

### General

The following guidelines provide basic assembly and installation instructions for EFD-635-XD-PH extruded aluminum penthouses mounting to rigid curb conditions.

1. For additional details, refer to the product drawing package posted at [www.alllite.com](http://www.alllite.com) as well as any job-specific submittal drawings when provided.
2. Carefully lift louver sections by the frames using multiple lifting points as necessary to avoid distortion, racking, or other damage. **Do not apply excessive force to a single point, and NEVER LIFT UNITS BY LOUVER BLADES.** Take necessary precautions to prevent marring the louver finish.
3. While installation is underway and before louver sections are permanently fastened in place, All-Lite recommends that the installer employ temporary straps or bracing (by others) to prevent units from shifting unexpectedly.
4. All gaskets and caulk are supplied by others.
5. It is recommended that Anti-Seize be used on all 3/8" bolted connections to prevent potential galling of threads.
6. Depending on methods used, all assembly of the penthouse can occur without the need to enter into the penthouse/duct area.
7. The penthouse is designed to fasten into a rigid steel curb with a minimum of a 14 ga. outer-wall thickness. The curb, as well as the anchors attaching the curb to substrate, are designed and supplied by others.

### Preparation

#### Louvers and Hardware

1. Locate all crates, boxes, cartons, etc.
2. Remove louver walls and other members from packaging, inspect for damage, confirm quantities and sizes with packing list, and organize parts in order of installation. Installation hardware will typically be shipped in a separate box.
3. Notify your All-Lite representative immediately of any shortages or shipping damage.

#### Openings

1. Inspect curb/condition openings for damage, repair as needed, and remove any obstructions or debris.
2. Prior to installation, verify that curb O.D. and top surface is square and level and the curb O.D. dimensions = Specified Penthouse Throat + 4" (+/- 1/2").

### Sill Flashing (if applicable)

1. Locate all sill flashing (by others or optional by All-Lite).
2. Confirm that the curb top surface of the opening and the underside of the flashing are clean and free of all debris.
3. Quantity of 8 pieces of Sill Flashing are included. These pieces are cut long in the factory, so they can overlap in the field. See Figure 1 and Figure 2.

