

### General

The following guidelines provide basic assembly and installation instructions for 'PH' box-corner penthouses in non-severe duty applications.

1. For additional details, refer to the catalog submittal page posted at [www.csairproducts.com](http://www.csairproducts.com) as well as any job-specific submittal drawings when provided.
2. Carefully lift penthouses and their component 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. All gaskets, caulk and anchors to curb are supplied by others.

### Preparation

1. Locate all crates, boxes, cartons, etc.
2. Remove louvers and other items from packaging, inspect for damage, confirm quantities and sizes with packing list, and organize parts in order of installation. To verify installation hardware components, refer to Table 1. Installation hardware will typically be shipped in a separate box.
3. Notify your C & S representative immediately of any shortages or shipping damage.

### Sill Flashing (if applicable)

1. Locate all sill flashing (by others or optional by C & S).
2. Confirm that the top of the condition/curb and the underside of the flashing are clean and free of all debris.
3. If quantity of (4) pieces of sill flashing is included, cut sill flashing members into two halves for a total of (8) pieces. For wider openings, flashing may already come in (8) pieces. These pieces are cut long in the factory so they can overlap and can easily be adjusted in the field. The flashing should extend behind all stiffeners and sit against the outside edge of the curb. See Figure 1.1.
4. At penthouse corners, flashing pieces must be notched and manually bent into place to seal off the corners. Carefully notch and bend up the tabs as shown in Figure 1.3.
5. Apply caulk to the top of the condition/curb and firmly set the sill flashing in the caulk. Also thoroughly caulk at overlapping joints (Figure 1.2) and corner seams (Figure 1.3).

Figure 1.1 Sill Flashing Vertical Section

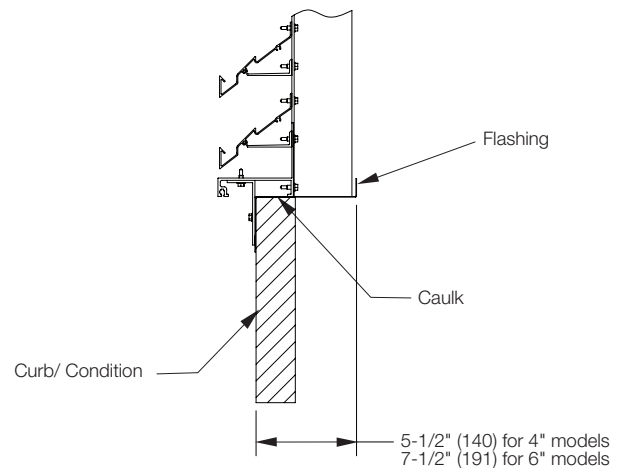


Figure 1.2 Sill Flashing Assembly

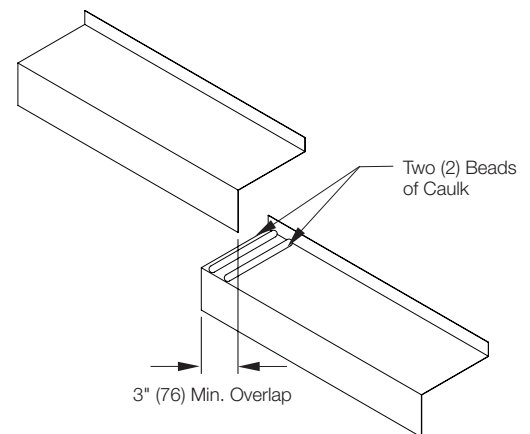
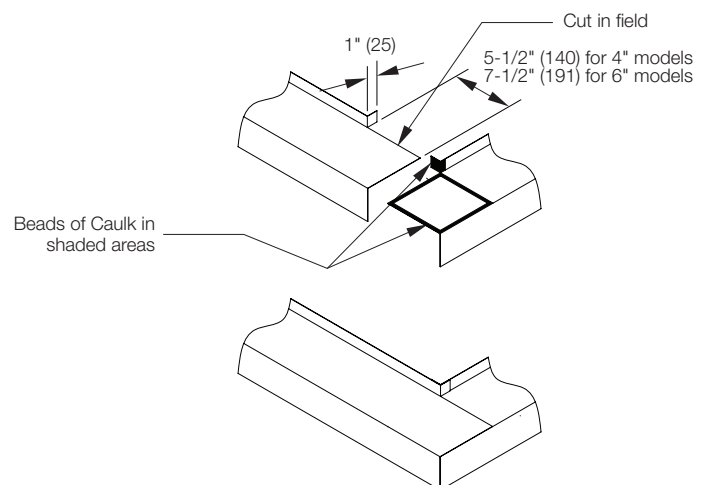


