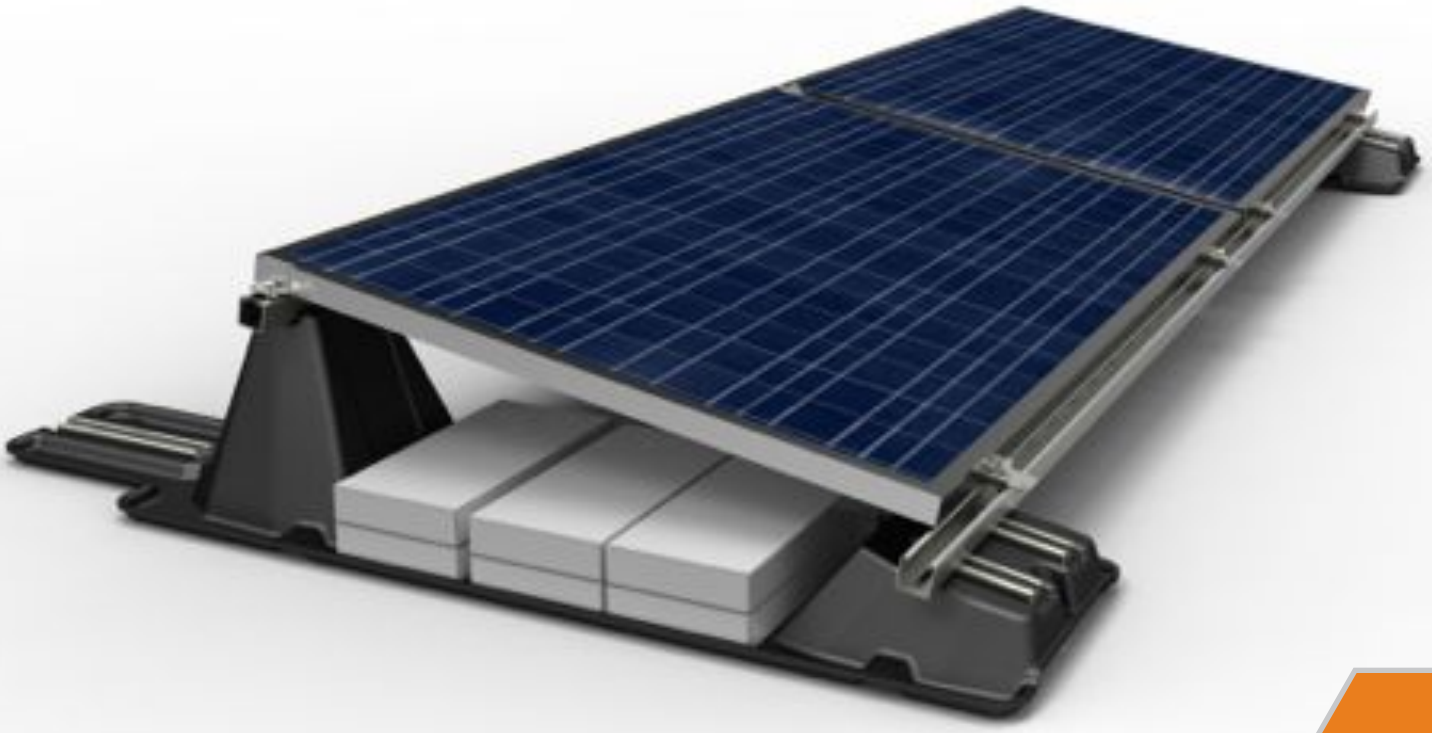
Sollega™

The Simple Solar Racking Solution™

Installation 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.

Company Profile

Sollega designs, tests and manufactures solar mounting solutions serving the US market. The InstaRack is a patent-pending high-efficiency solar racking system that is one-piece, pre-formed stand made from durable lightweight high density polyethylene plastic (HDPE). It utilizes a UV inhibitor for durability and extended life (25-year Warranty). This durable material uses a minimum of 35% recycled content, resulting in a lower carbon footprint than conventional energy intensive aluminum racking systems. We source and manufacture our products entirely in the USA and the InstaRack is ARRA compliant.

Sollega racking systems are compatible with most common solar panels on the market today. Our universal design enables the installation of nearly any type PV modules. This ensures our clients can continue using their existing supply chains for modules.