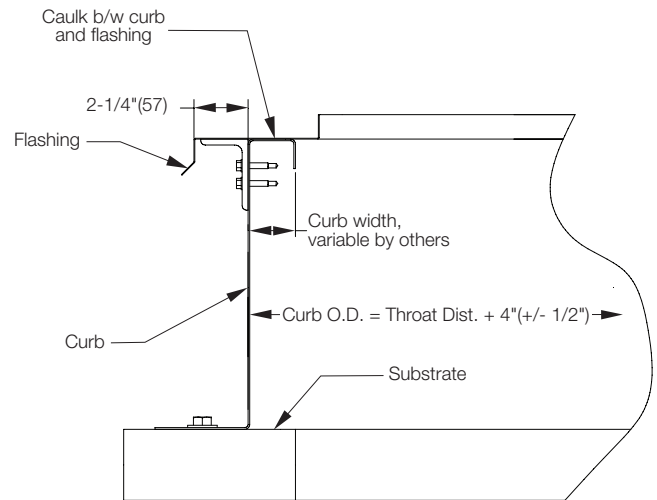


Figure 1: Sill Flashing Vertical Section

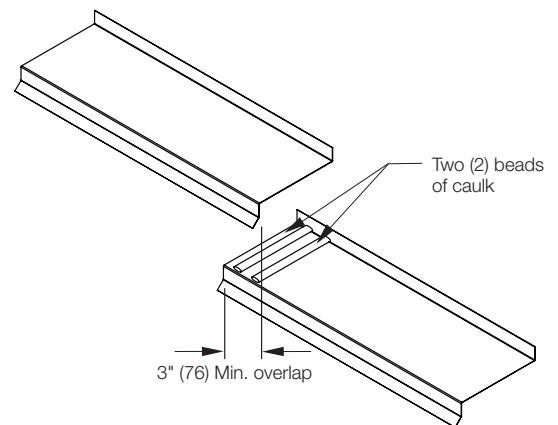


Figure 2: Sill Flashing Assembly

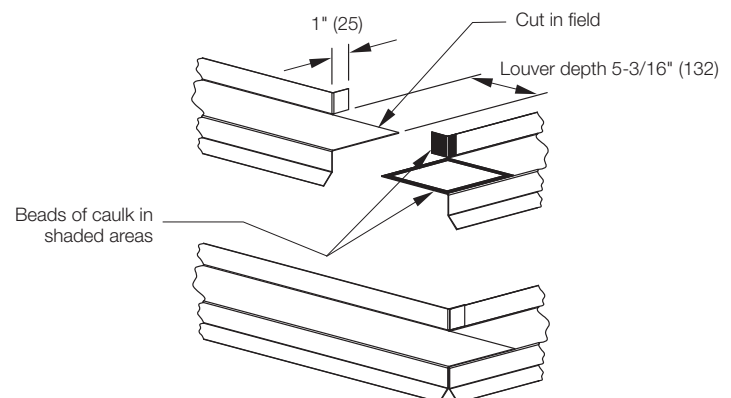


Figure 3: Sill Flashing Corners

# Installation Details

## EFD-635-XD-PH Installation Instructions

(Sill Flashing Cont. from Page 1)

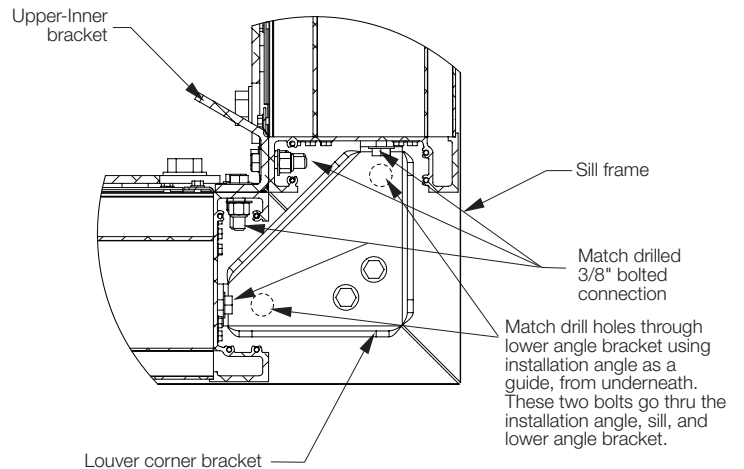
4. Apply caulk to the top of the curb and firmly set the sill flashing in the caulk. Locate front straight edge of flashing off of outer edge of curb. See Figure 1.
  - a. Caulk at all overlapping joints and firmly set. See Figure 2.
  - b. Corner flashing pieces will require notching and manually bending rear flange into place, to seal off the corners. Carefully bend the end tabs and thoroughly caulk the corner seams. See Figure 3.

## Penthouse Installation

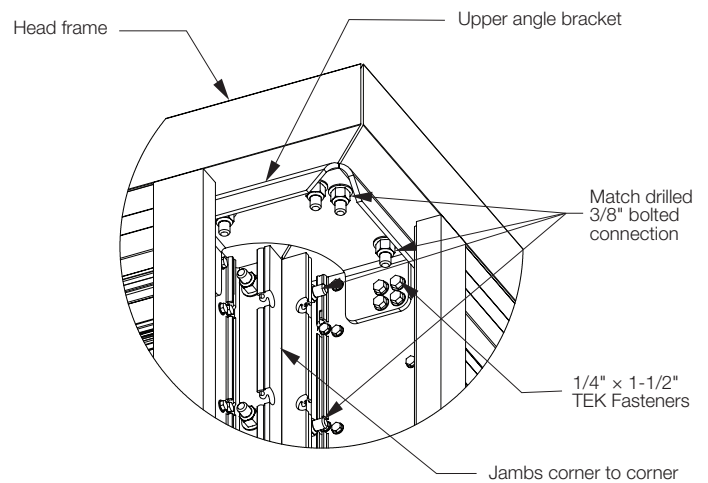
Penthouses are shipped pre-assembled when both of the throat dimensions are equal to or less than 48", while also having a louver height equal to or less than 60".

For penthouses where either throat dimension is greater than 48", or the louver height is greater than 60", penthouses will ship as loose pieces which include 4 pre-assembled louver walls.

