



Sollega™

The Simple Solar Racking Solution™

FastRack FR510 First Solar Frameless Thin-Film Install Manual



Introduction

Our mission is to provide the easiest to install and most cost effective solar mounting solution available. Our goal is to enable the installation of solar PV on every suitable roof in the world.

Sollega Simplifies and accelerates the adoption of solar energy technologies by reducing the mounting and installation costs associated with solar arrays. We provide the simplest solar mounting systems on the market, reducing labor, time, and project costs.

As the solar industry has grown, we have seen the cost of solar panels come down. We see installation and labor as the logical next steps to reducing the cost of PV. Our mounting systems minimize on-roof assembly and utilize industry standard, readily available attachment hardware. Our systems are quick to install and maximize available roof space.

Product Profile

Sollega designs, tests and manufactures solar mounting solutions serving the US market. The FastRack is a patented, one-piece, injection molded solar racking system designed for both commercial low-pitch roofs and ground mount installations. It is made from BASF Ultramid® Glass-filled Nylon, for strength and durability (25 year warranty) in a lightweight part. It is also designed for simple assembly and disassembly and is 100% recyclable.

Sollega racking systems are compatible with all common solar panels currently on the market. Our universal design enables the installation of 60, 72, 96, and 128 cell modules in landscape or portrait orientation. All attachments are top mount, enabling easy access.

Headquartered in beautiful San Francisco, we welcome you to let us know how we can best serve your needs and look forward to providing you the highest quality, lowest cost solar racking solutions available.

Sincerely,

Elie Rothschild, CEO



Important Installation Details

Hardware:

Sollega uses 304 Stain-less Steel hardware. 316 Stain-less Steel is also available upon request.

Ballast Requirements:

- Please follow all current and applicable codes, such as ASCE 7-05.
- For assistance with ballast requirements for a specific project, contact engineering@sollega.com.
- The roof pavers (a.k.a. ballast blocks or CMUs) should have dimensions of 16" x 8" x 4" with a weight of 27 to 33 lbs. (Fig 1), unless otherwise noted.
- Pavers should have a minimum net area compressive strength of 3000 psi or must comply with ASTM Designation C1491.
- Please visit www.sollega.com/ballast for details on where to source roof pavers near your particular location.
- Maximum Number of Pavers per Interior FastRack is 3
- Maximum Number of Pavers per North row is 4

Fig 1: Standard Roof Paver



Tools Required:

- 1/2" socket and 1/2" box wrench

The Installer is Solely Responsible For:

- Utilizing all necessary safety equipment, as required by applicable rules and regulations, or as required by common sense .
- Complying with all applicable local or national building codes, including any that may supersede this manual.
- Ensuring that the Sollega FastRack and other products are appropriate for the particular installations and are designed for the installation environment.
- Ensuring that the roof, its rafters, connections, and other structural support members can support the array under live load conditions.
- Ensuring that lag screws used for roof anchoring have adequate pullout strength and shear capacities.
- Maintaining the waterproof integrity of the roof including selection of appropriate flashing.
- Ensuring safe installation of all electrical aspects of the entire system.
- Following the roofing manufacturer's installation procedure and guidelines before beginning the installation.

Disclaimer of Liability:

- SOLLEGA does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of, or in any way connected with installation, operation, use, or maintenance by using this manual.
- SOLLEGA assumes no responsibility for any infringement of patents or other rights of third parties, which may result from use of modules. No license is granted by implication or under any patent or patent rights. The information in this manual is believed to be reliable, but does not constitute an expressed and/or implied warranty.
- SOLLEGA reserves the right to make changes to the product, specifications, data sheets and this manual without prior notice.
- This document is not prescriptive regarding safety and does not purport to address all the safety concerns that may arise with its use. Contractors should become familiar with all applicable safety, health, and regulatory requirements before beginning work.

Important Installation Details (continued)

Electrical Safety

Any work done with PV and electrical equipment presents a shock hazard. Sollega FastRack is a mechanical solar mounting system and contains no “live” parts. Mechanical installers and electricians should coordinate in order to ensure that all personnel are aware of electrical hazards.

Assembly Modifications

Unauthorized field modification of Sollega components or assemblies may affect Sollega warranty coverage. Provide written drawings for Sollega’s review, comment and approval prior to attempting any field modifications. Also, follow the requirements listed in the System Layout Guidelines.

General Information

The installation of solar modules requires a great degree of skill and should only be performed by qualified licensed professionals, including, without limitation, licensed contractors and electricians.

The installer should be familiar with construction standards established by the Occupational Safety and Health Administration (OSHA). They should also plan for safe practice during any installation activity with respect to hazards from tripping, falling, lifting, repetitive stress, and any overhead or electrical hazards. When working close to building roof edges, consider protection options that reduce worker exposure to fall hazards. Refer to OSHA Sub Chapter 7, Group 1, Article 2.

Sollega FastRack is made from BASF Ultramid and has the UL material rating UL 94-HB. When used as described in this installation manual, these materials are considered to be nontoxic.

Project Specific Design Modifications

On-site workers assisting in the installation process may encounter undocumented or unexpected obstacles requiring a modification of the project system design supplied by Sollega. Since PV arrays are intended to be primarily regular and repeating structures, any modifications to the original design should be noted on working drawings. If the array is disconnected or if the number of rows or length of a row is changed, contact a Sollega engineer for a revised ballast layout.

