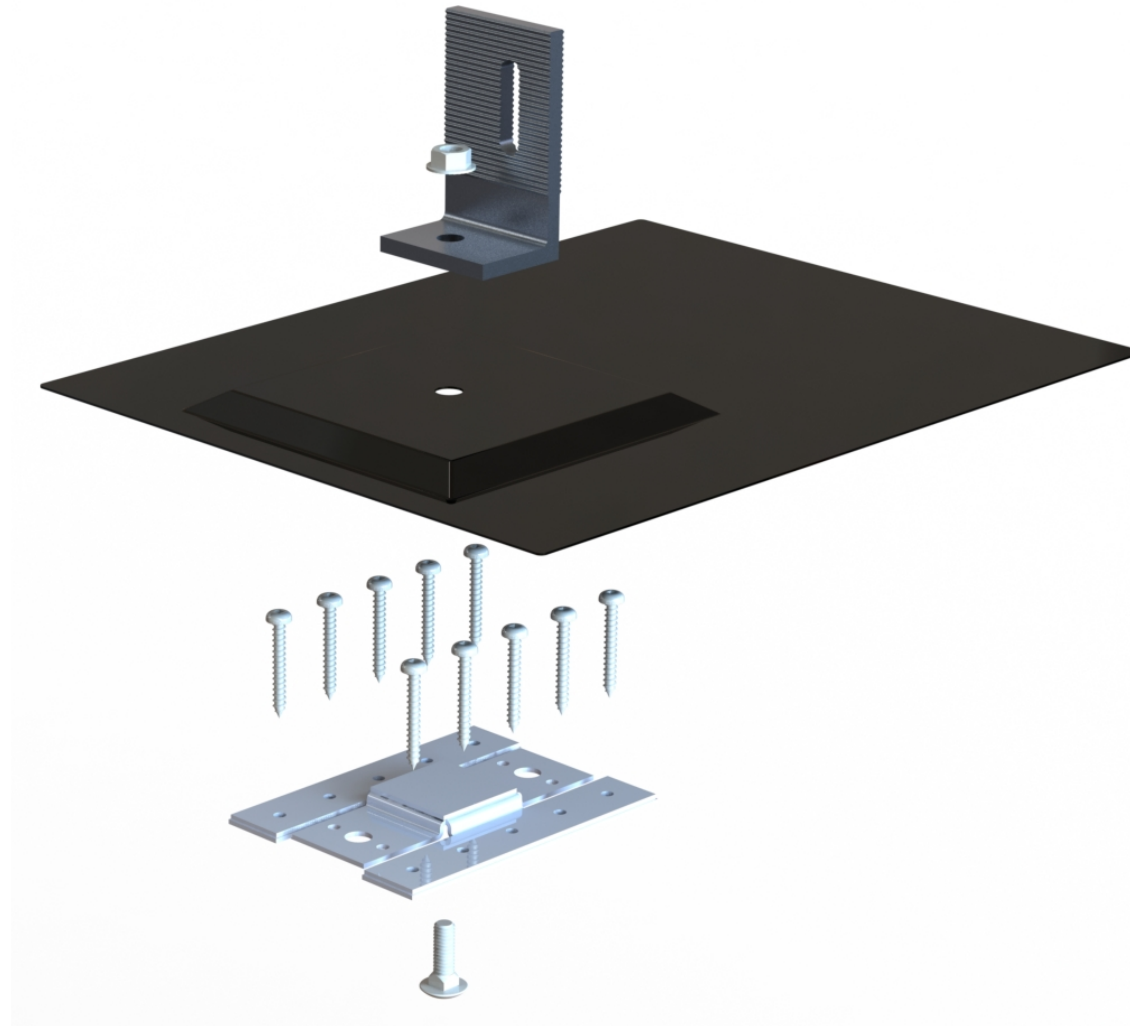


## Talon - Installation Manual

### Sloped Roof - Rafterless Attachment





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## Introduction

This manual is an illustrated guide on how to install a Talon roof attachment system. It is meant to cover each individual step of the assembly process. Throughout the guide, references will be called to the parts list in order to assist in easily identifying the items required for a specific section. The guide is broken into several sections, each covering the milestone assembly steps, with sub assembly steps in-between where necessary. Each assembly step will include an illustrated list of hardware to be used during that assembly process. Where specified, some assembly sections include a preparation process. It is necessary to follow these preparations in order for the installation to continue smoothly, with no need for back tracking.