With offices in San Francisco and New York, 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

Always use all four attachment points on the InstaRack when attaching strut. (Two embedded bolts in the tower section and one on each embedded strut in the toe section.)

If strut is sourced locally, the minimum requirements are to use 1-5/8" x 1-5/8" 12-gauge pre-galvanized (or hot-dip galvanized) steel slotted channel, following ASTM A-366 and ASTM-123-09 (or ASTM 653). If any strut is cut, apply a coat of galvanizing compound spray to the area that is cut. We recommend using Rust-Oleum Enamel Aerosols product number V2185838 - Cold Galvanizing Compound or an equivalent product.

Sollega uses DURA-CON AFS hardware for bolts, washers, and nuts. Contact Sollega for Stainless Steel pricing.

Material Expansion Requirements. Always leave room for expansion of materials. When placing two pieces of strut end to end on the InstaRack there should be a gap with a minimum of an 1/16" to compensate for expansion. Additionally, when attaching modules without intermodule clamps, ensure there is a gap with a minimum of an 1/16" between the modules to compensate for expansion.

Installation Tips. Install Windscreen Brackets (SL5) and Roof Stanchion Brackets (SL6) BEFORE modules are attached.

Hinge plates (and back plates if used) must be indexed to the edge of module. Make sure the two tabs on the hinge plate are touching the edge of the solar module (Fig 3).

Ballast Requirements

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.

Whenever there is a potential for the pavers to slide or move, such as in high seismic areas, pavers must be tied down with metal bailing wire. Use the drainage holes on the sides of the InstaRack to attach 16 gauge galvanized bailing wire to all ballast blocks (Fig 2).

- Maximum Number of Pavers per InstaRack – 6
- Maximum Number of Pavers per Ballast Tray – 8

In some cases, depending on the geometry of the module, the frame might hit the top layer of blocks on the InstaRack. If necessary, stagger the top layer of blocks by pushing it 1" back so that the northern top block touches the tower section.

Tools Required

- 1/2" socket and 1/2" box wrench
- Socket wrench or cordless drill with clutch setting

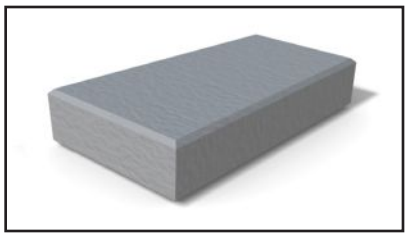


Figure 1: Standard Roof Paver
27 to 33 lbs, 16" x 8" x 4"

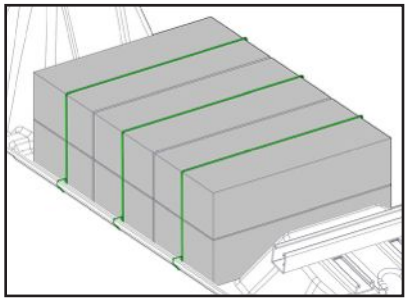


Figure 2: Bailing Wire (green) on Pavers

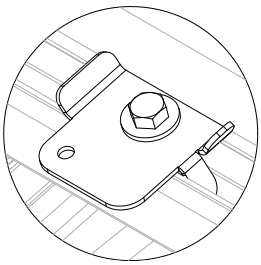


Figure 3: Indexing Hinge Plate

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 InstaRack 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.

Electrical Safety

Any work done with PV and electrical equipment presents a shock hazard. Sollega InstaRack 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).

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 InstaRack is made from High-Density Polyethylene (HDPE) and has the UL material rating UL 94-HB. The embedded strut in the InstaRack is hot dipped galvanized steel and the hardware embedding the strut is stainless steel. When used as described in this installation manual, these materials are considered to be nontoxic.

Project Specific Design Modifications

Onsite 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.

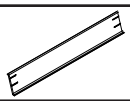
The service life of any roof is contingent upon care for the roof especially during equipment installation on a roof. Avoid concentrated loads on the roof. Never drag components into place. Instead, elevate the component, and then move it manually or with a cart. Locate it and then place it "on spot." 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.

