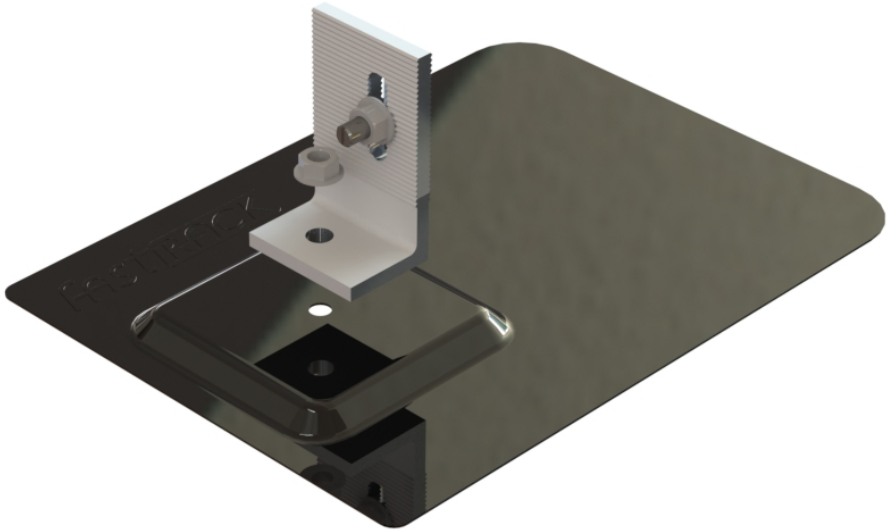
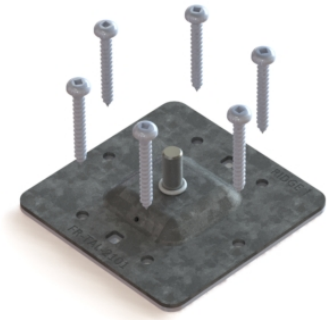
Version: FR-TAL-4101A

Talon XE - Installation Manual

SLOPED ROOF — RAFTERLESS ATTACHMENT





Install Solar Faster

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1.0 Using this Manual

Introduction

This manual is an illustrated guide on how to install the Talon XE 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 Talon XE when used with the Fast-Rack Ultra racking system has been certified and listed to the UL 2703, Ed. 1 and TIL No. A-40 standards (Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules). This standard includes electrical bonding and mechanical load testing and approval. The Fast-Rack Talon XE has additionally been designed and certified to the NBCC by professional engineers. The Fast-Rack mounting system is not fire rated.

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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 OHSA 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

Site Safety

If necessary, obtain a structural analysis of the roof to determine is 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.

3.0 Scope of Delivery

Components

ID	PART	CODE
1	Talon XE Base	*FR-TAL-2101
2	Talon XE Flashing	*FR-TAL-3201
3	L-Foot	FR-ACC-1100 / FR-ACC-1101

*INCLUDED IN FR-TALON-XE KIT

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

Hardware

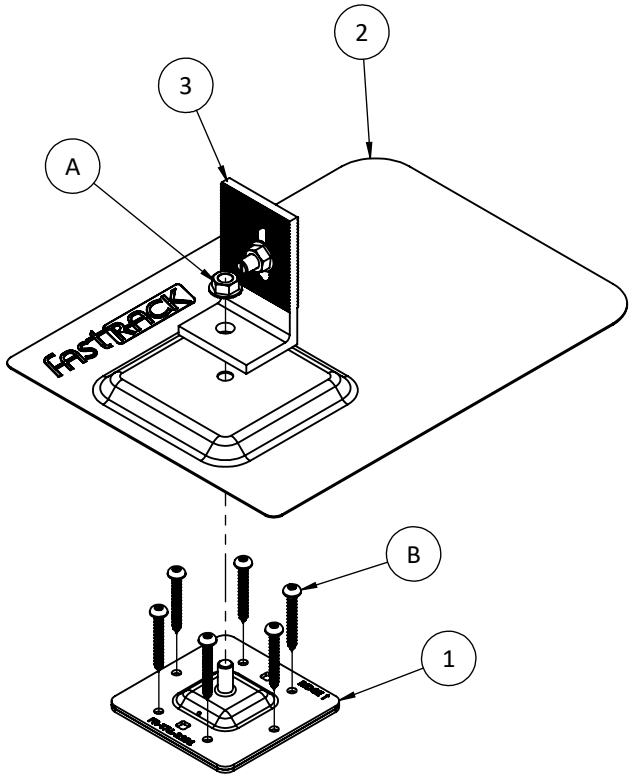
ID	SIZE	TYPE
A	M8	*Hex Nut
B	#10 x 1.5"	Pan Head Metal Screw
C	#10 x 3.125"	RSS Structural Screw