Throughout the guide there are reference markings for warnings, and recommendations, identified by these symbols:



Be sure to look for and read these markings. They will provide information such as guidelines to prevent damage to equipment, safety measures to prevent serious injury or bodily harm, and advice on how to make the assembly quicker.

## Liability

The installer and/or contractor or developer of each project shall be responsible and liable for safe and proper installation of each system, and also to initiate, maintain and supervise all safety programs and precautions for each project and project site, and to provide all required protection to prevent damage, injury, loss or death to any or all persons, property and work present or located on the project site.

Fast-Rack does not install any portion of its mounting systems and therefore will not have, and hereby specifically disclaims, any duty or responsibility for safe and proper installation of any mounting system or jobsite safety as to any jobsite where installation of any of its mounting systems occurs. Please follow the drawings and instructions, and report any issues or discrepancies to Fast-Rack.

## Compliance

The Fast-Rack photovoltaic mounting system meets the requirements of CSA LTR AE-001-2012 and the bonding components of the system are individually certified to CSA C22.2#41:2013 ED.6



## Personal Safety

Prior to starting installation is it important to identify all potential hazards and implement a safety plan denoting how to deal with these hazards.

Examples of some potential personal hazards which may be encountered during a sloped roof installation are:

- Fall Hazards – Ensure compliance with OSHA regulations for working at height. Use fall protection, or fall prevention equipment and practices as necessary.
- Electrical Hazards – Observe the location of overhead and rooftop conductors/electrical equipment. When possible disconnect/lockout circuits in the work area.
- Lifting Hazards – Use proper lifting techniques to prevent work place injuries when moving components on the ground, on the roof and lifting between the ground and roof.
- Environmental Hazards – Rain, snow, wind, sun and heat. All of these have the potential to injure personnel and property if not properly prepared for.

Once the hazards specific to the installation have been identified, it is critical to devise a plan should a workplace accident occur. Some things to have prepared and discussed prior to start of work are:

- Location of nearest hospital, emergency phone number
- Trained and certified on-site first-aid attendant and location of first-aid kit
- Devise method for extracting injured personnel
- Communication and awareness of potential hazards
- Trained and certified fall protection training for all personnel working at height

Fast-Rack offers regular training courses for Fall Protection Awareness, while Occupational First Aid courses can be found in most municipalities often through local fire departments.

## Site Safety

If necessary, obtain a structural analysis of the roof to determine its capacity before installing solar PV modules. Failure to do so may result in overloading the roof and could lead to costly upgrades of the existing structure.

Most municipalities in Canada have recognized that the distributed load of a Solar PV array (typically less than 4 PSF) is a small fraction of most residence's snow load capacity and often do not require a structural analysis for permitting. Familiarize yourself with local municipalities' building permit requirements. Larger commercial and industrial projects will typically require a structural assessment prior to the issue of a building permit.

In addition to determining the structural suitability of the building it is also important to protect the building when working on the roof. Adhere to best practices when working on different roof membranes to prevent damage to the roof and the potential for water penetration.

If necessary, work with an experienced roofer to install roof penetrations according to roof manufacturer's specifications.

It is the responsibility of the installer/owner to ensure the racking and solar system (including installation) meets local building and electrical codes along with requirements for local power distribution companies.



### Components

ID	PART	CODE
1	Talon Base	*FR-TALON
2	Talon Flashing	*FR-TALON
3	L-Foot	FR-FOOT-ROS-KIT