Sollega™

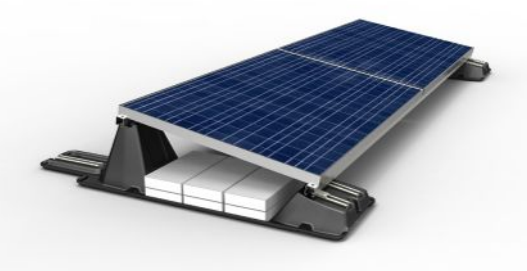
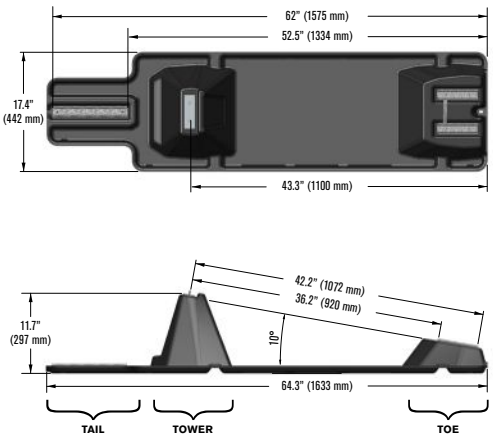
Parts List

PICTURE	REF #	METHOD[1]	PART NAME	DESCRIPTION
		BP & C	Slotted Strut	12 GA. 1-5/8" x 1-5/8" HDG[2] or PG[3] channel (11' length - typical)
	T	BP & C	Channel Nut	5/16"-18 thread top spring nut
	B	BP & C	5/16" x 7/8" Hex Bolt	5/16"-18 thread x 7/8" length bolt
	B3	BP & C	5/16" x 1-1/2" Hex Bolt	5/16"-18 partially thread x 1-1/2" length bolt
	N	BP & C	5/16" Flange Nut	5/16"-18 thread serrated flange hex locknut
	W1	BP & C	5/16" Fender Washer	5/16" x 1-1/4" OD[4] fender washer
	W2	BP & C	5/16" Flat Washer	5/16" x 3/4" OD washer
	L	BP & C	5/16" Lock Washer	5/16" x 1/2" OD split lock washer
	SL5	BP & C	Windscreen Bracket	Attaches windscreen to rear strut 7" long HDG 12 GA. "L" shaped bracket
	SL6	BP & C	Stanchion Bracket	Attaches 6" stanchion to rear strut SS[5] 10 GA. bracket with slot and hole
	BW	BP & C	Beveled Washer	Used in conjunction with corner supports 1.25" x 1.25" and 10 degree bevel. 3/8" Hole diameter
	SL1	BP & C	Hinge Plate	Attaches to module and front strut 3.8" x 2" 14 GA. SS plate with slots, hole, and hinge tab
	GW	BP & C	Grounding washer	Wiley Electronics grounding washer (WEEB 11.5)
	GL	BP & C	Grounding lug	Tin copper grounding lug kit (includes SS screw, external tooth lock washer, and lock nut)
	SL8	BP	Back Plate	Attaches to module and back strut 3.25" x 1" 14 GA. SS plate with slots
	EC	C	End clamp kit	Aluminium end clamp with 5/16" bolt and split lock washer
	IC	C	Intermodule clamp kit	Aluminium mid clamp with 5/16" bolt and split lock washer
	SL9	Windscreen	65" long PG steel windscreen	65" long PG steel windscreen

[1] Installation Method: BP = Back Plate C = End and Intermodule Clamps on short edge rail of module

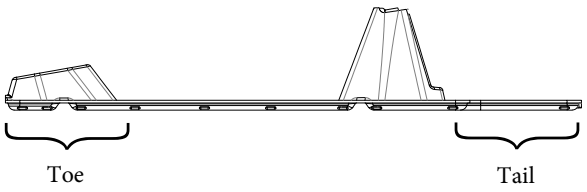
[2] HDG - Hot Dipped Galvanized [3] PG - Pregalvanized [4] OD - Outer Diameter [5] SS - Stainless Steel