Deck Attachment:
Screws to be #10 x 1.5" pan head square drive/Robertson metal screws (zinc plated or stainless steel)

Truss Attachment:
Screws to be #10 x 3.125" RSS Structural Screw

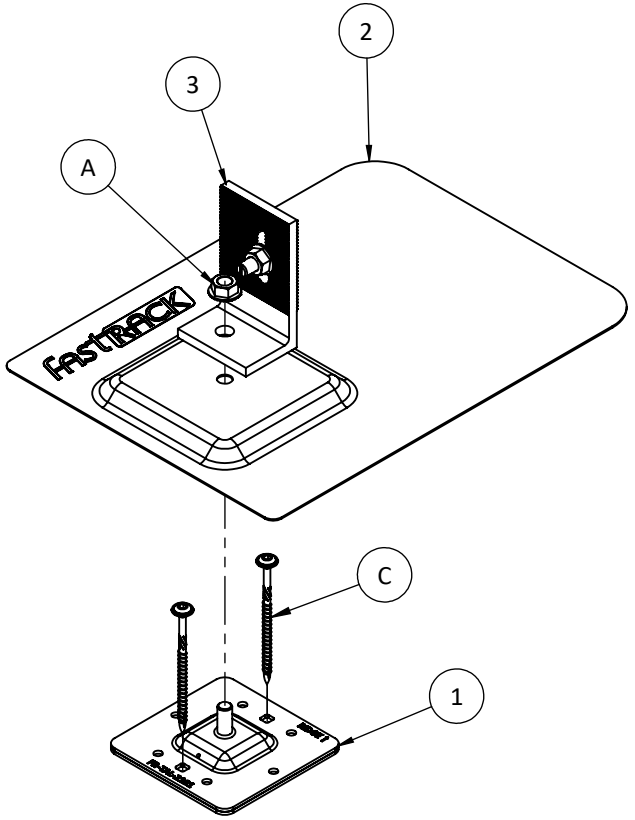
Tools

- 13mm ratchet and socket
- Torque wrench
- Cordless drill/impact driver
- Square head/Robertson drill bits
- Torx drill bits
- Chalkline
- Flat prybar