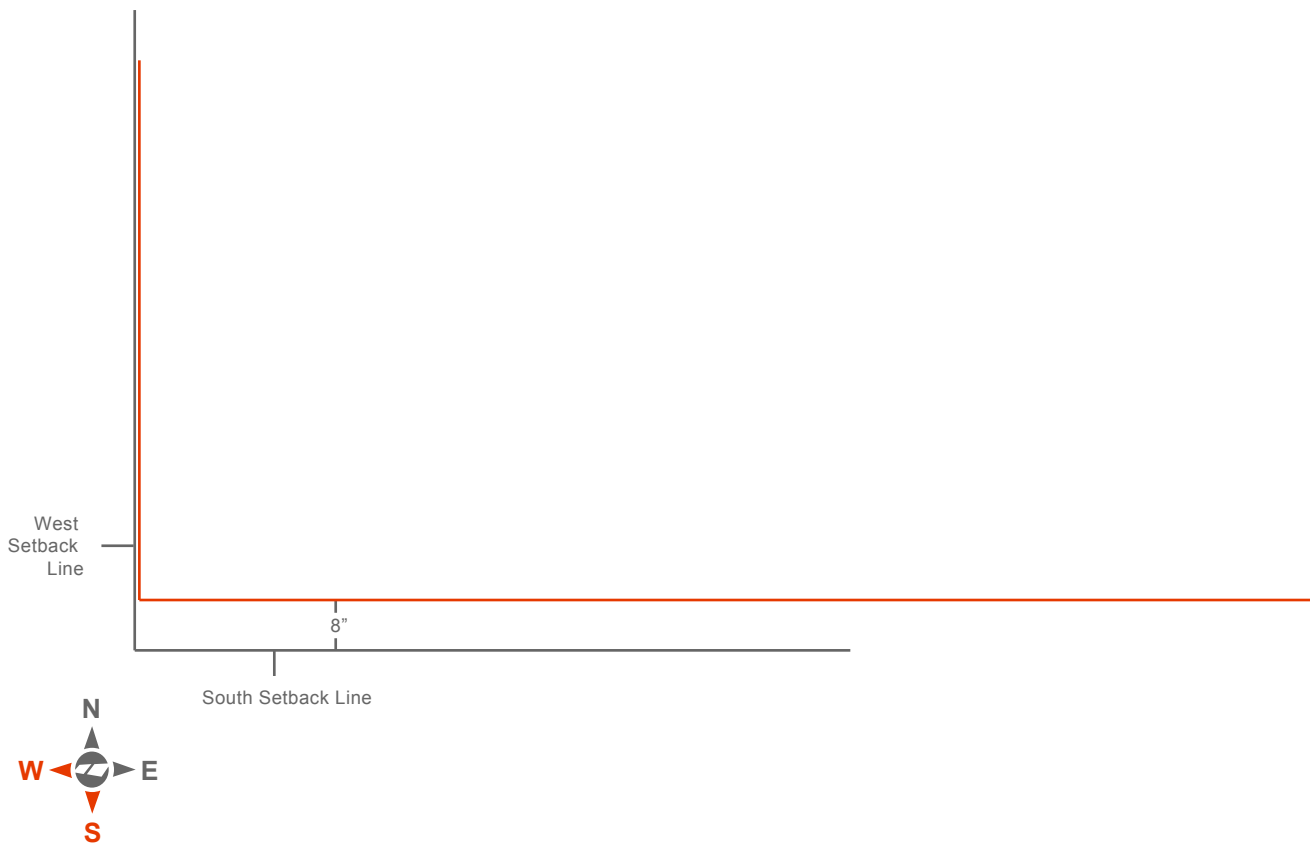
Care for the Roof

WARNING! Single-ply roofs are not damage tolerant. Avoid accumulation of metal fragments that result from drilling or sawing metal components. Metal fragments embedded in the soles of shoes can damage single-ply roofs. The service life of any roof is contingent upon care for the roof especially during equipment installation on a roof. Avoid concentrated loads on the roof. Never drag components into place. Instead, elevate the component, and then move it manually or with a cart. Locate it and then place it “on spot.” To ensure roofing system warranty continuation, work with roofing contractors to ensure roofing system and array compatibility.

Final inspection

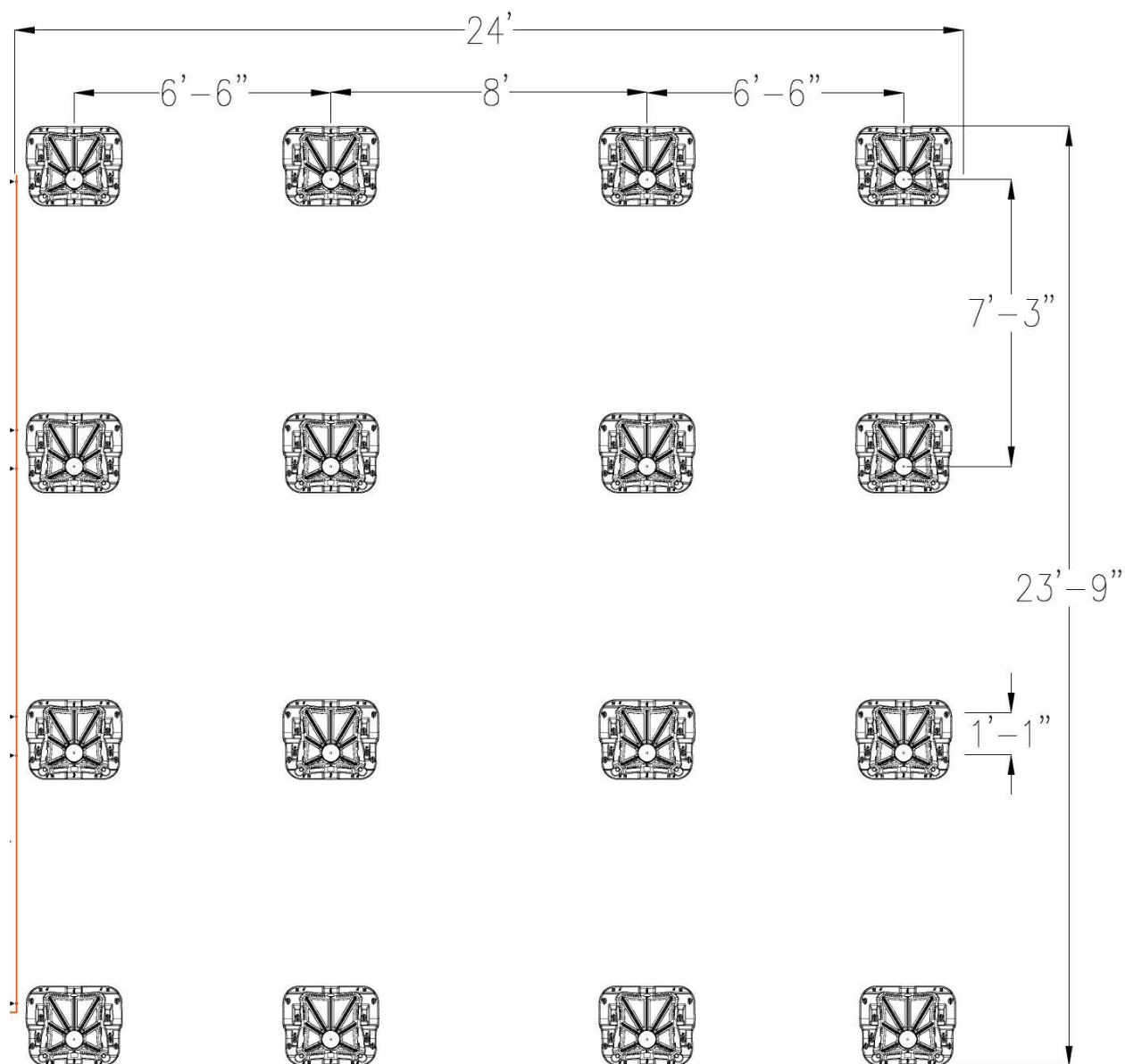
Visually inspect assembled arrays. The suggested process consists of a row-by-row walk-through and then a perimeter walk-around, after mechanical assembly, before electrical completion. Report any distortion in the assembly to Sollega. Array substrate supports should be in full contact with the roof or the ground. Any indication of uneven distribution of weight should be evaluated and corrected before continuing with electrical finishing.