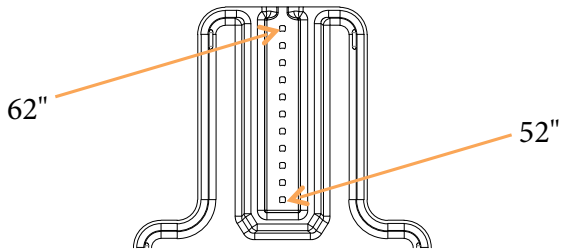
Product Specifications

Product Name	**InstaRack**10™
Product Image	
Tilt Angle	10°
Compatible Modules	All framed modules 37.3” - 44” in width (948 mm and 1117 mm)
Row Spacing	Maximum: 62” (1575 mm) Minimum: 52.5” (1334 mm)
Weight	12 lbs. (5.4 kg)
Ballast Requirements	4” x 8” x 16” roof paver (27 to 33 lbs each) Based on ASTM Designation C1491.
Material	High-Density Polyethylene (HDPE) Minimum 35% recycled content
Module Orientation	Landscape
Wind Load Criteria	Meets ASCE 7-05 up to 120 mph
UL Material Rating	UL 94-HB
Warranty	25 years
Dimensions	(LxWxH) 64.3” x 17.4” x 11.7” 1633 mm x 442 mm x 297 mm
	

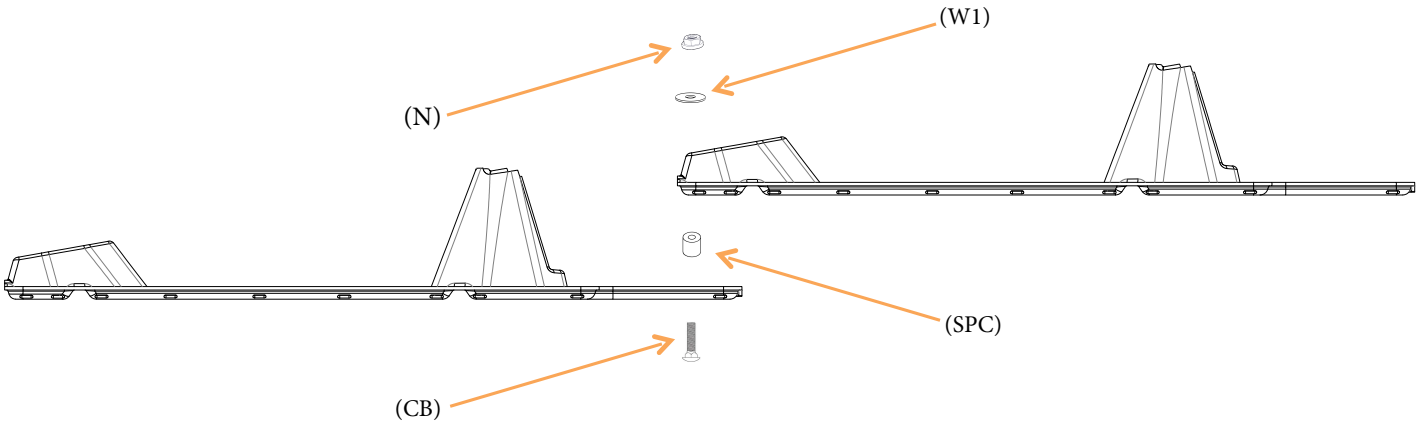
IR v5 inter-row (or heel to toe) connection instructions:

1. Refer to the Final Layout, provided by Sollega, for the designed inter-row spacing (52"-62").
2. On the InstaRack (IR) tail section locate the appropriate square hole for your inter-row spacing connection.
   -The square holes are 1" apart center on center. The hole at the end of the tail will provide 62" row spacing, the next inward 61", and so on.