Option 1: Deck Mount

OR



Option 2: Truss Mount

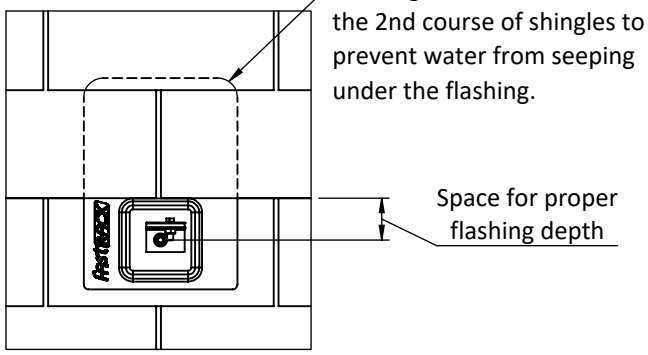
4.0 Alignment & Spacing

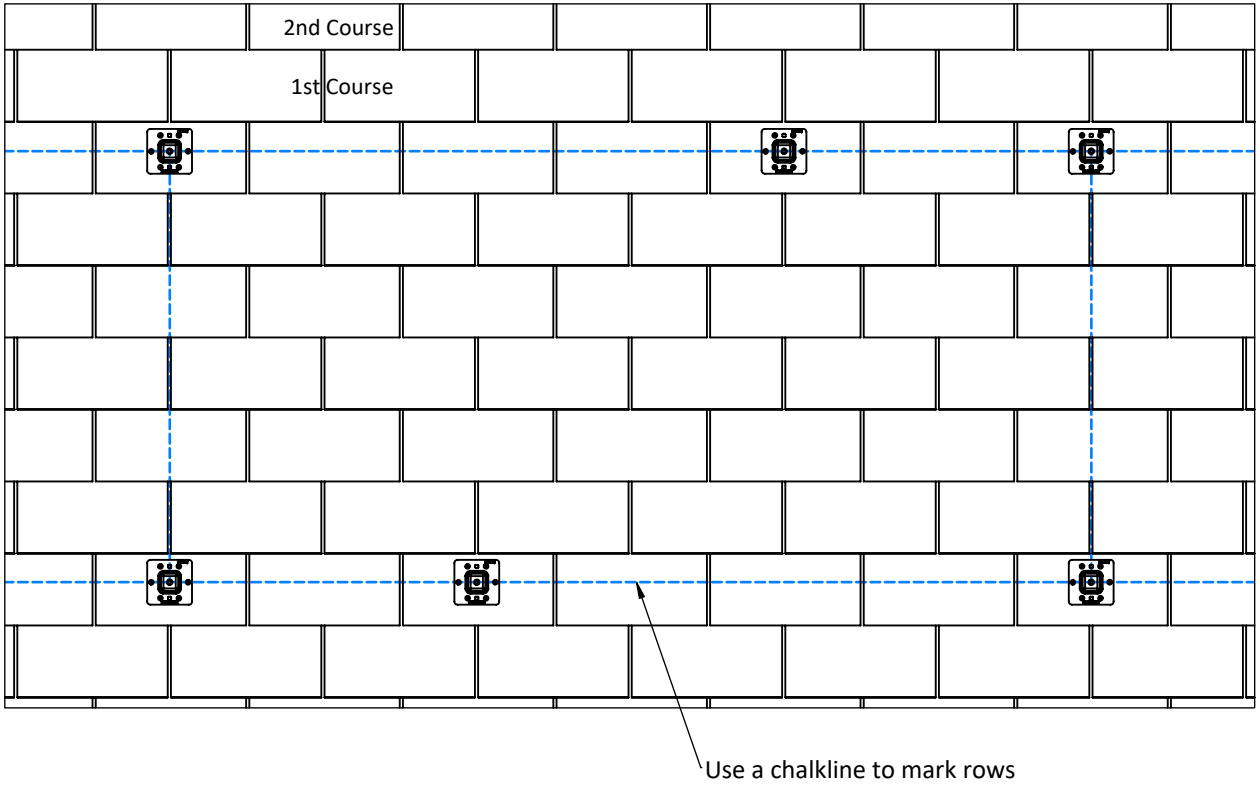
1. Using a chalkline or measuring tools, plan out the Talon XE Base locations and spacing across the roof.
2. Refer to the span tables for the FR-Ultra racking system to confirm maximum spacing.
3. Ensure that Bases within each row are aligned and square with the edge of the roof.
4. Confirm that spacing between rows complies with the PV modules allowable clamping zones.
5. Check that the positioning of the base plate will allow the flashing to reach the 2nd course of shingles.

Avoid locating the base plate directly over a shingle seam.

Alignment of shingles can vary depending on the roof. Measure from peaks and eaves to confirm.

Check the flashing depth before screwing down the base plates.





Stagger anchors as shown above to distribute the load across roof structural members.

