

Square Base with RotoLock™ Roof Attachment System

Description:

RoofScreen's patented Square Base Roof Attachment System provides a watertight structural mounting point for multiple uses on commercial rooftops. It is specifically designed for use with RoofScreen steel tube framing components to build equipment screens, solar arrays or other custom rooftop structures. The system is adjustable for roof slope and features our RotoLock™ mechanism which allows it to be locked together after adjustment.

Materials:

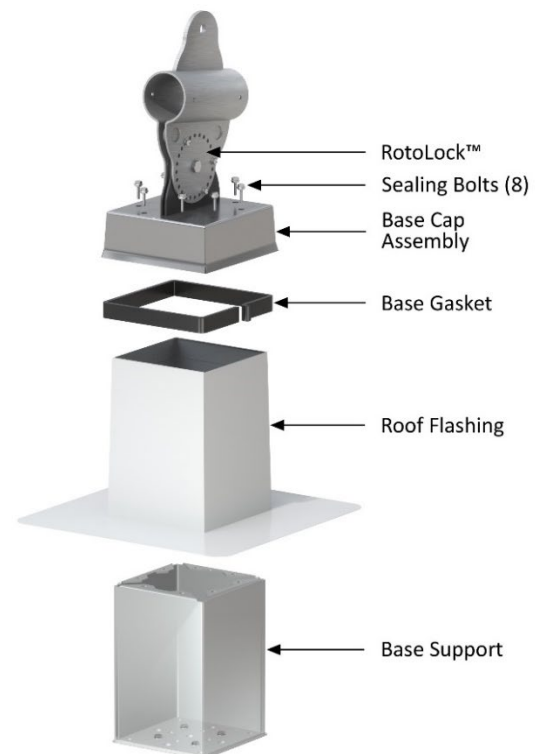
- Base Assembly is formed from AISI Type 304 stainless steel with mill finish.
- Base Gasket is self-adhering EPDM foam strip.
- Base Support is formed from cold rolled steel (ASTM 1008) and powder coated with polyester polyurethane primer finish.
- Base Cap Sealing Bolt is stainless steel, 5/16" x 1" with polyethylene washer.
- Flashings are TPO, PVC, Galvanized, Lead or Copper (See RoofScreen Flashing Guide).

Application:

This attachment system is designed for commercial roof structures and is suitable for mounting equipment screens, equipment platforms, solar racking frames or any other type of rooftop structure that needs to be heavy-duty and watertight. The Base Supports are fastened to the roof structural members through holes on the inside of the Base using lag screws, self-drilling tek screws, concrete anchors or through-bolts. Base Supports are available in heights ranging from 8" to 14" to accommodate different insulation thicknesses.

Installation:

Base Supports should be mounted directly to the structural members in the roof framing. To prevent condensation, the inside of the Base Supports should be filled with unfaced batt insulation. If a thermal barrier is required at the roof connection, a layer of self-adhering ice and water shield material should be applied under the Base Supports. Spacing between Bases, and fastener quantity and type will be specified in the project engineering calculations. Flashings should be installed next and integrated into the roofing system by a professional roofing contractor. Base Gaskets are applied at the top of the flashing for added protection from ice and splashing water. The Base Assembly is installed last, with 8 sealing bolts through the top of the Base Cap into the pre-tapped holes in the top of the Base Support below. Start bolts by hand, threading each one a few turns to make sure they are not cross-threaded. Once all 8 bolts are started, tighten the bolts moving in a crisscross pattern similar to tightening lug nuts on a car wheel.



PRODUCT DATA SHEET

RoofScreen Square Base with RotoLock
Updated 3.15.22

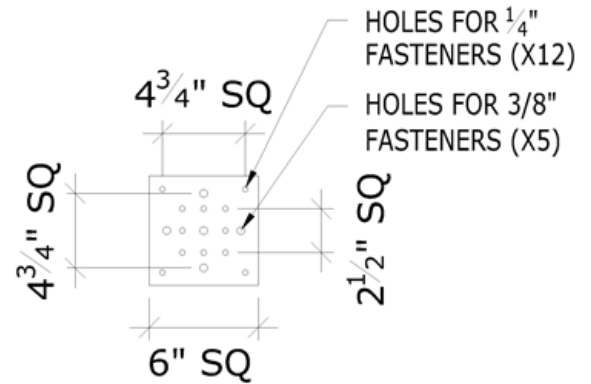
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Base Support Fastening Pattern:

RoofScreen Square Base Supports are fastened to the structure using various holes on the inside of the base. The holes are arranged and sized to allow fastening to any type of structure. Here are a few examples of typical fastening methods:

- **Open Web Steel Joists:** (4) self-drilling tek screws through the 1/4" holes spaced at 2 1/2" square.
- **Wood Purlin:** (2) lag screws through the 3/8" holes spaced at 4 3/4", in line and centered on purlin.
- **Concrete:** (2) or (4) expansion anchors through the 3/8" holes spaced at 4 3/4".
- **Through-Bolt:** (2) Bolts or all-thread through the 3/8" holes spaced at 4 3/4", in line and centered on structural member.