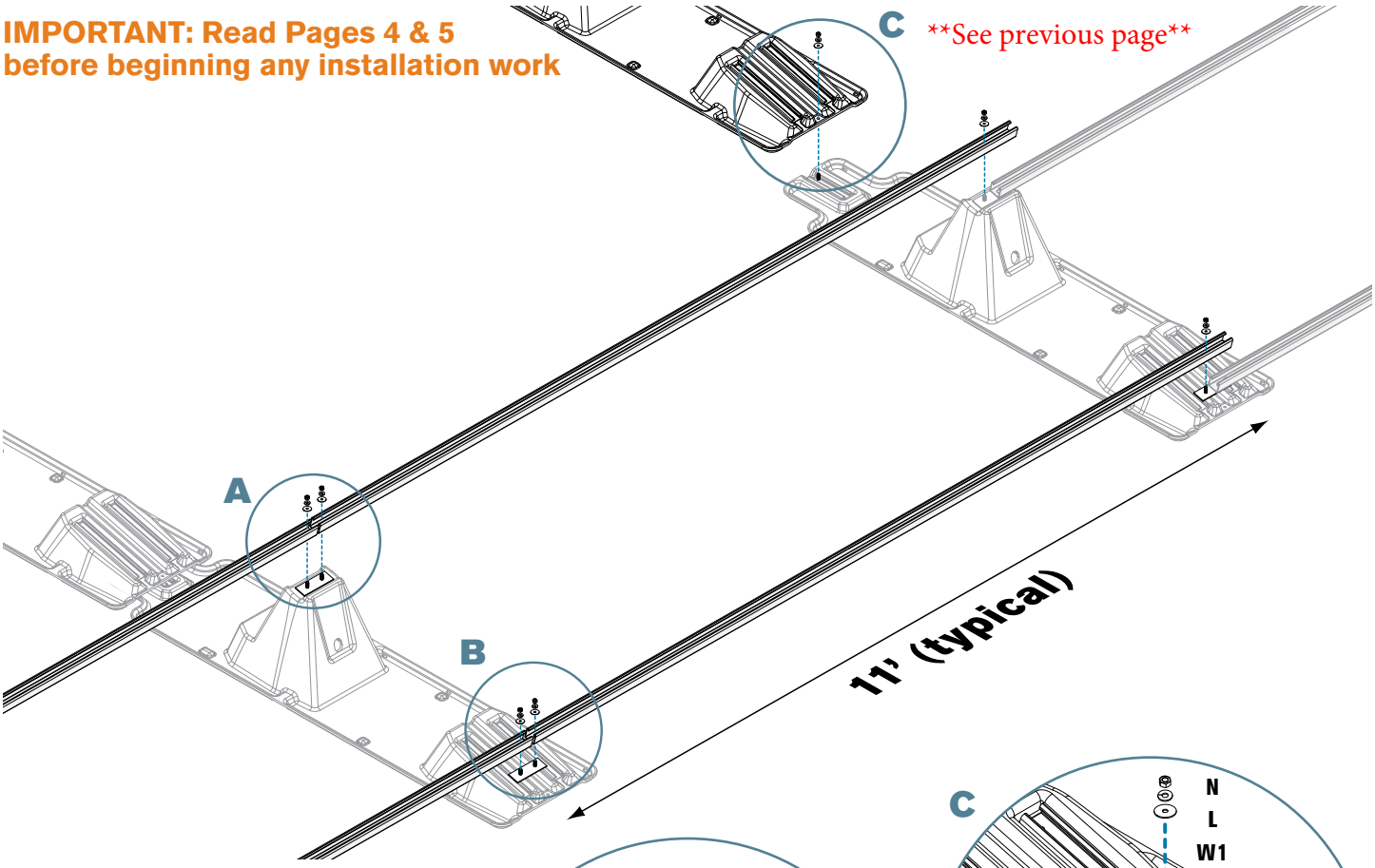
3. Lay the southern most IR down in the location indicated on the layout. Lift the tail section of the IR and insert the provided Carriage Bolt (CB) into the selected hole. Set the tail down ensuring the CB remains secure.
4. Place the provided Spacer (SPC) over the CB.
5. Place the toe section of the subsequent IR over the tail inserting the CB through the toe-hole.
6. Place provided Fender Washer (W1) over the CB. Fasten the provided Serrated Flange Nut (N) to the CB; tighten N to 10 ft-lbs.