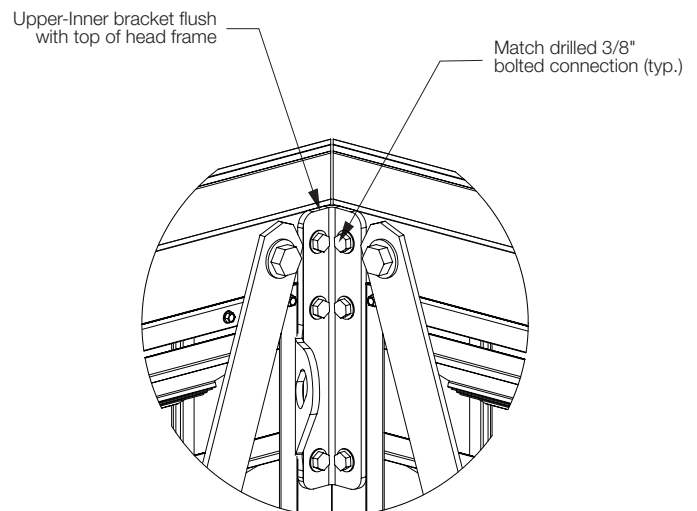
1. **Wall Assembly:** If a penthouse is shipped pre-assembled, skip sections 1 and 2, and move onto section 3 of penthouse installation. See Figures 4, 5, and 6.
  - a. Stand up and square the walls (starting with two) while vertically aligning the louver jamb corners. The walls will need to be at least a few inches off the ground in order to access lower bolted connections. For large units, this may require more than one person or temporary bracing.
  - b. While the walls are held in-line (corner to corner at top and bottom) and square, insert the lower corner bracket into place. Match drill-mounting holes into jamb and sills using a 3/8" bit. Connect the provided bolts and nuts with washers on either side. It is recommended not to fully tighten until satisfied with positioning of the walls.
  - c. Insert the upper angle bracket, ensuring that the jamb corners maintain their alignment and that the bracket is contacting both jamb and headpieces prior to inserting 1/4" TEK fasteners. Match the drill holes thru the head frame into the top corner bracket using a 3/8" bit. Connect the provided bolts and nuts with washers on either side. It is recommended not to fully tighten until satisfied with positioning of walls.
  - d. Once all 4 walls are squarely attached with upper and lower corner brackets, proceed to attach the upper-inner brackets with a lifting point. **IMPORTANT: This bracket is required, regardless of whether being used as a lifting point for the penthouse.** Align the bracket flush with the top edge of the head frame. After ensuring contact with both jamb, match drill holes using a 3/8" bit. Attach the provided bolts, nuts and washers. A washer is not required at the nut inside jamb, given the tight space. A longer wrench or channel lock pliers may be required to hold the nut while tightening these bolts.



