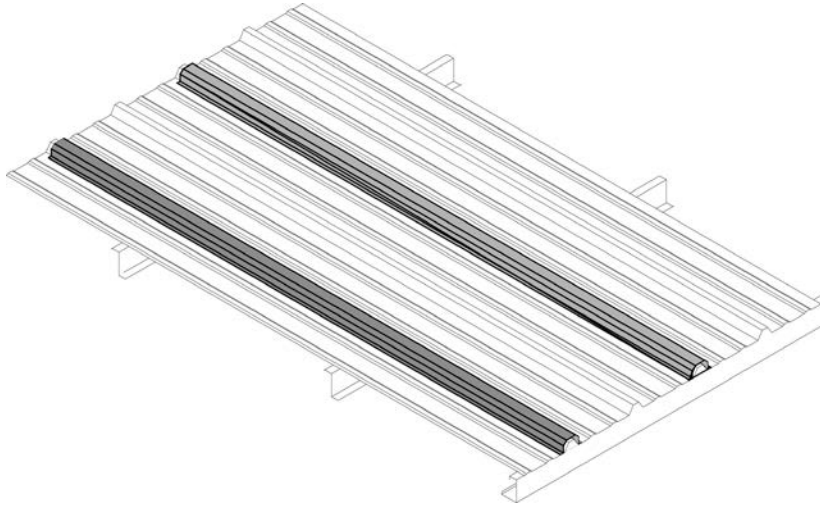
Step 2: Install metal Roof panel system in accordance with manufacturer's standards



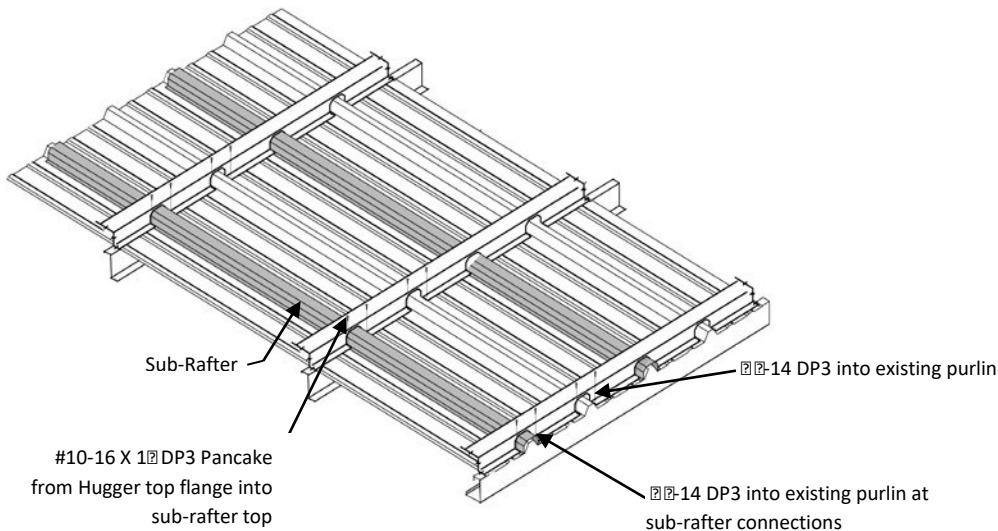
Step-by-Step Hugger Installation

Corner and/or Edge Zone Framing Installation

Step 1: Loosely place Hugger sub-rafter spaced perpendicular to Roof slope as directed (normally no more than 2'0" o.c.). DO NOT ATTACH sub-rafters until new Huggers have been placed into position.