Measure Out the Southwest Corner

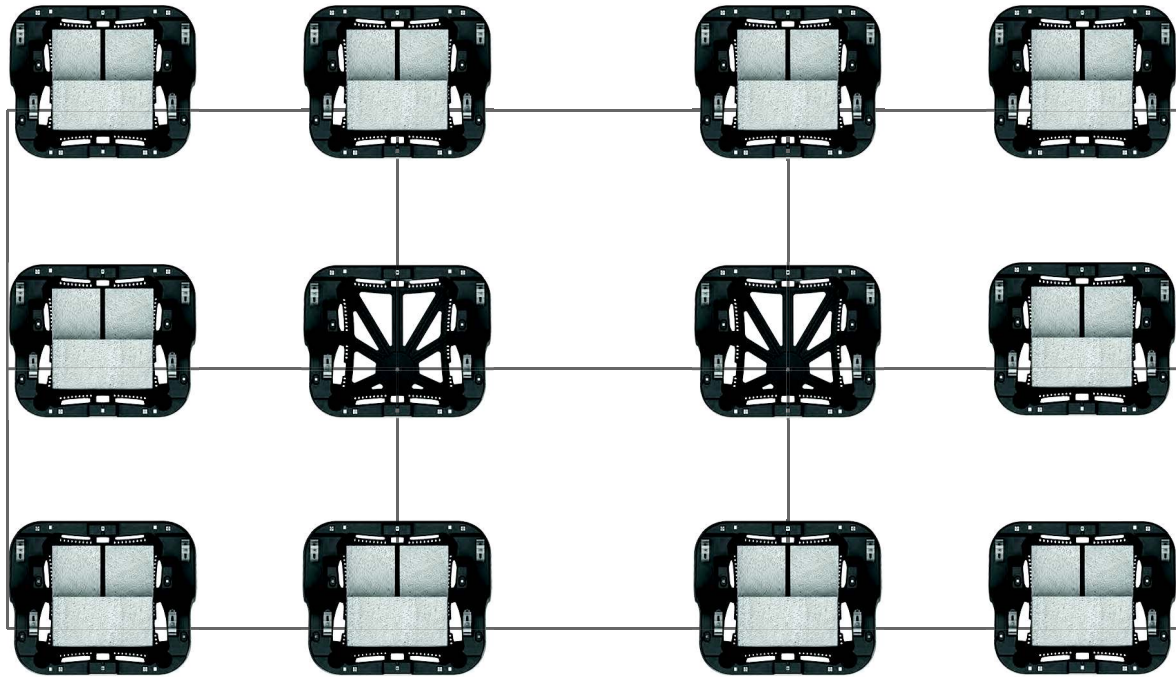


1. Begin by locating the South-West or South-East corner of the array, referencing the setback and layout schematic provided by Sollega. (South-West Corner Shown)
2. Snap chalk lines North-South and East-West to create a 90° reference point at the desired corner of the array. Note: On the South edge, the chalk line is 8" from required setback in Sollega's provided schematic.

Position FR510's



Insert Ballast as indicated by the ballast schematic provided by Sollega

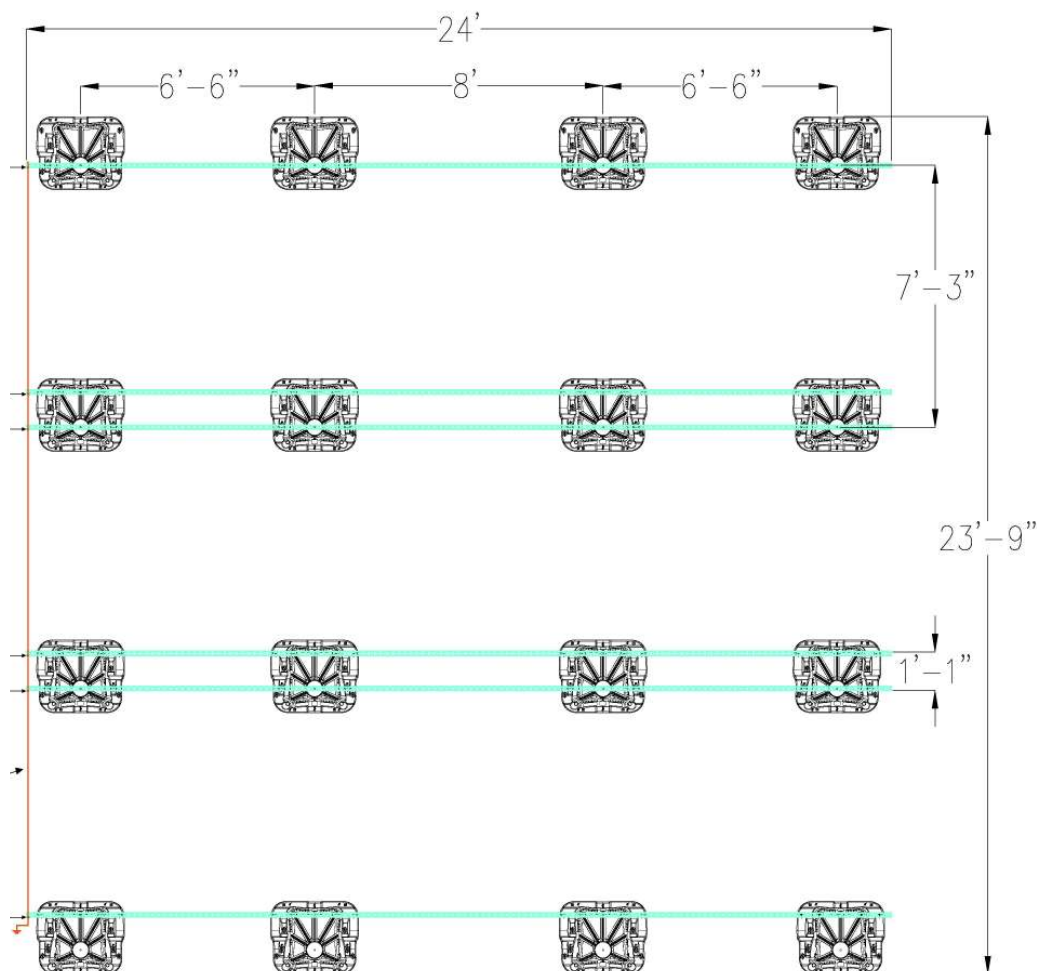


Place the required number of ballast blocks per FR510 as indicated by the ballast schematic provided by Sollega