5.0 Talon Base

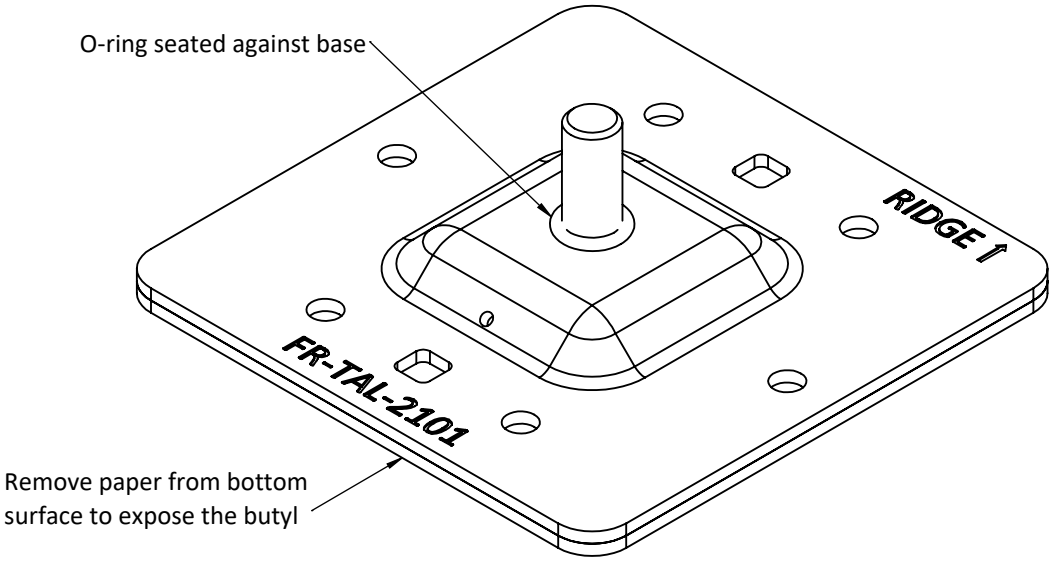
1. The Talon XE comes with butyl tape pre-installed on the bottom side of the Base. Peel off the protective paper before installing.
2. Check that the O-ring is installed and seated against the Base-plate.

Keep the Talons in the shade or a cool place to make removal of the paper easier

Plan to have a garbage bag handy to dispose of the paper once removed.

Butyl Installation Requirements

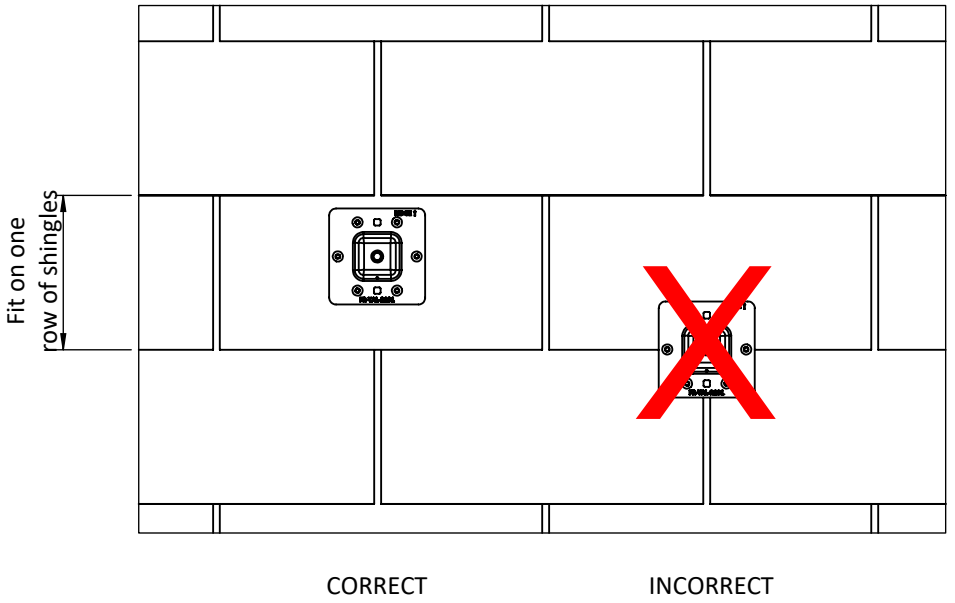
- Ambient temperature should be -5 °C or higher, or the Talon XE Base should be warmed prior to installation if temperatures are lower.
- Ensure roof surface is dry and free of contaminants such as debris, moss, dirt, and any loose roofing particles.