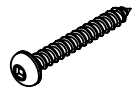
\*INCLUDED IN FR-TALON KIT

**⚠ Upon receipt of goods, make sure to check all packaging to ensure delivery of all parts required.**

### Hardware

ID	SIZE	TYPE
A	M8	Carriage Bolt
B	M8	Hex Nut
C	#10 x 1.5"	Pan Head Metal Screw

\*NOT SUPPLIED\*

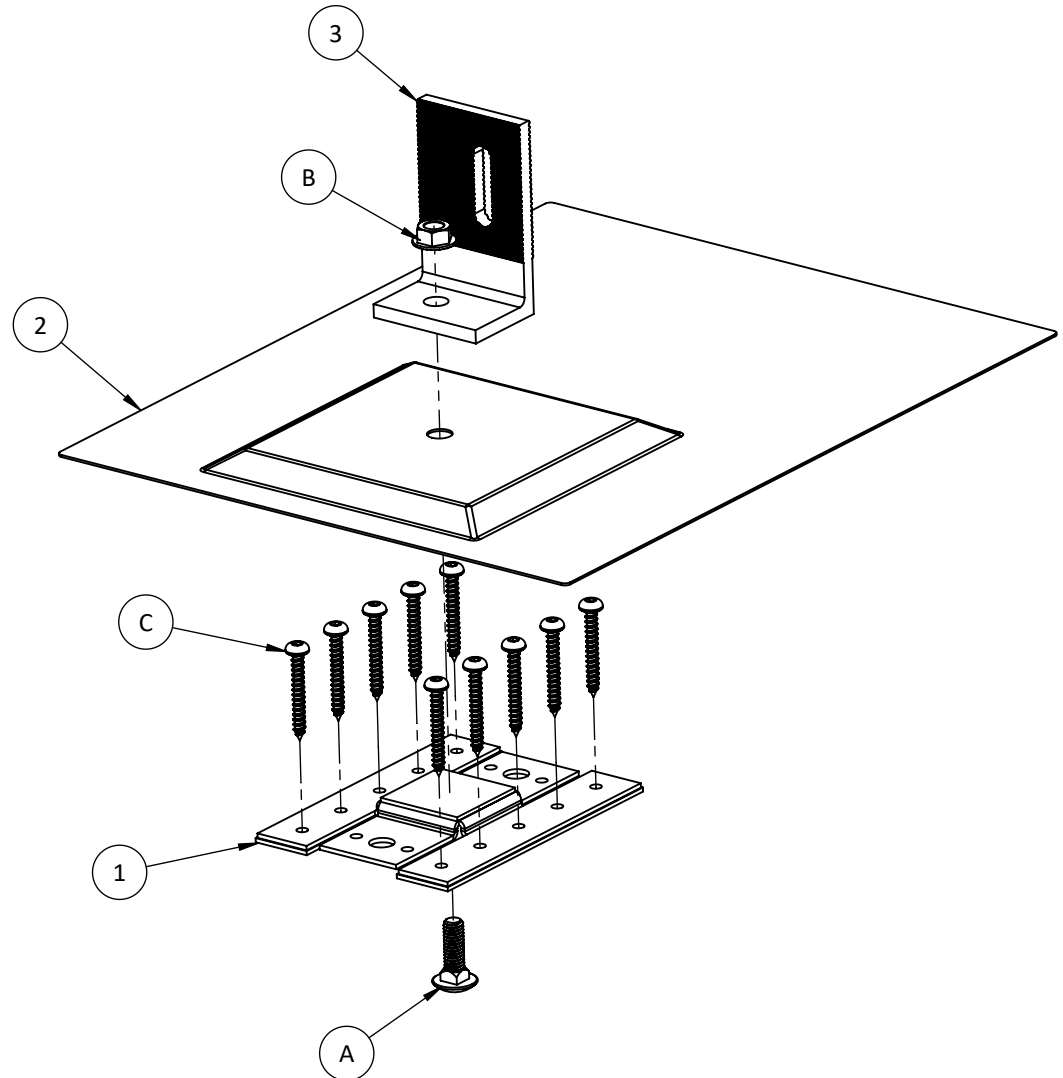


### Note:

Screws to be 10 x #10 x 1-1/2" pan head square drive metal screws (zinc plated or stainless steel)

### Tools

- 13mm ratchet and socket
- Torque wrench
- Cordless drill
- Square head drill bits
- Chalkline



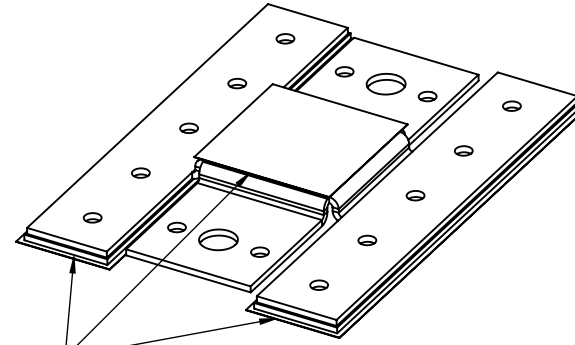


The Talon comes with butyl tape pre-installed on both the bottom side and top side of the Talon Base. Peel off the protective paper before installing. Plan to have a garbage bag handy to dispose of the paper once removed.