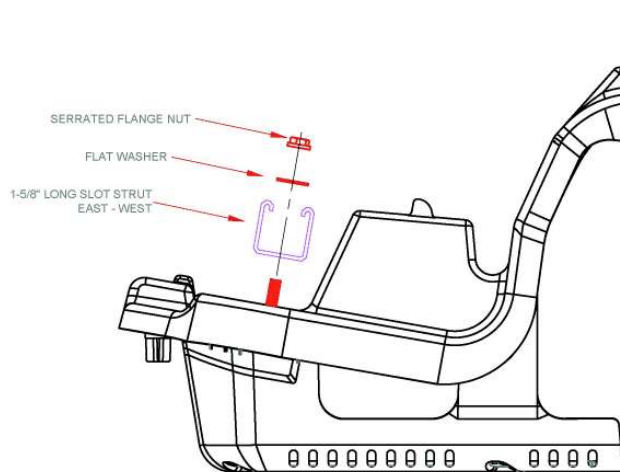
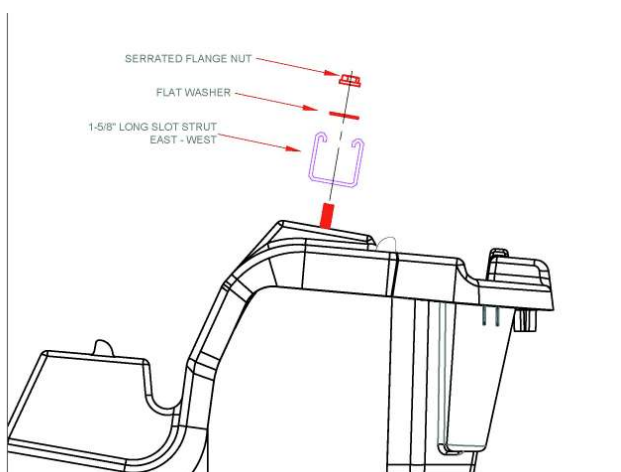
Please Note:

- Most likely not all FR510s will have ballast, and some will have different numbers of blocks

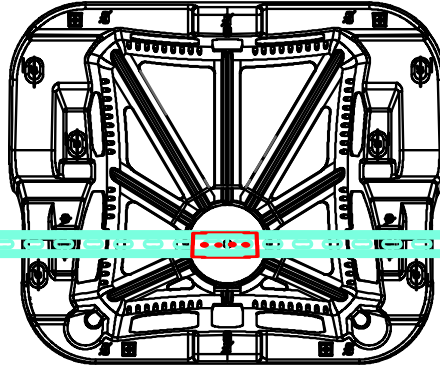
Install E-W Rail



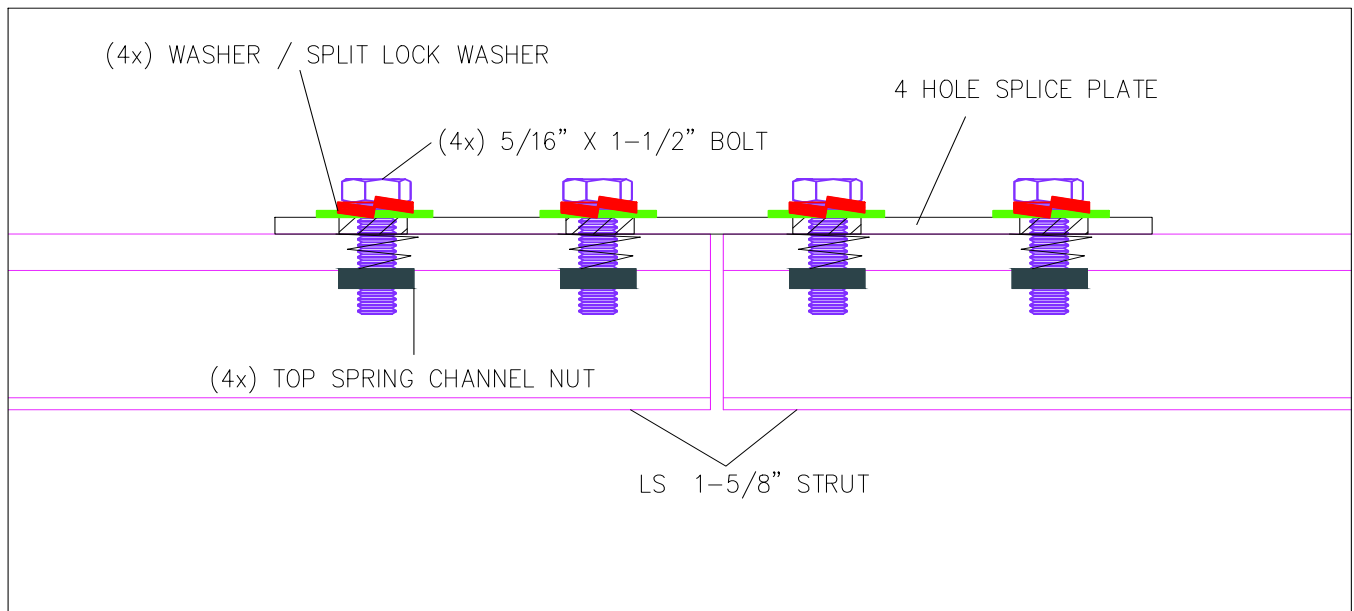
1. Position Strut over imbedded bolts, Install Fender Washer and Serrated Flange Nut (2 per FR510, per rail)
(Torque to 5 ft/lbs.)