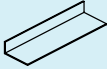
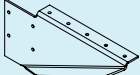
Figure 1.3 Sill Flashing Corners



# Installation Details

## 'PH' PENTHOUSES Installation Instructions

**Table 1: Installation Hardware**

| Part | Description                                               |                                                                                     |                    |
|------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------|
| A-1  | Roof Beam                                                 |    | Included as needed |
| A-2  | Install Angle (3-1/2" x 1-1/2" x 1/8" x 6063-T6 Aluminum) |    | Included           |
| A-3  | Corner Angle                                              |    | Included           |
| A-4  | Corner Cover                                              |    | Included           |
| P-1  | Connector Plate                                           |    | Included as needed |
| P-2  | Support Brace                                             |    | Included as needed |
| F-1  | #12-14 x 1" Hex-Head Self-Drilling Machine Screw          |    | Included           |
| F-2  | Anchor to Curb/Condition                                  |  | By others          |

## Penthouse Installation

Smaller penthouses, with both 'A' and 'B' throat dimensions equal to or less than 48" (1219) are pre-assembled prior to shipping. Penthouses larger than 48" will be shipped broken-down in sections for field assembly.

Penthouses with 'A' or 'B' throat dimensions greater than 60" (1524) will have mid-stiffeners on corresponding louver sections. These mid-stiffeners will be later fastened to beams which will connect two opposite sides of the penthouse together. See Figure 2 and step 1d below.

### 1. Assembly

- If penthouse is shipped pre-assembled, skip this step and move to step 2 of penthouse installation.
- Make sure individual sides are square before assembling.
- Use corner angles (A-3) to connect adjacent wall sections together at the corners. Fasten corner angles to louver jambs using #12 x 3/4" Tek screws (F-1) spaced 12" max. on center. See Figure 2.
- If mid-stiffeners are present, roof beams (A-1) should be used to connect the widest sides together. Fasten each roof beam to the mid-span stiffeners across from each other using a flat connector plate (P-1). Use #12 x 3/4" Tek screws (F-1) to fasten the connector plate to the side of each stiffener and the web of the roof beam, following the pre-drilled hole pattern in the connector plate. See Figure 2.
- If support braces (P-2) are shipped, install underneath each roof beam. Both ends of the roof beam will need a support brace. Connect using #12 x 3/4" Tek screws (F-1) in pre-drilled holes.

- Install a cover (A-4) at each corner of the penthouse assembly. The corner cover will attach to the front of the louver jambs with #12-14 x 3/4" Tek screws (F-1) using the pre-drilled hole pattern in the cover.

### 2. Installation to curb

- Carefully lift the penthouse up and set it on top of the curb.
- Center the penthouse on the curb. Align the inside edge of each sill approximately flush with the inside of the curb. The front of the sill should be a minimum of 2" away from the curb. Adjust as needed.
- Place each installation angle (A-2) against the outside of the curb with the 1-1/2" leg against the penthouse sill and the 3-1/2" leg against the curb. See Figure 3.
- Anchor the installation angles to the curb (anchors by others).
- From underneath, attach the top leg of the installation angle to the bottom surface of the sill using #12 x 3/4" Tek screws (F-1) spaced a maximum of 12" on center. See Figure 3.