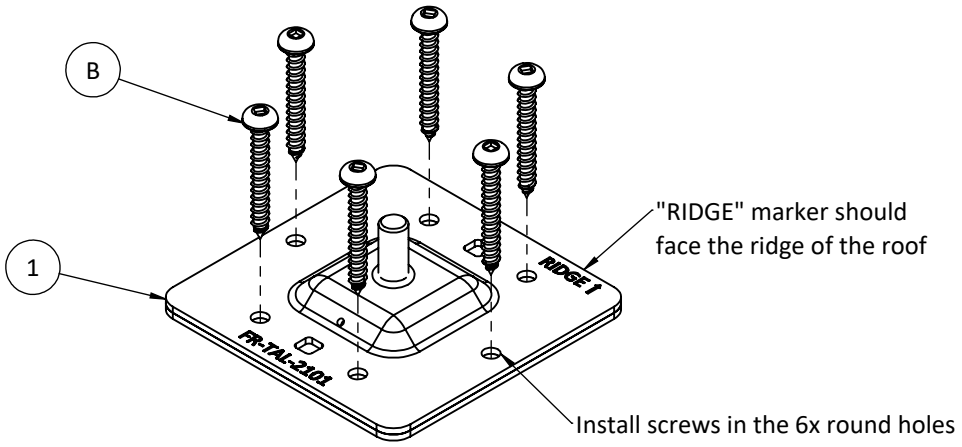


6.0 Roof Attachment Option 1 - Deck Mount

1. Once the protective paper is removed, the Talon XE Base is ready to be placed on the roof.
2. Align the Bases at the pre-marked locations along the roof.
3. Install the Talon XE Base on a single row of shingles. This ensures the butyl fully seals to the roof, providing a watertight seal.
4. Once positioned, install six wood screws into the round holes on the Base-plate.

The Talon XE is rafterless and does not need to align with a roof truss when using the 6-screw attachment pattern.





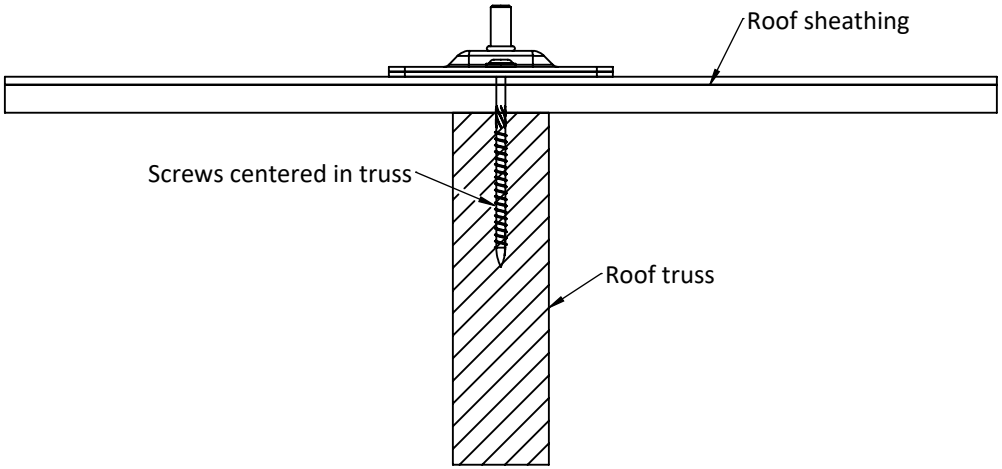
6.1 Roof Attachment Option 2 - Truss Mount

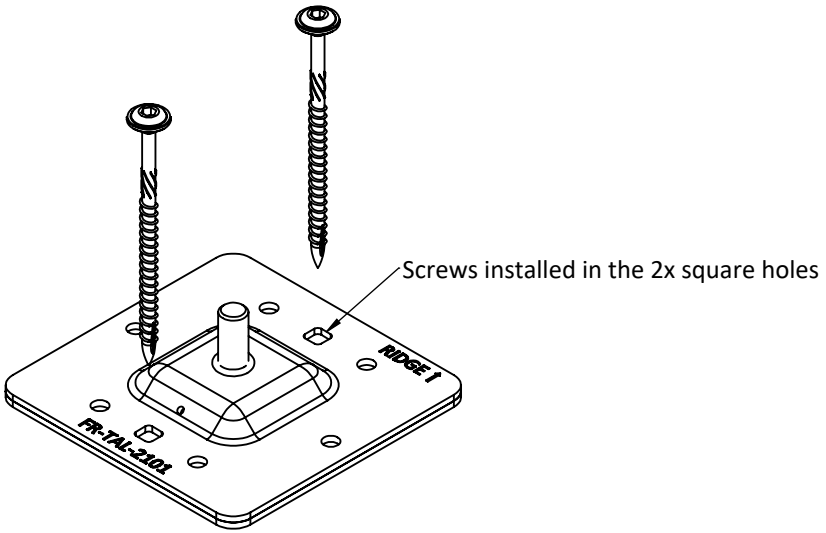
1. Once the protective paper is removed, the Talon XE Base is ready to be placed on the roof.
2. Align the Bases at the pre-marked locations along the roof.
3. Install the Talon XE Base on a single row of shingles. This ensures the butyl fully seals to the roof, providing a watertight seal.
4. Once positioned, install two RSS screws into the square holes on the Base-plate.