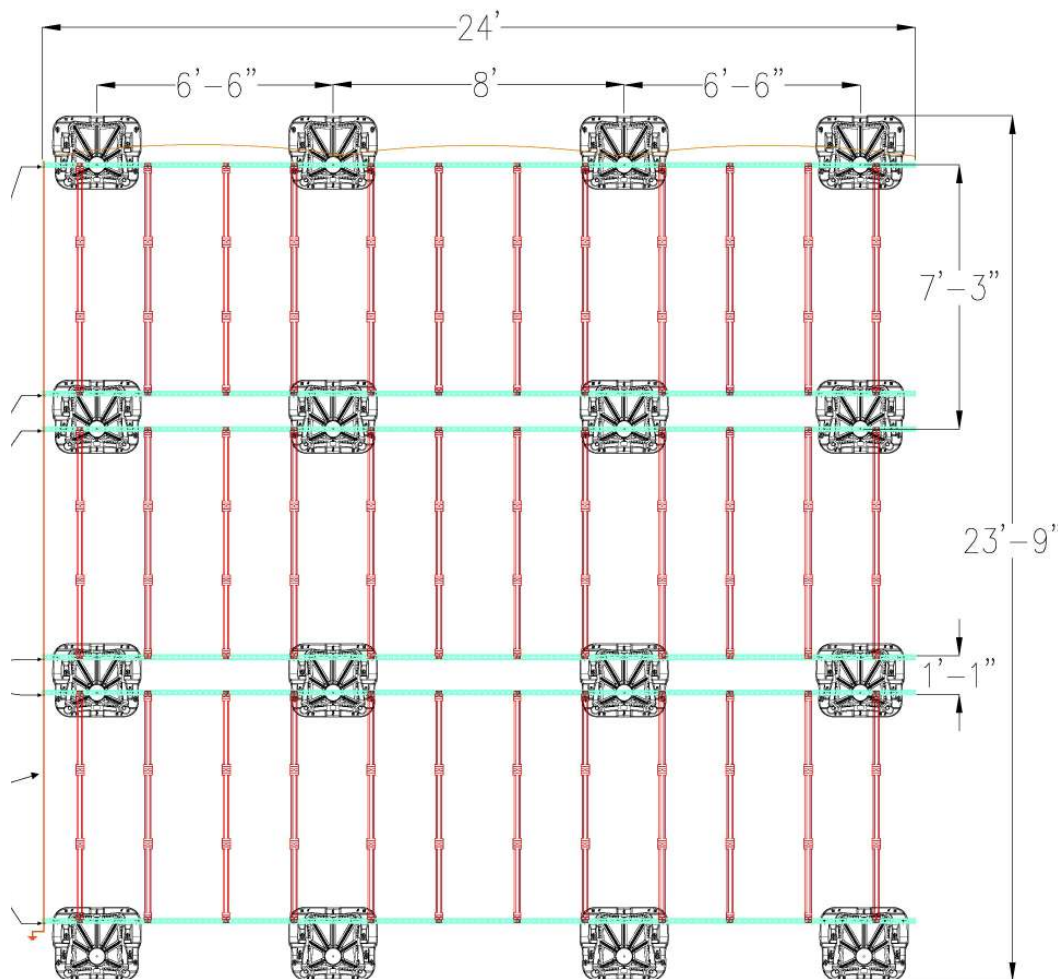
Splice Kit Install E-W Rail



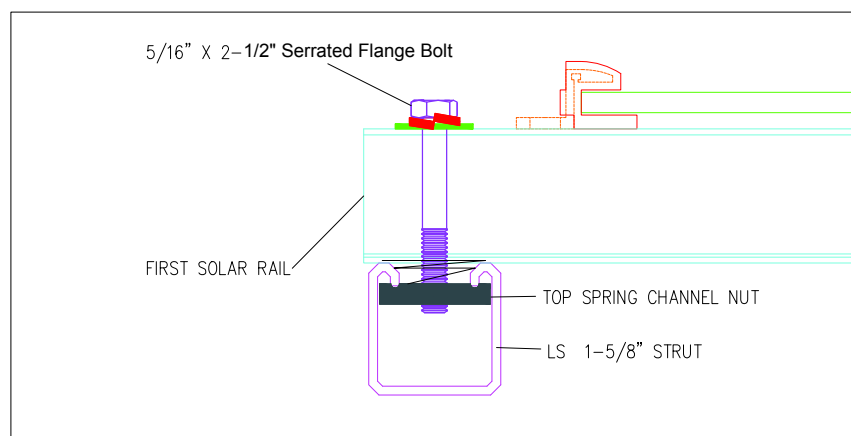
Install Splice-kit to connect E-W Rail at joints, as shown in the the detail below. (Torque to 5 ft/lbs.)