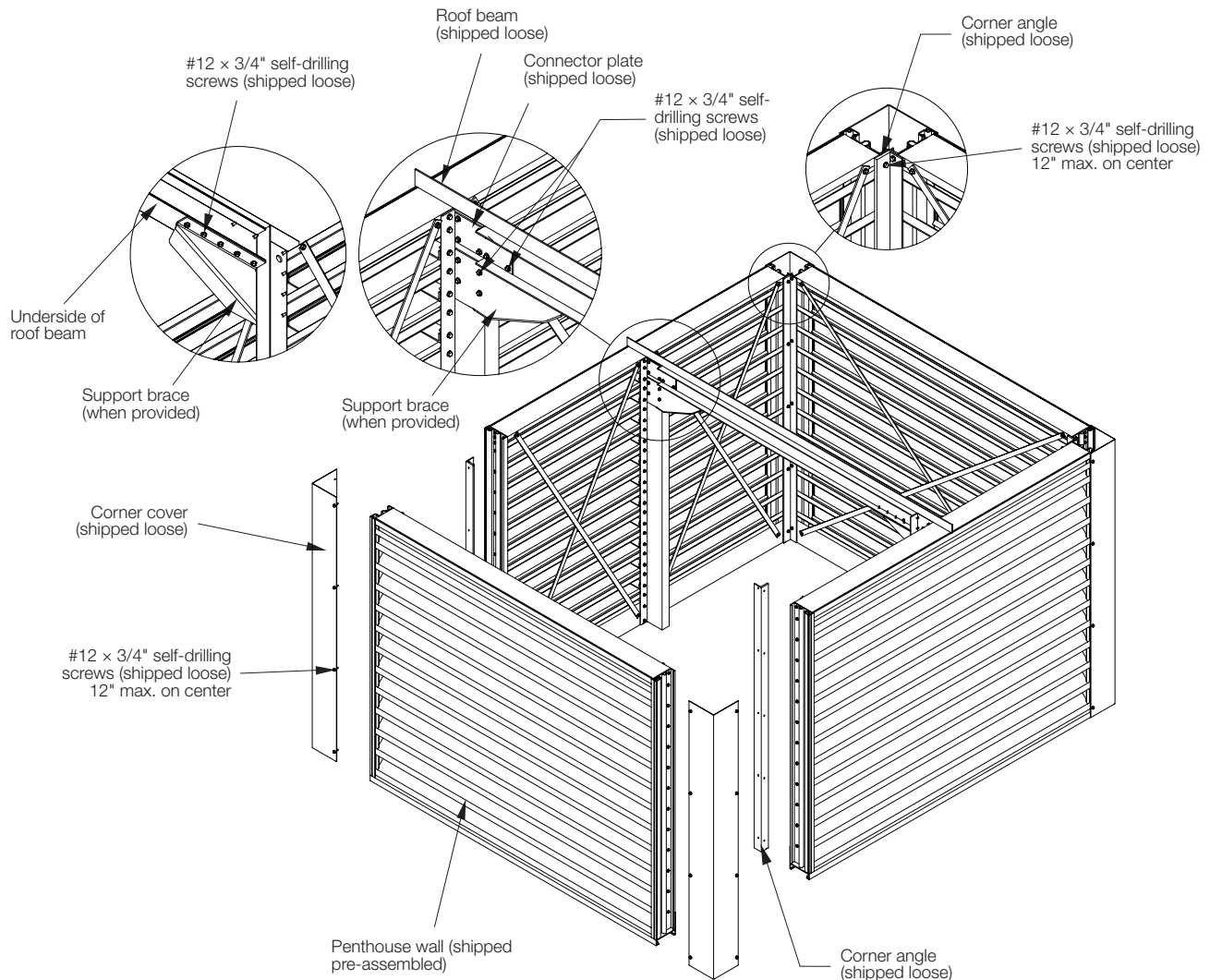
### 3. Roof pan installation

- Place roof pan type A on top of the penthouse with the pan's upward flange against the top of the roof beam. The type A pan is distinguished by the fact that it does not have a flange that will overlap the top of the roof beam. See Figure 4.
- Use #12 x 3/4" Tek screws (F-1) to fasten the outside edges of pan type A to the walls of the penthouse. Screw locations are determined by pre-drilled holes in panel. **Do not fasten the panel to the roof beam until the adjacent panel has been placed.**
- If the penthouse has more than one roof beam, place a mid-roof pan next to pan A with the overlapping flange going over the beam and pan A. See Figure 4.
- As before, fasten the mid-roof pan to the walls first, using the pre-drilled holes in the panel.
- Once both pans on either side of the joint are in position, use #12 x 3/4" Tek screws (F-1) to fasten all the way through both pan flanges and the roof beam. Screws should be spaced a maximum of 16" on center.
- Repeat steps 3c through 3e for all remaining pans.