**Figure 4: Wall Assembly - Lower Angle Bracket & Upper-Inner Bracket**



**Figure 5: Wall Assembly - Upper Angle Bracket**

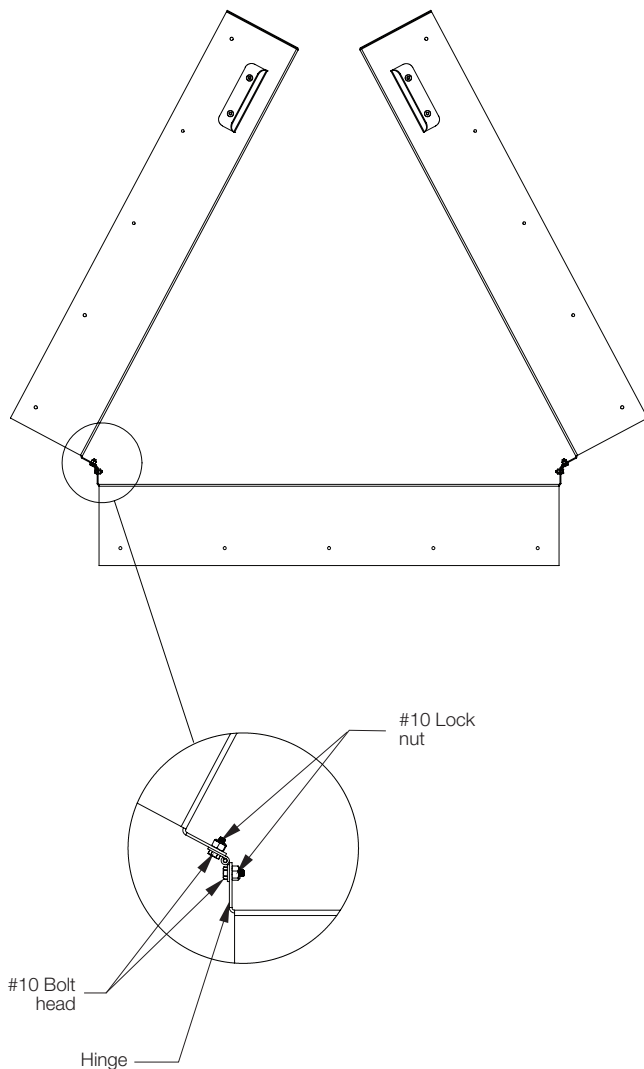


**Figure 6: Wall Assembly - Upper-Inner Bracket**

# Installation Details

## EFD-635-XD-PH Installation Instructions

- 2. Roof Sub-Assembly:** For multi-section hinged roofs only. See Figure 7.
- If not assembling the roof in place while on top of the penthouse, it is recommended to set one roof pan on blocks as to prevent bending the flanges out of place. For larger roof pans, this process is easier with two people.
  - Attach the provided hinges to stationary roof pan's flanges using the provided #10 bolts and nuts (recommended not to tighten until after all fasteners are in place). Bolt heads are located inside the hinge closure gap.
  - Attach the second roof pan to hinge leaf by angling the second roof pan in order to gain access to both sides of the connection. Repeat for third roof pan if assembly calls for it.