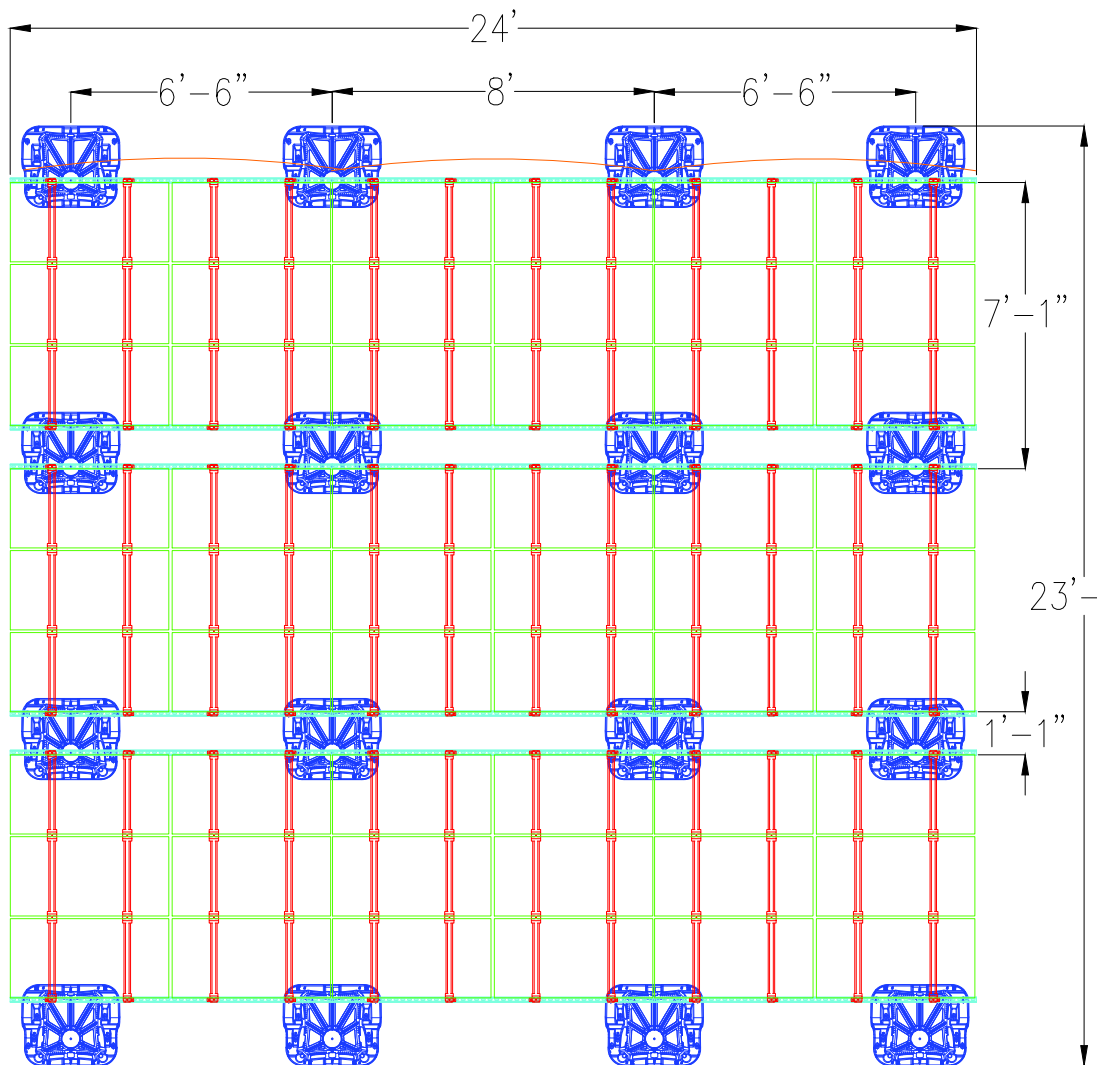
Install Fast Mount Rail to E-W Rail



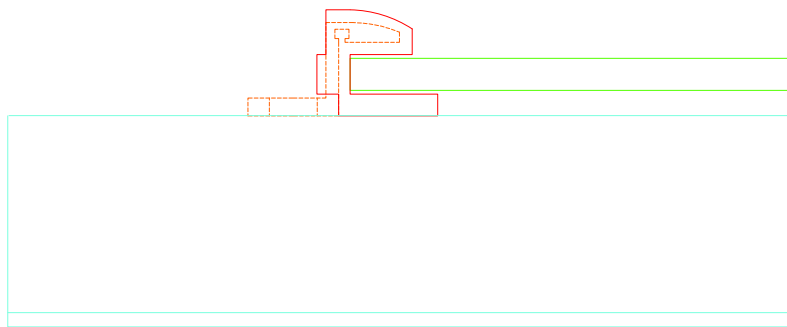
Attach Fast Mount Rail to E-W Rail as shown in the detail below, please refer to project specific layout for position and spacing. (Torque to 5 ft/lbs.)



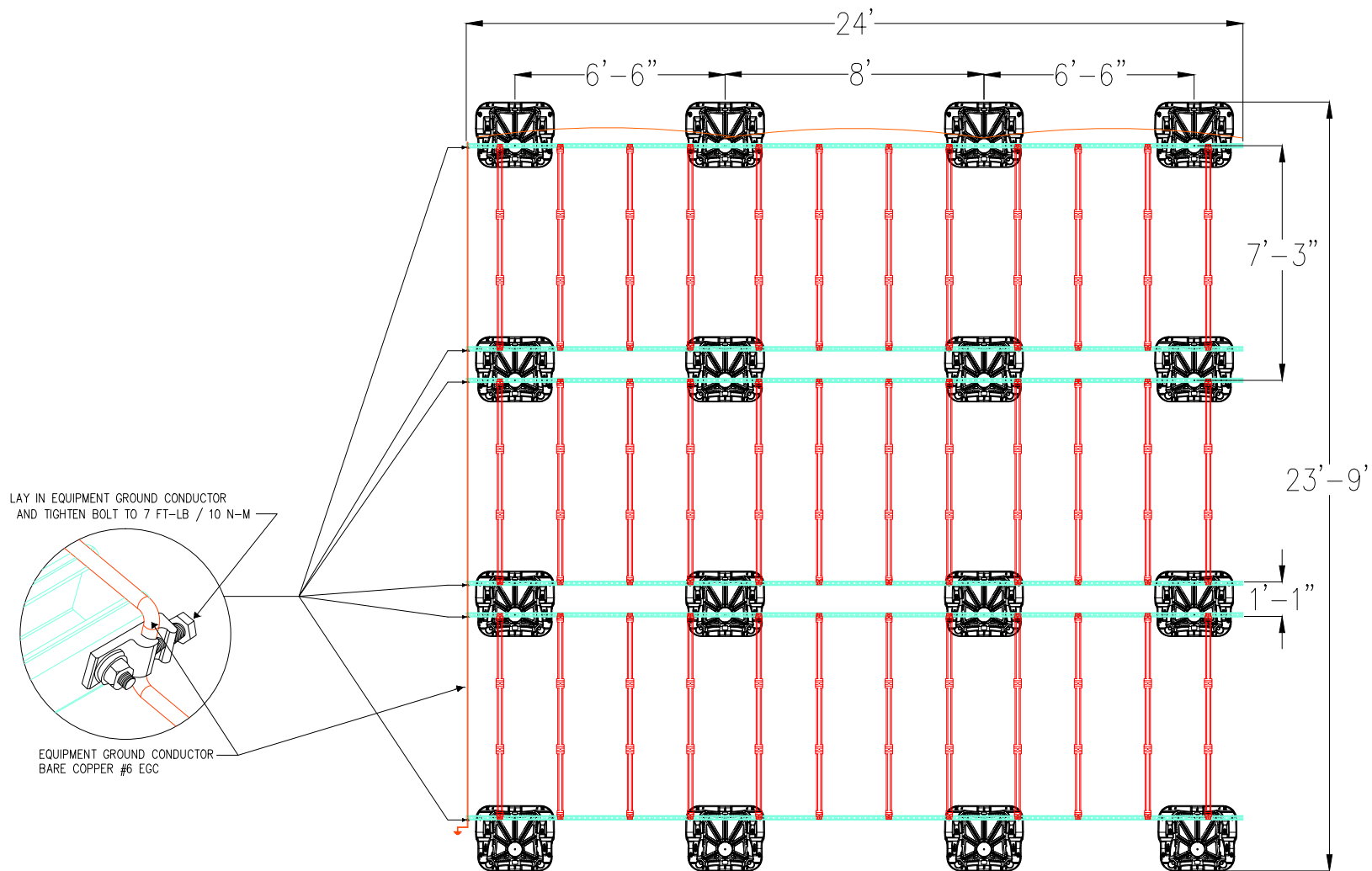
Install First Solar Modules



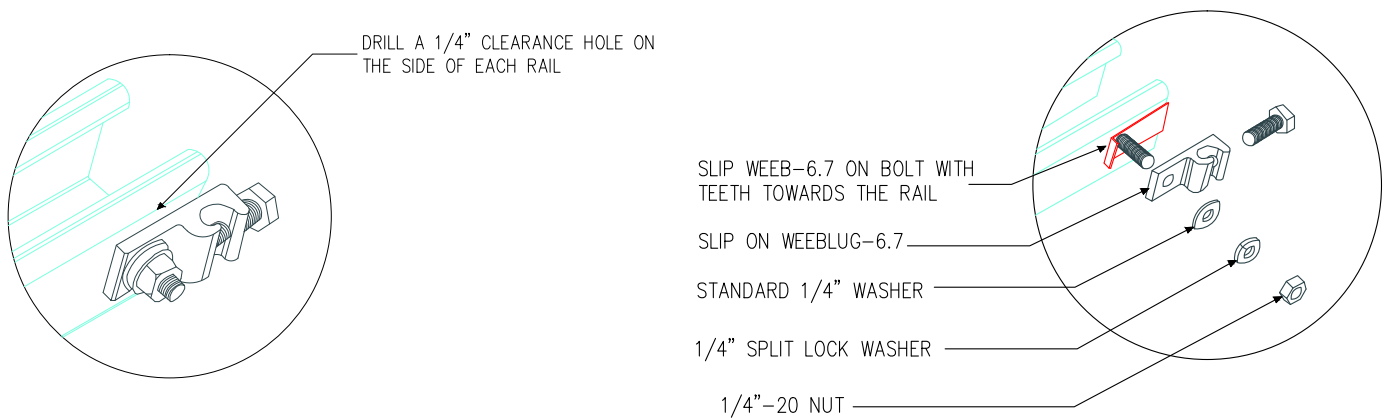
Install First Solar Modules to Fast Mount Rail in accordance with the manufacturer's guidelines.