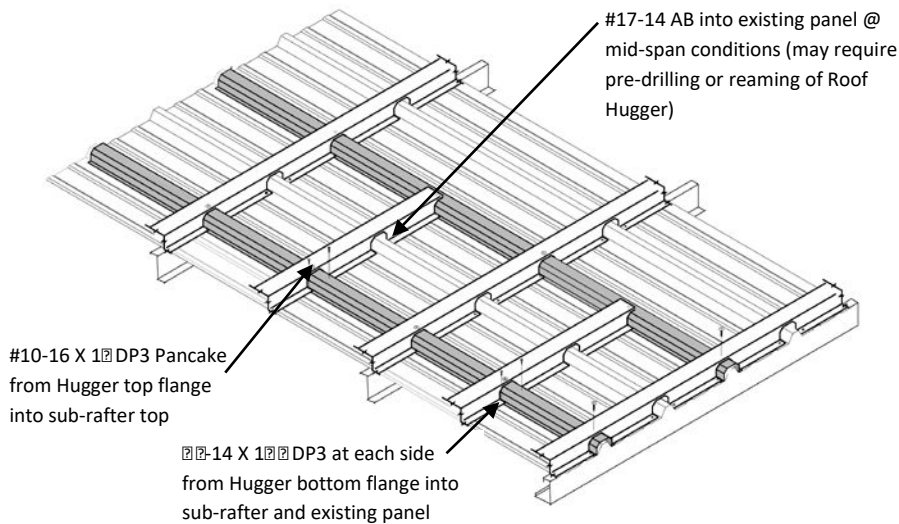


Step 2: Place new Huggers into position ensuring all new sub-framing is square and tightly fitted. Secure the positioning of the Huggers and sub-rafters by installing one #14-14 at juncture of the two members (Hugger top flange into top of sub-rafter). Begin final attachment of members at juncture of the Hugger and sub-rafter base flanges for locations that are directly over an existing purlin using #14-14 TEK-3 fasteners at each side of sub-rafter.

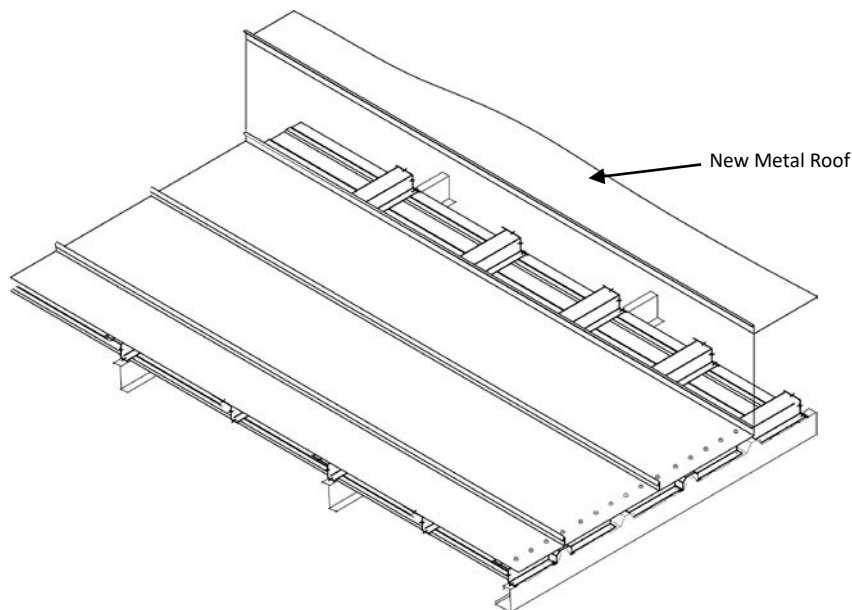


Step-by-Step Hugger Installation

Step 3: Begin positioning mid-span Huggers as directed. These are the Huggers that will not be installed over an existing purlin, rather over the existing panel only. Once in place, install a #17-14 AB fasteners through the Hugger into the existing Roof panel at each side of the panel's major rib. Pre-drilling of Hugger may be necessary. Complete installation by installing a #10-16 TEK-3 Pancake at the intersection of each Hugger and sub-rafter. Refer to page 34 for more information.



Step 3: Install metal Roof panel system in accordance with manufacturer's standards



Structural Hat Grid Framing

Corner and/or Edge Zone Framing Installation using Structural Hats

Dependent on panel clip attachment and wind uplift tested values, usually in higher wind zone areas, Roof Hugger will have to utilize structural 16 GA hat-shaped members to make up the corner and/or edge zone framing. The illustration below explains the difference, but you can review page 66 for more detailed information.