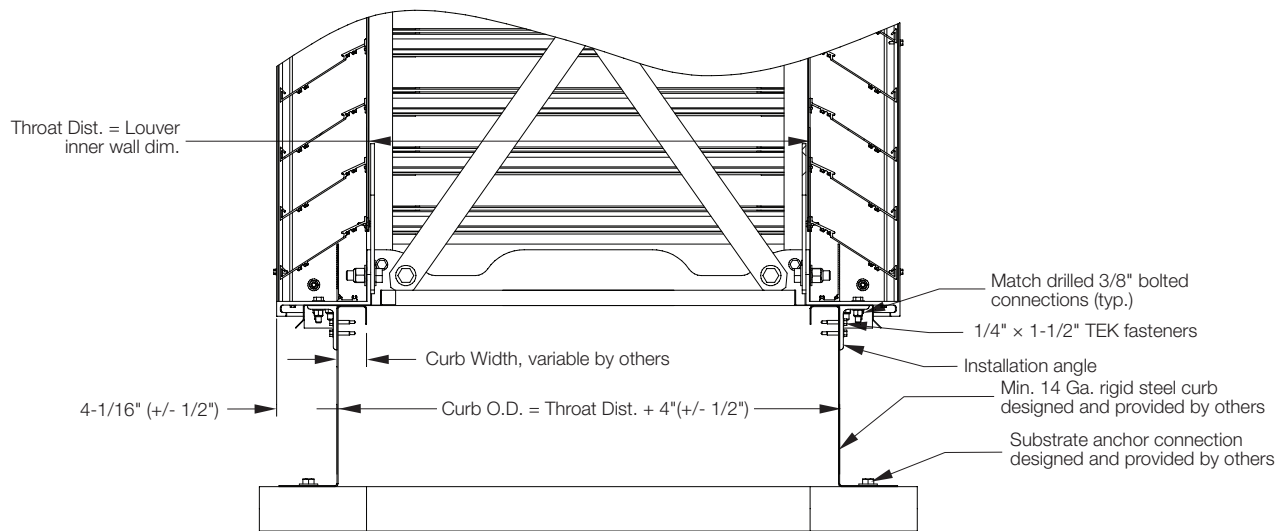


**Figure 7: Roof Sub-Assembly**

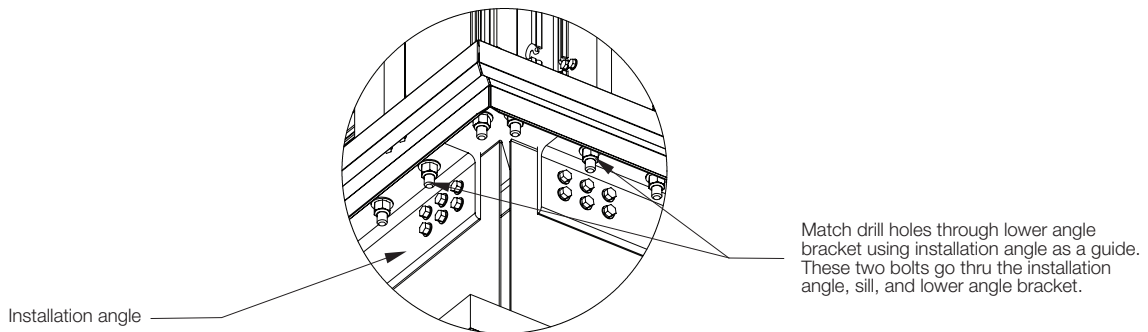
- 3. Installation Angles:** See Figures 8 & 9.
- After the penthouse walls are fully assembled and mounted onto the curb, ensure the penthouse assembly is centered on the curb in all directions. One method to check this is to measure around the perimeter of the curb, ensuring the outer edge of the curb to the outer edge of the penthouse sill measures roughly 4-1/16" (+/- 1/2").
  - Center the installation angle horizontally on the curb wall (+/- 1/4"). Ensure the angle is pressed flush against the curb wall and flush with the underside of the sill prior to attaching the provided 1/4" x 1-1/2" TEK fasteners. Pre-drilled thru holes in the installation angle locate the TEK fasteners.
  - Using a 3/8" bit, match drill holes through the sill frame using the pre-drilled holes in the installation angle as a guide. Holes at the ends of the installation angles must be drilled up into both the sill and lower corner bracket. Additional holes at the corner bracket must be drilled downward into the sill using pre-drilled bracket holes as a guide. (It is recommended that the curb be tall enough to give access for match drilling up into the sill, when connecting the installation angle.)
  - Attach the installation angle to the sill and corner bracket using the provided bolts and nuts with washers on each side. The penthouse installation is now complete.
  - Secondary Method:** In a situation where the curb is not tall enough to allow access for match drilling, the installation angles can be attached to individual walls prior to the full penthouse assembly being mounted on the curb. However, this method requires accurate measurement of the curb and placement of the installation angles to individual walls as a first step. The penthouse and installation angle assembly can then be lowered onto the curb. Any air gaps between the curb and installation angle that cannot screw down tight must be shimmed.
- 4. Roof / Box Corner / Roof Cap Assembly:** See Figure 10.
- Rest the box corner on the top edge of the sill and align it with the jamb edges. Attach it into the jamb with the provided #12 x 3/4" long TEK fasteners through the box corner holes provided.
  - Once the box corners are attached, set the roof onto the penthouse with the end roof pans overlapping the top edge of the box corners. After centering the roof-pan assembly, fasten the roof pan flanges into the head frame using the provided 1/4" x 1-1/2" TEK fasteners. The roof-pan flanges come with fastener thru-holes.
  - For hinged roof-pan assemblies, once roof pan assembly is fastened to the penthouse, attach the cap pieces using the 1/4" x 1-1/2" TEK fasteners provided. Roof cap flanges come with fastener thru-holes.

# Installation Details

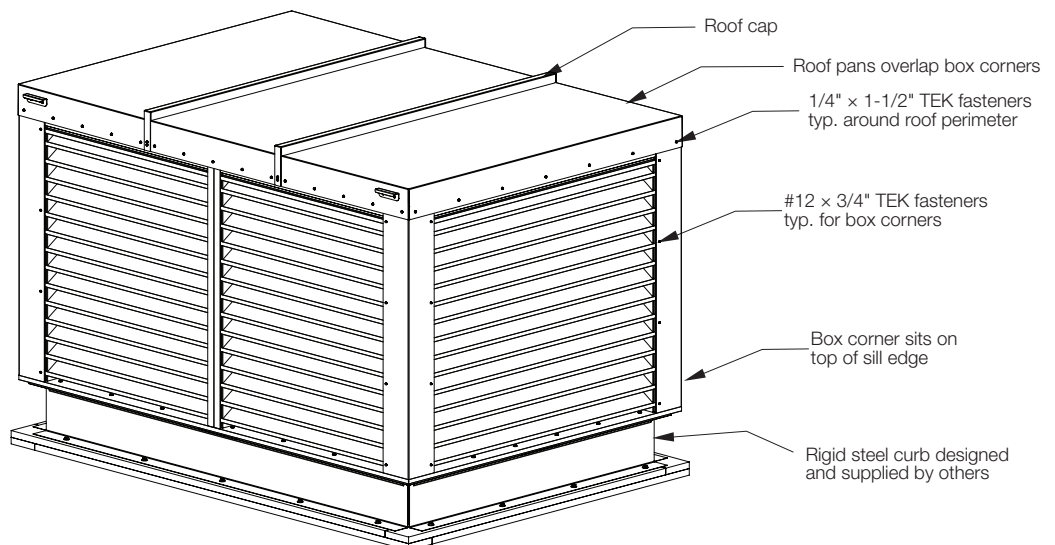
## EFD-635-XD-PH Installation Instructions



**Figure 8: Installation Angle Location**



**Figure 9: Installation Angle Match Drill End Hole**



**Figure 10: Box Corners, Roof Assembly, & Roof Caps**