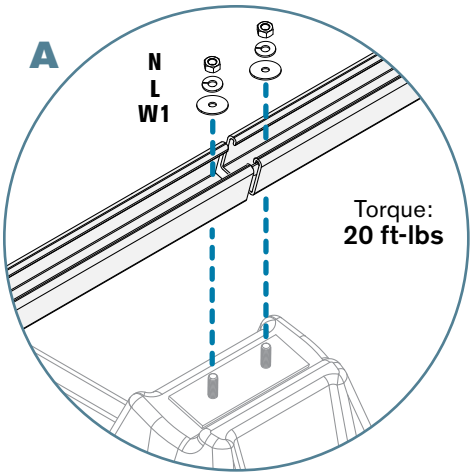


7. Repeat for each subsequent IR as indicated by the layout.

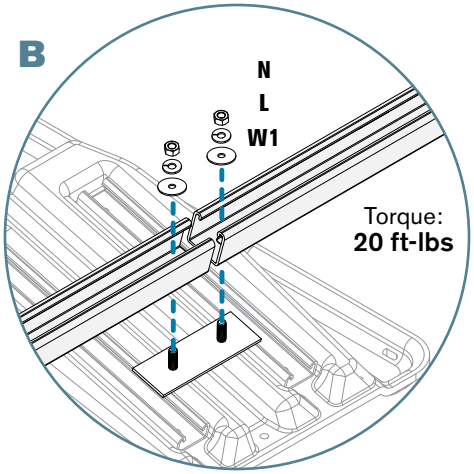
Position InstaRack & Attach Strut

IMPORTANT: Read Pages 4 & 5 before beginning any installation work

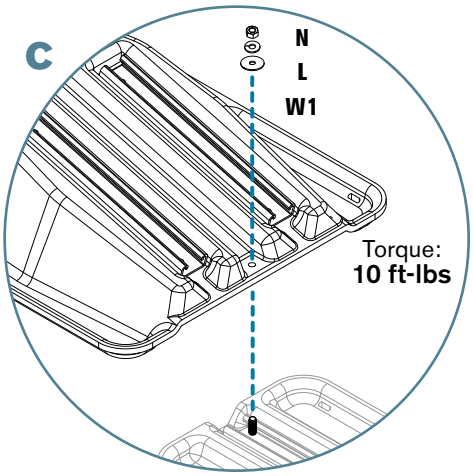




Place the end of the strut over one exposed bolt. Fasten a locknut (N), split lockwasher (L), and fender washer (W1) through the slots in the strut. Attach another piece of strut on the other bolt and ensure a maximum gap of 1/8" between the two ends of strut.



Place the end of the strut over one exposed bolt. Fasten a locknut (N), split lockwasher (L), and fender washer (W1) through the slots in the strut. Attach another piece of strut on the other bolt and ensure a maximum gap of 1/8" between the two ends of strut.



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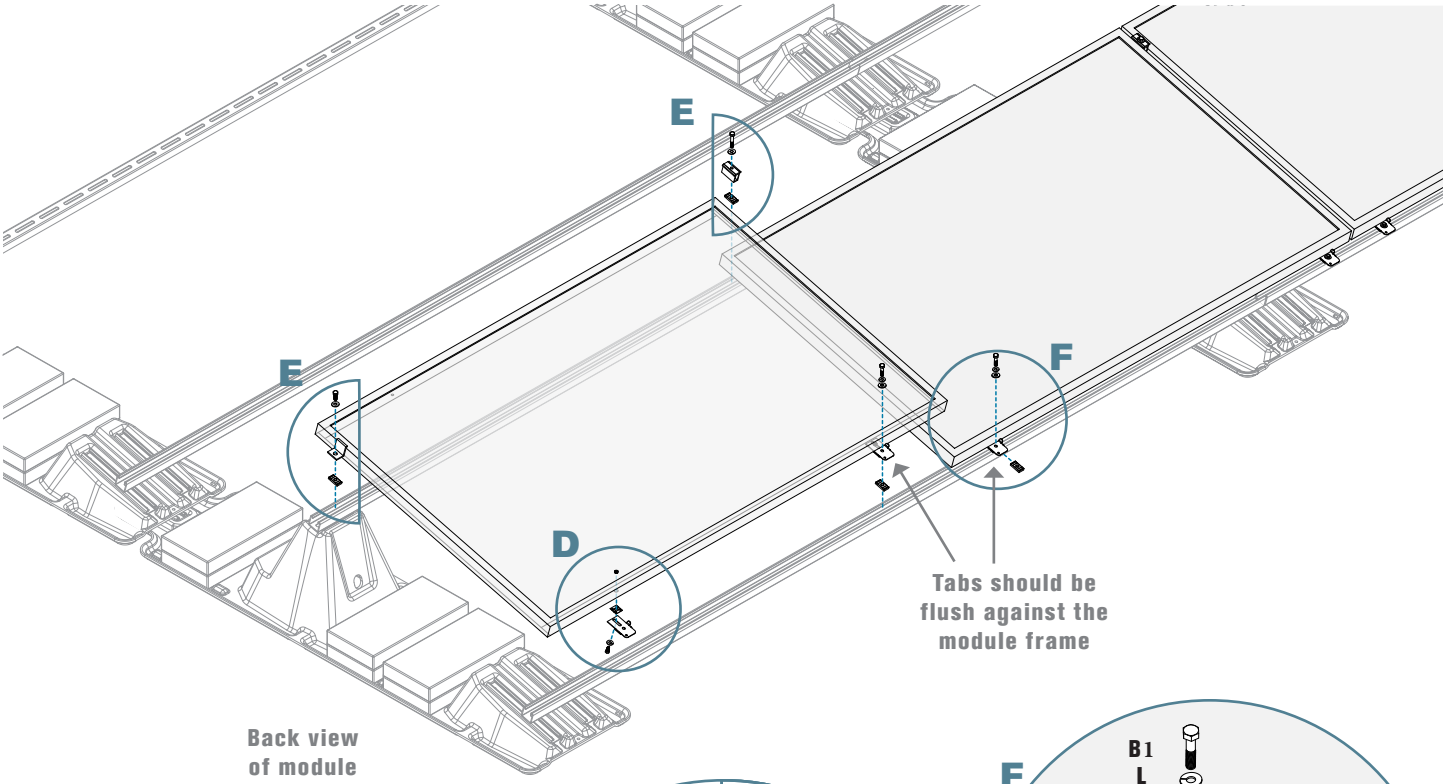
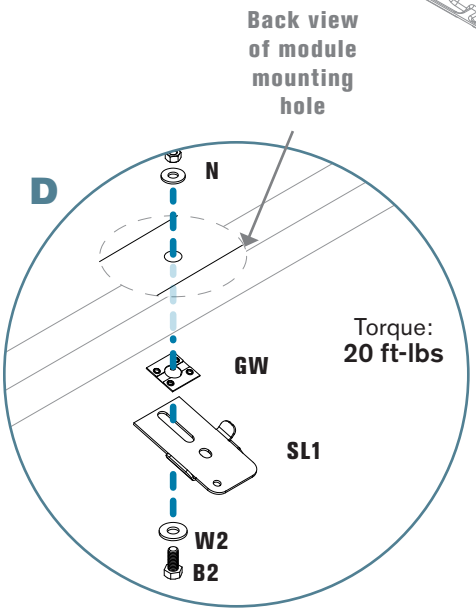
Module Clamp Method