**i** Keep the Talons in the shade or a cool place to make removing the paper easier

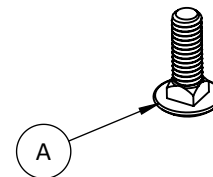
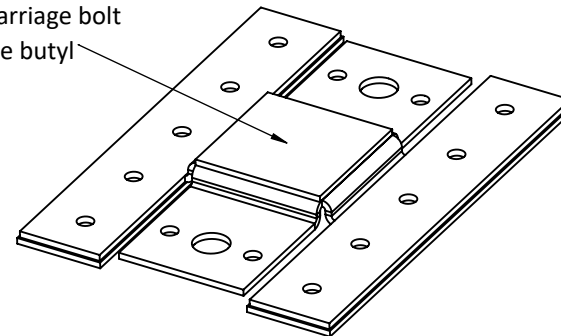
Once the top paper is removed, insert the carriage bolt through the underside of the Talon Base into the square hole. The butyl may also be cut out for the carriage bolt with a box cutter.

**i** Ensure the square head of the carriage bolt is fully seated into the square hole



Peel off the protective paper

Push the carriage bolt through the butyl





Once the carriage bolt is installed and the protective paper is removed, the Talon is ready to be placed on the roof.

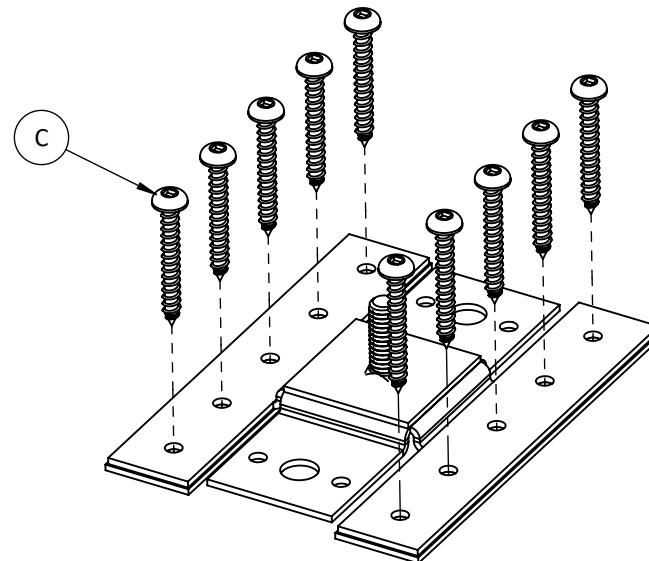
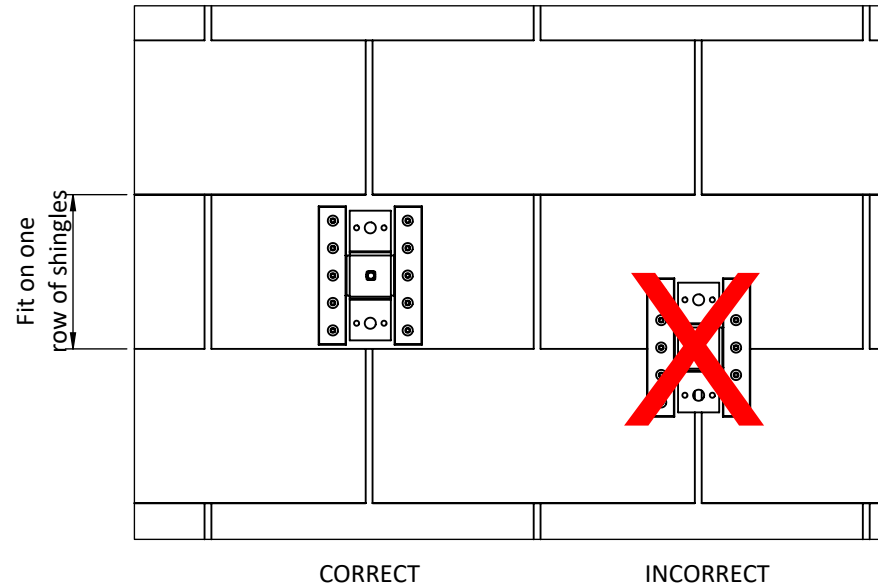
Align the Talon with the centerline of the Rail. It is recommended to mark out all rail locations with a chalkline prior to installation.