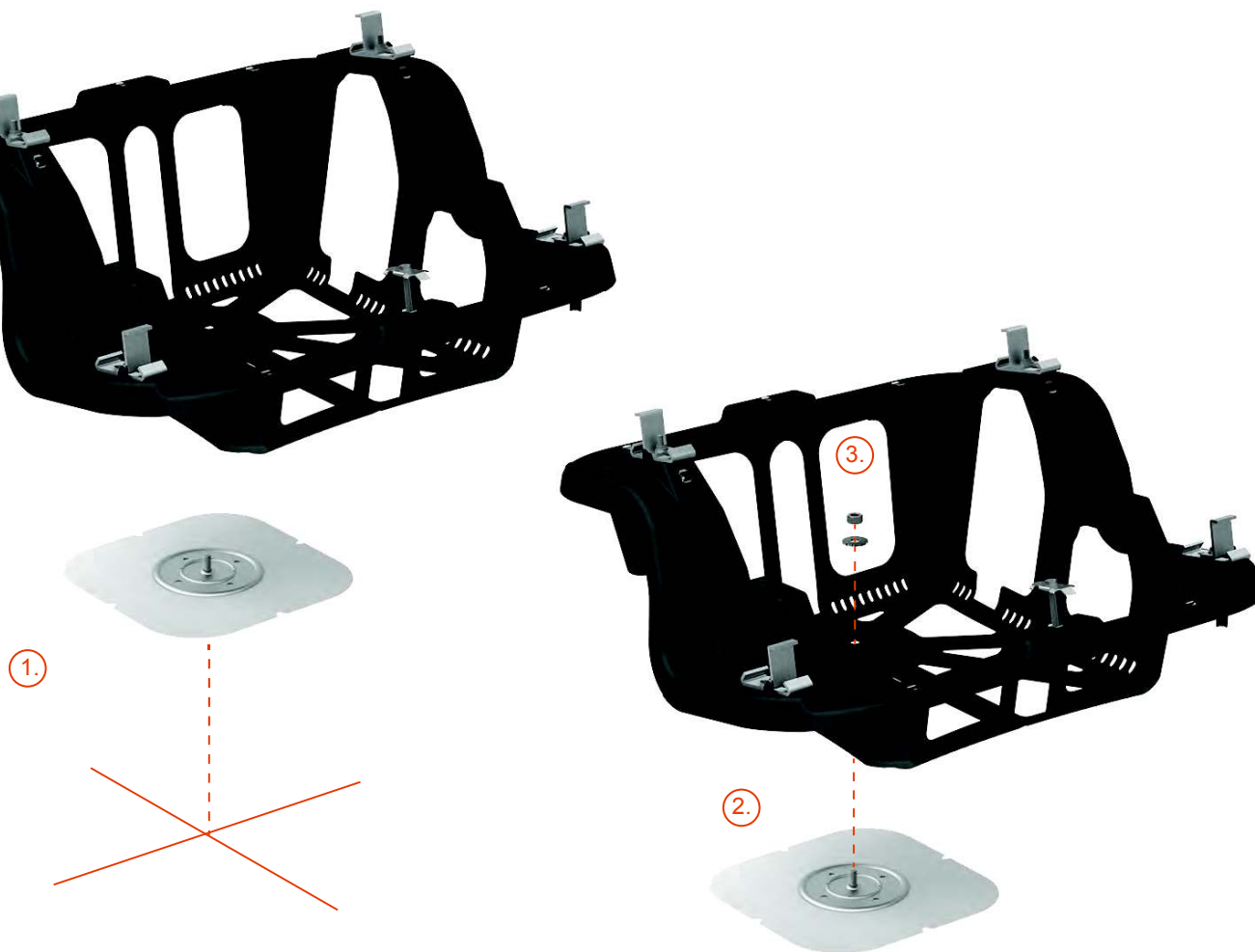
Grounding



Attach a grounding lug at the end of each continuous E-W Rail to install your bare copper wire for grounding. See Grounding Lug detail below.



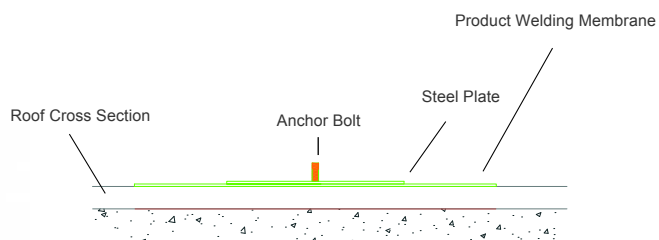
Install Mechanical Anchor on marked center point



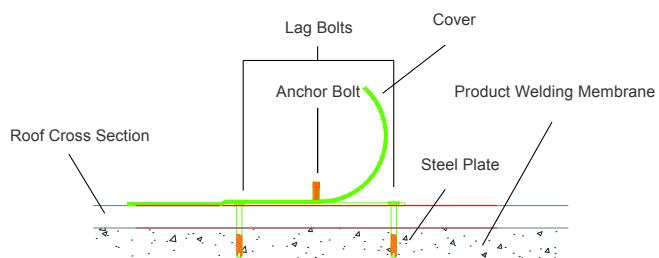
1. Once the module(s) have been removed, lift up the FR510 and put it to the side.
2. Attach mechanical anchors at the marked spot, using the manufacturers guidelines for each type of anchor and roof type. See the next page for our anchor details and cross sections.
3. Once the mechanical anchor is in place, attach the FR510 through the center anchor hole with a wide 3/8 washer (W3) and 3/8 nylon-insert lock nut (NLN).

Mechanical Anchor styles and cross section details

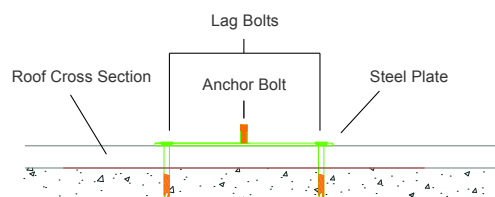
2000



2400



2600



Alternate Mechanical Anchor variations with strut

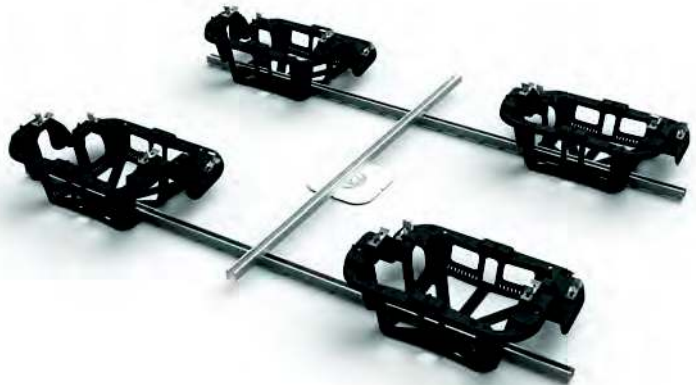
The FastRack 510 includes strut channels that run NS and EW, so that the mechanical roof anchor can be secured in places external to the FastRack 510 footprint.