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

Off-center screws can split the truss and may have reduced capacity. Ensure they are properly engaged.

Pre-drilling is not required with these fasteners.



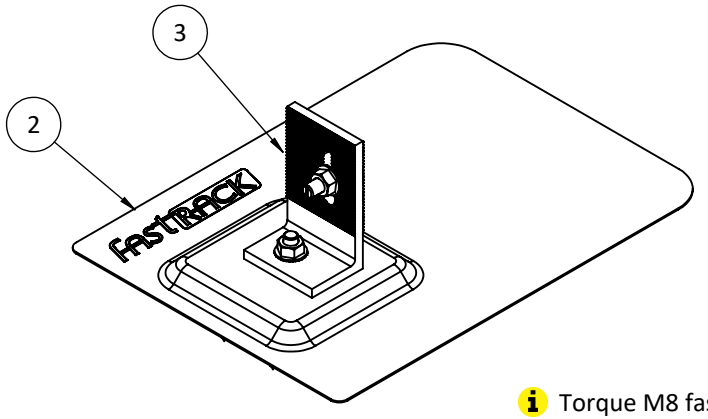


7.0 Flashing Attachment

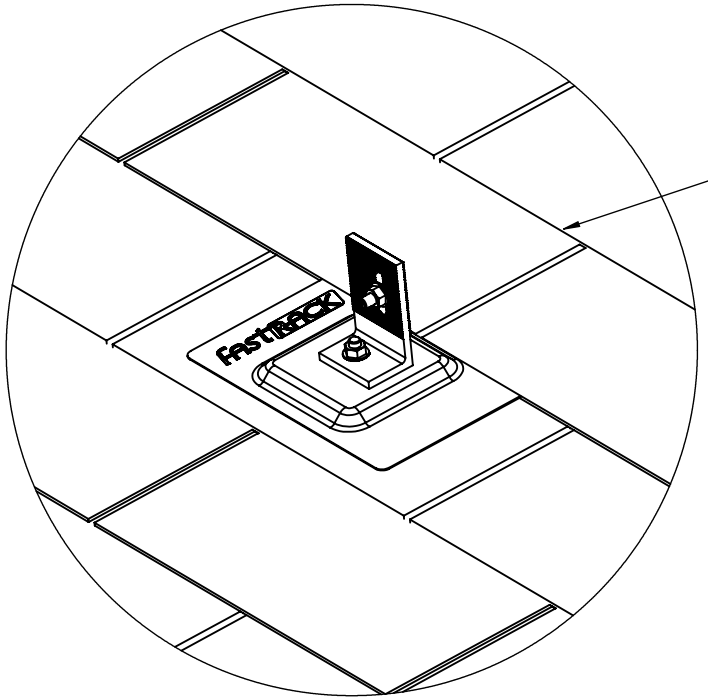
1. Gently lift the shingle before inserting the Flashing.
2. Slide the Talon XE Flashing over the Base-plate until the threaded stud is aligned with the hole.
3. Ensure at least 1/2" of the Flashing is fully underneath the 2nd course so there is no path for water to get underneath.
4. Once in place, install the L-Foot with the high side facing towards the ridge and secure in place with the M8 nut provided.