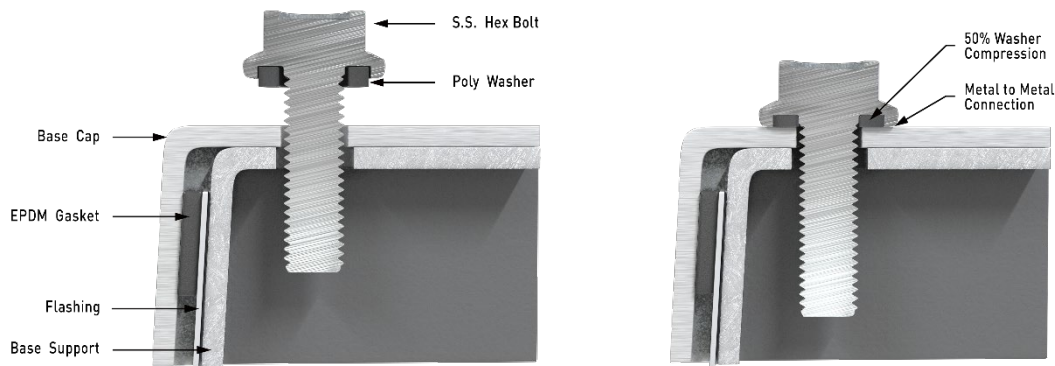


HOLE PATTERN IN BOTTOM OF BASE SUPPORT

In cases where increased shear loads are required, additional screws can be installed as necessary through any of the unused 1/4" holes.

Base Cap Sealing Bolt:

The bolts used to fasten the Base Assemblies to the Base Supports are specially machined with undercut shoulders. This allows the washer to compress approximately 50% when the bolt head is seated against the Base Cap surface. Since the washer is completely contained within the undercut, it is never exposed to the environment or UV light.



Please refer to diagrams above: Notice the washer in the un-installed position is larger than the undercut area in the bolt shoulder. When the bolt is installed and seated (see the assembled view), the washer is compressed and creates the seal. The solid metal-to-metal connection between the bolt shoulder and top surface of the Base Cap prevents over-compression and damage to the washer.

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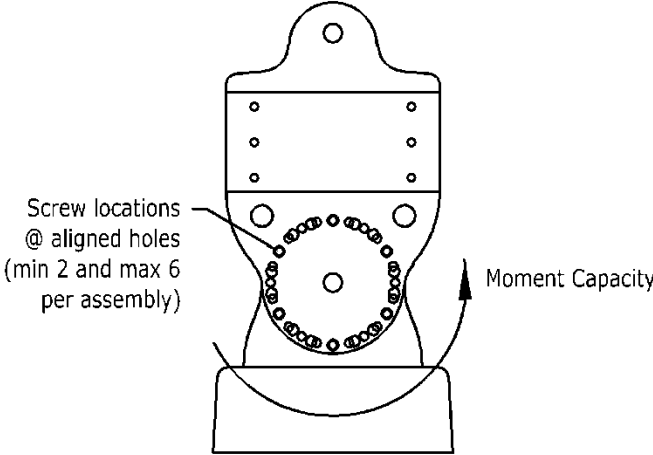
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RotoLock™ Description and Capacity:

The RotoLock™ feature of the RoofScreen Roof Attachment System provides a pivot point allowing the assemblies to be adjusted for roof pitch. After adjustment is completed during installation, the moment-resisting pins (thread-cutting screws) are inserted in accordance with the specific shop drawings. With the moment-resisting pins inserted into the proper holes and the center-bolt tightened, the assembly is locked together. Each moment-resisting pin can resist a torque up to 0.51 ft-kips, totaling 3.09 ft-kips with the maximum number of pins (6) installed.

The RotoLock™ assembly is mounted on top of the RoofScreen Base Support. The Base Support is connected directly to the roof structure with appropriate fasteners, creating a pinned connection. These assemblies are designed to be used in pairs, connected by rigid structural members fixed at each end. When a load is applied to the pair of assemblies connected by a structural member, the RotoLock™ absorbs the torque that would otherwise be transferred into the roof structure.

Moment Resistant RotoLock™ Capacity	
Capacity based on the Load and Resistance Factor Design Concept (LRFD) as presented in the 2012 International Building Code	
 <p>The diagram shows a cross-section of the RotoLock assembly. It consists of a top plate with a central hole and two rows of four holes each. Below this is a circular component with a central hole and a ring of 12 holes. This circular component is mounted on a base support. An arrow labeled 'Moment Capacity' points to the right, indicating the direction of the applied moment. A label 'Screw locations @ aligned holes (min 2 and max 6 per assembly)' points to the holes in the top plate.</p>	
<ul style="list-style-type: none">• Screw Pin Type: 1/4" x 3/4" Long Thread-Cutting Screw• Moment Capacity: 0.51 ft-kip per fastener	

Warranty:

When RoofScreen provides project design and engineering calculations, a 20-year limited warranty is included.