Install the Talon on a single course of shingles. This ensure the butyl seals to the roof and allows proper spacing for the flashing to extend underneath.

**i** The Talon is rafterless and does not need to align with a roof truss

When the Talon is in the correct position, install ten wood screws into the outer holes of the Talon Base. The screws bite into the wood roof decking and do not need to hit a truss.

**!** #10 pan head metal screws not supplied





### 5.1 Structural Screw Attachment

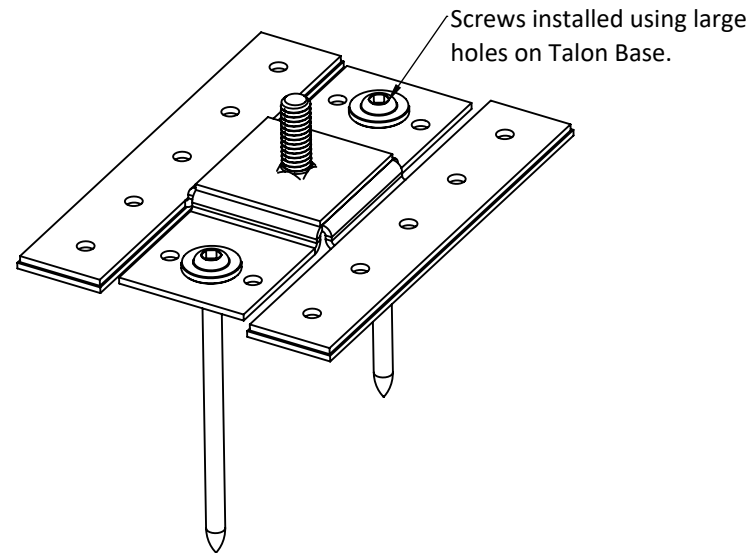
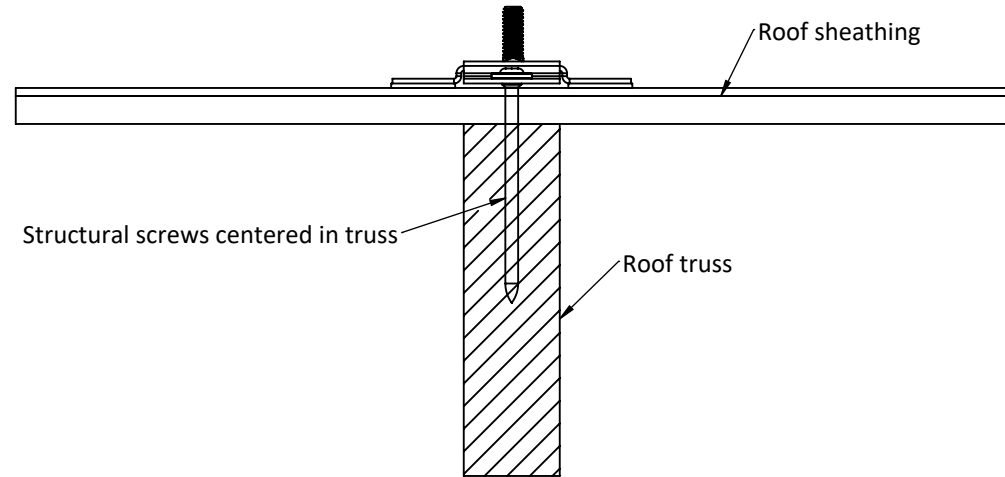
The Talon may also be installed directly to the roof truss using structural lag screws. Two screws are installed using the largest center holes on the Talon Base.

**i** The Talon must be centered over a roof truss for this type of installation.

5/16" diameter structural screws are recommended. The base plate can accommodate up to 3/8" diameter screws if required. Consult with your engineer to confirm sizing, engagement and preparation (ie. predrilling).