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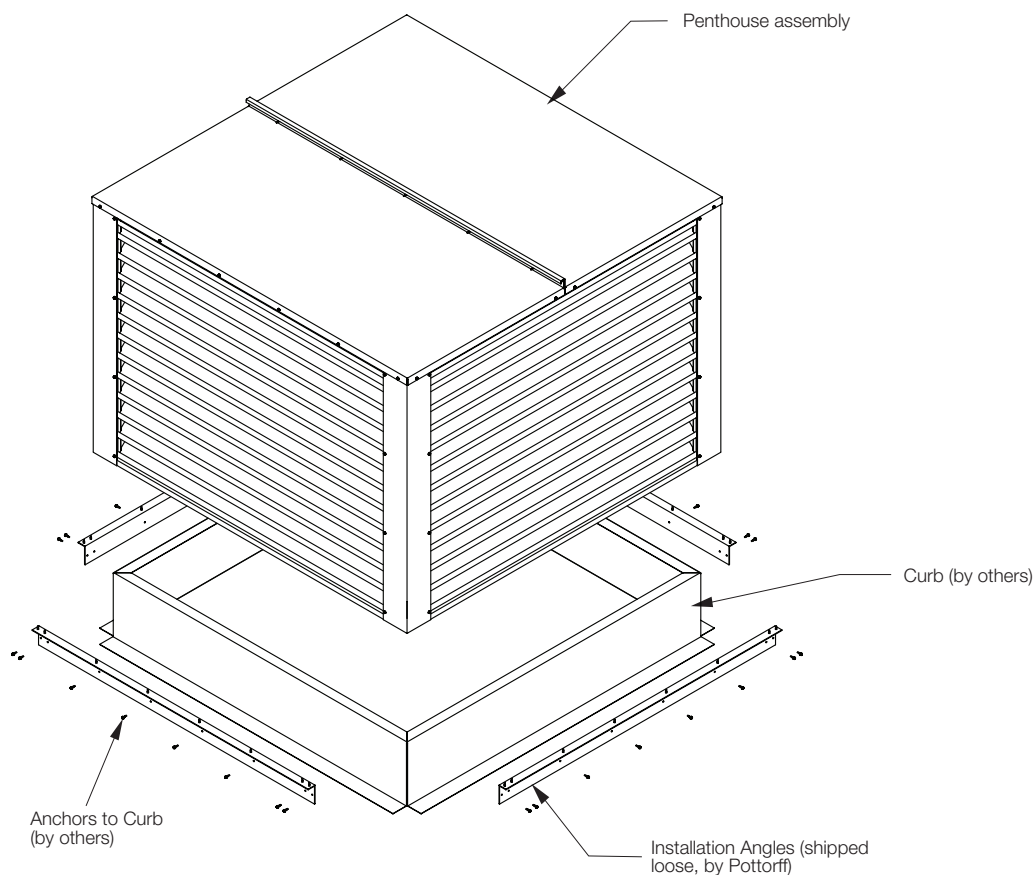
**Figure 2: Penthouse Assembly (Walls and Roof Beams)**



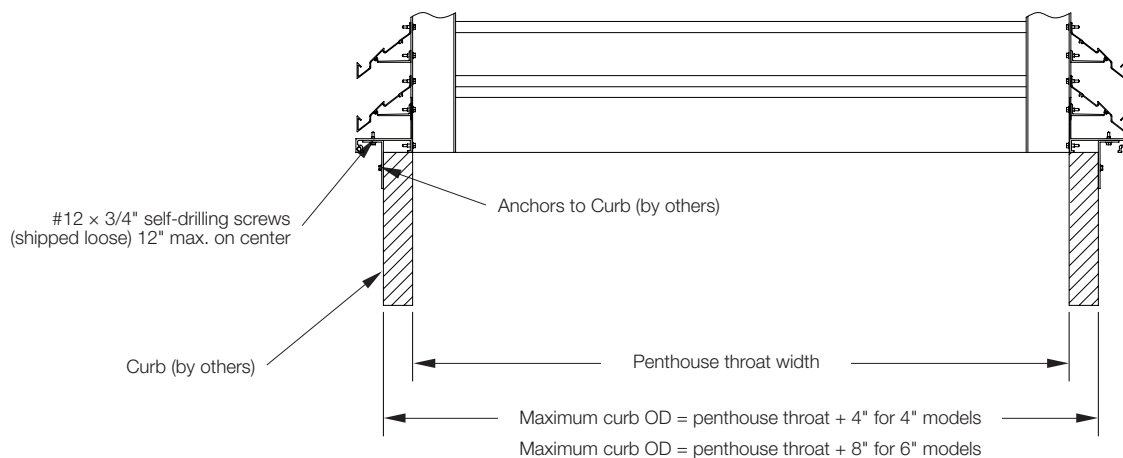
# Installation Details

## 'PH' PENTHOUSES Installation Instructions

**Figure 3: Penthouse Installation to Curb**



### Section Detail



# Installation Details

**Figure 4: Penthouse Assembly (Roof Pans)**