Ensure the L-Foot is square before torquing down

Recommended to use a flat pry bar to lift the shingles before inserting the Flashing



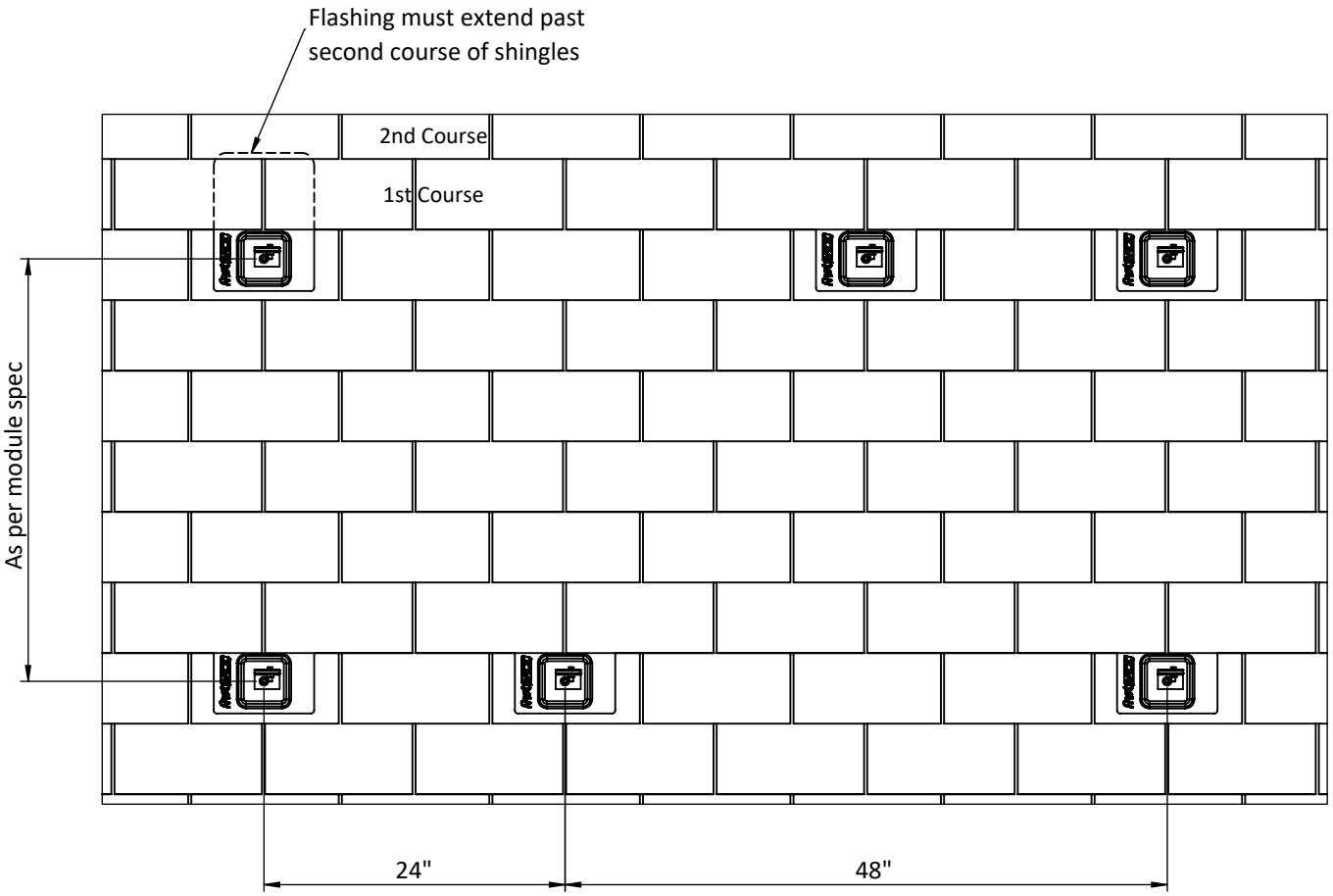
Torque M8 fastener to 10 lbs.ft



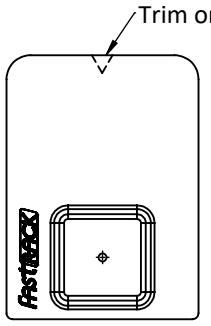
Orient the L-foot with high side facing the ridge as shown.

8.0 Flashing Fitment

1. Ensure the Flashing and L-foot are square with the roof shingles.
2. If the Flashing interferes with roofing nails, it may be notched or trimmed to fit.
3. Once all Talons have been installed, proceed with your installation as per the Fast-Rack Ultra installation manual.



TYPICAL SPACING - STAGGERED PATTERN



Use metal snips to make the notch.