**⚠** Lag screws not supplied

The #10 screws may also be included with this style of installation. The structural screws would still be required to penetrate the existing roof truss.



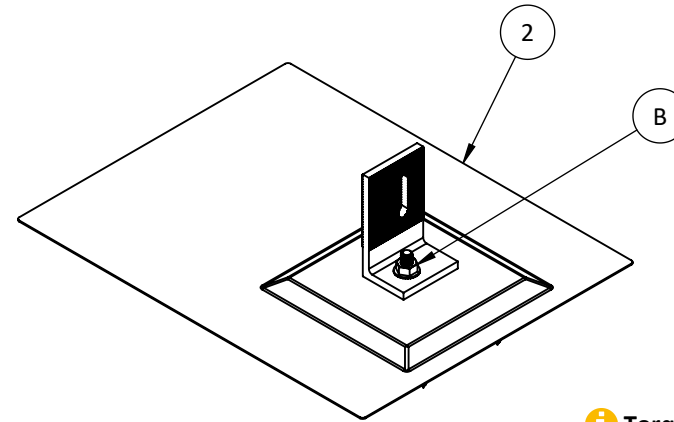




Slide the Talon Flashing over the Talon Base until the Carriage bolt is aligned with the hole. The flashing should extend underneath the two upper courses of shingles. Ensure at least 1" of the flashing is fully underneath the 2nd course up so there is no path for water to get underneath.

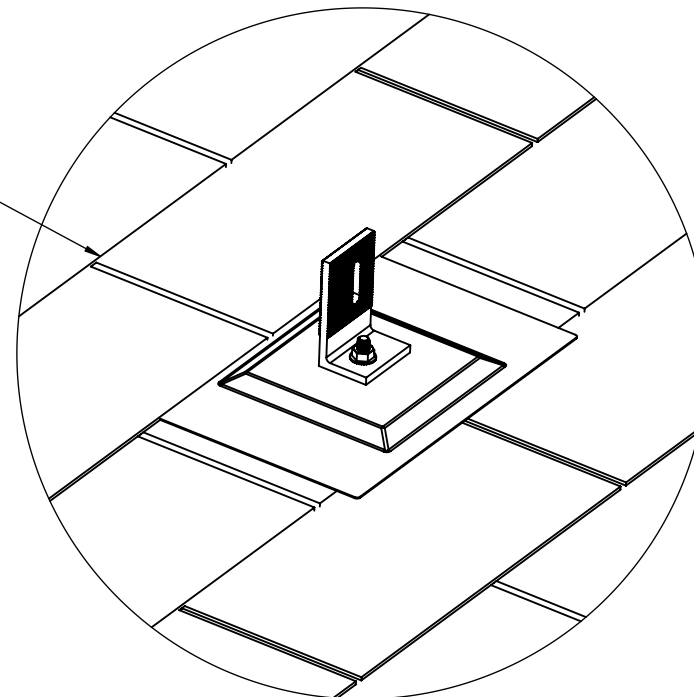
Once in place, install the L-Foot over top as shown. Tighten down with the M8 nut provided.

**i** Ensure the L-Foot is square before torquing down



**i** Torque to:  
188 lbs.in dry  
169 lbs.in lubricated

Flashing to extend under second course of shingles





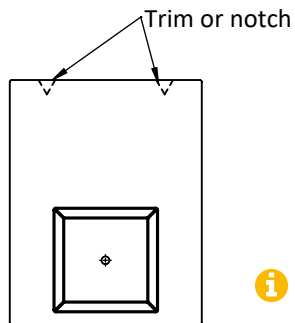
Using the appropriate spans for the Rail being used, install the Talons at the recommended spacing. Follow the steps outlined in the Fast-Rack UL installation manual.

The Talon is not limited to the spacing of the roof trusses, but should follow the same typical patterns to stay within acceptable Rail spans.

**i** While not required, it is still good practice to locate the Talon near a roof truss if possible

If the flashing interferes with roofing nails, it may be notched or trimmed provided it still fully extends past second course of shingles.

Once all Talons have been installed, proceed with your install as per the Fast-Rack UL installation manual.



**i** Use metal snips to trim or notch as required.

**i** Where possible avoid the end seams of a shingle