Below are a few examples of configurations:

1. North-South Strut



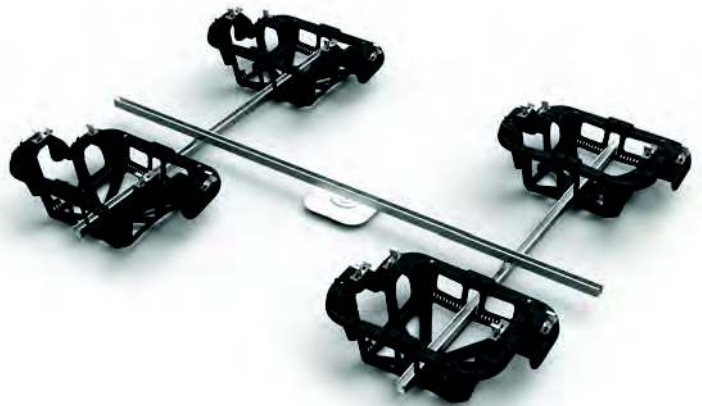
2. North-South Center Strut



3. East-West Strut



4. East-West Center Strut



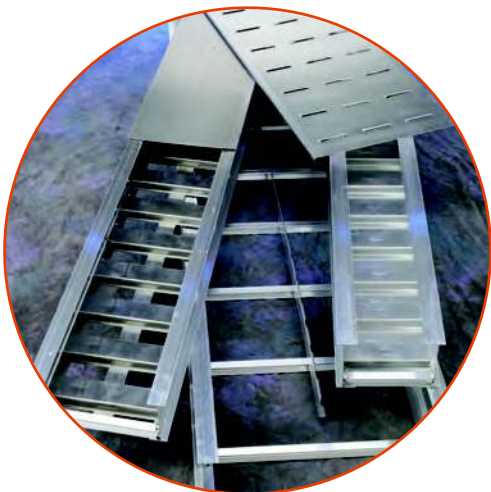
Wire Management Options

Below are a couple of Sollega approved wire management solutions. Please visit the manufacturers web pages, or contact your Sollega sales representative to learn more about approved wire management solutions and techniques.

1. Hellerman Tyton Solar E-Clips attached to the lip of the FastRack 510.
Please visit www.hellerman.tyton.com for more information.



2. Cooper Industries B-Line Aluminum wire trays, including Cooper B-line Series 24 Aluminum cable wire tray 36" wide. Please visit www.cooperindustries.com for more information.



Sollega FastRack 510 25-Year Warranty

SOLLEGA Inc.™ is dedicated to providing excellent customer support and service and will continually evolve our warranty to enhance our dealers' and customers' experiences with SOLLEGA. The following policies and procedures are subject to change as our process evolves.

SOLLEGA Inc. warrants that its FastRack™ Photo-voltaic (PV) Module Mounting System, when sold and delivered pursuant to a SOLLEGA Sales Order, will be new, will conform to the specifications in the applicable SOLLEGA Sales Order, and will be free from defects in material and/or workmanship for a period of Twenty Five (25) years from the date of shipment. Except for the foregoing limited warranties, SOLLEGA makes no other warranties express or implied for its SOLLEGA FastRack.

This Warranty does not apply to damage incurred during shipment and does not apply to damage that is the result of improper handling. This Warranty will be void if during the warranty period, the SOLLEGA FastRack has been improperly or incorrectly installed, used, or maintained, or has been operated under abnormal conditions or contrary to applicable specifications.

This Warranty is granted to the original SOLLEGA FastRack owner only and is only applicable to the original installation of the SOLLEGA FastRack. This Warranty does not apply to damage to the SOLLEGA FastRack that is the result of weather conditions that exceed local building code limits that were applicable at the time that the SOLLEGA FastRack was originally installed.

It is recognized and agreed that the foregoing limited warranties are in lieu of all other warranties, whether express or implied, and that SOLLEGA Inc. does not make any warranty of merchantability or any warranty of fitness for a particular purpose.

In the event the SOLLEGA Inc. FastRack fails to satisfy the foregoing limited warranties, then SOLLEGA will repair or replace, at its option and cost, the defective product. The foregoing remedy shall be in lieu of all others that the SOLLEGA Purchaser may have, and the Purchaser waives all other remedies.

To obtain warranty service, the Purchaser should contact SOLLEGA Inc. by telephone or email, and SOLLEGA will establish a claim file and initiate action to repair or replace the defective product. SOLLEGA will work with the Purchaser to determine the extent of the problem and may elect to perform a site inspection.

SOLLEGA Inc. will not assume expense or liability for correction of a defective SOLLEGA FastRack by the Purchaser or by third parties without SOLLEGA's prior written authorization. In the event of the authorized correction of a defective SOLLEGA FastRack, the warranty period will be extended by the length of time during which the defective equipment was in the process of being repaired or replaced. Unauthorized field modification to SOLLEGA's final layout will affect warranty coverage. If any changes are made that significantly affect the structural integrity of the system, customer must provide written drawings for SOLLEGA's review, comment and approval prior to attempting any field modifications. Modifications may include but are not limited to changes in location of FastRacks, modules, windscreens, roof anchors, roof pavers or any other racking system components. SOLLEGA Inc.'s total liability hereunder for the repair or replacement of a SOLLEGA FastRack, or any defective components thereof, shall not exceed the original purchase price of the system. In no event will SOLLEGA Inc. be liable for or responsible to the Purchaser, or to any other party, for any consequential, incidental, or special, loss, cost, damage, or expense arising from the curtailment or interruption of photo-voltaic (PV) system operation or from the curtailment or interruption of any operations, processes, or equipment connected to the PV system.

This warranty grants the purchaser specific legal rights that may vary according to the state in which the Sollega FastRack is installed. In some states, sellers cannot limit the rights of the purchaser, so you may have access to legal remedies in addition to or greater than those specified here.

This warranty does not cover failures resulting from freeze damage, fire, flood, lightning, hurricane, tornado, hailstorm, windstorm, earthquake, or other acts of god, vandalism, explosions, exposure to harmful materials or fluids, or unauthorized alterations or repairs or any other cause beyond the control of SOLLEGA Inc.



The Simple Solar Racking Solution™

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