If you are installing with back plates see next page

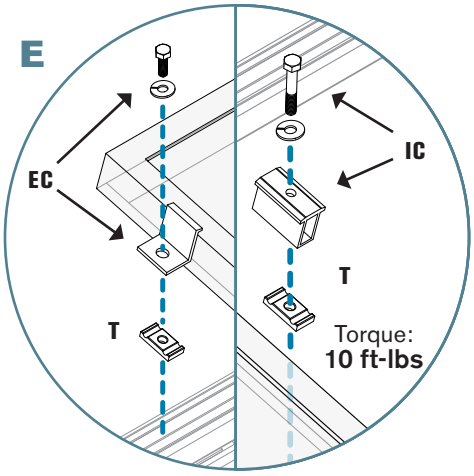
Attach Modules to Strut





Attach the hinge plate (SL1/HP) to the module with a bolt (B2) and washer (W2) through the hinge plate and ground-ing washer (GW) through the module mounting hole with a locknut (N).

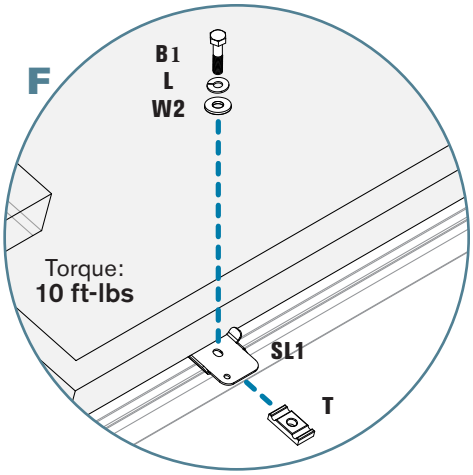
Note: 1/4" diameter bolts, washer, and nuts may need to replace B2, W2, and N (above) depending on diameter of module mounting hole.



See module requirements for appropriate clamp placement.

End Clamp: Using the end clamp kit (EC), insert bolt (B1) and washer (L) through the clamp fastening to a channel nut (T) in the strut.

Inter Module Clamp: Using the inter module clamp kit (IC), insert bolt (B5) and washer (L) through the clamp fastening to a channel nut (T) in the strut.



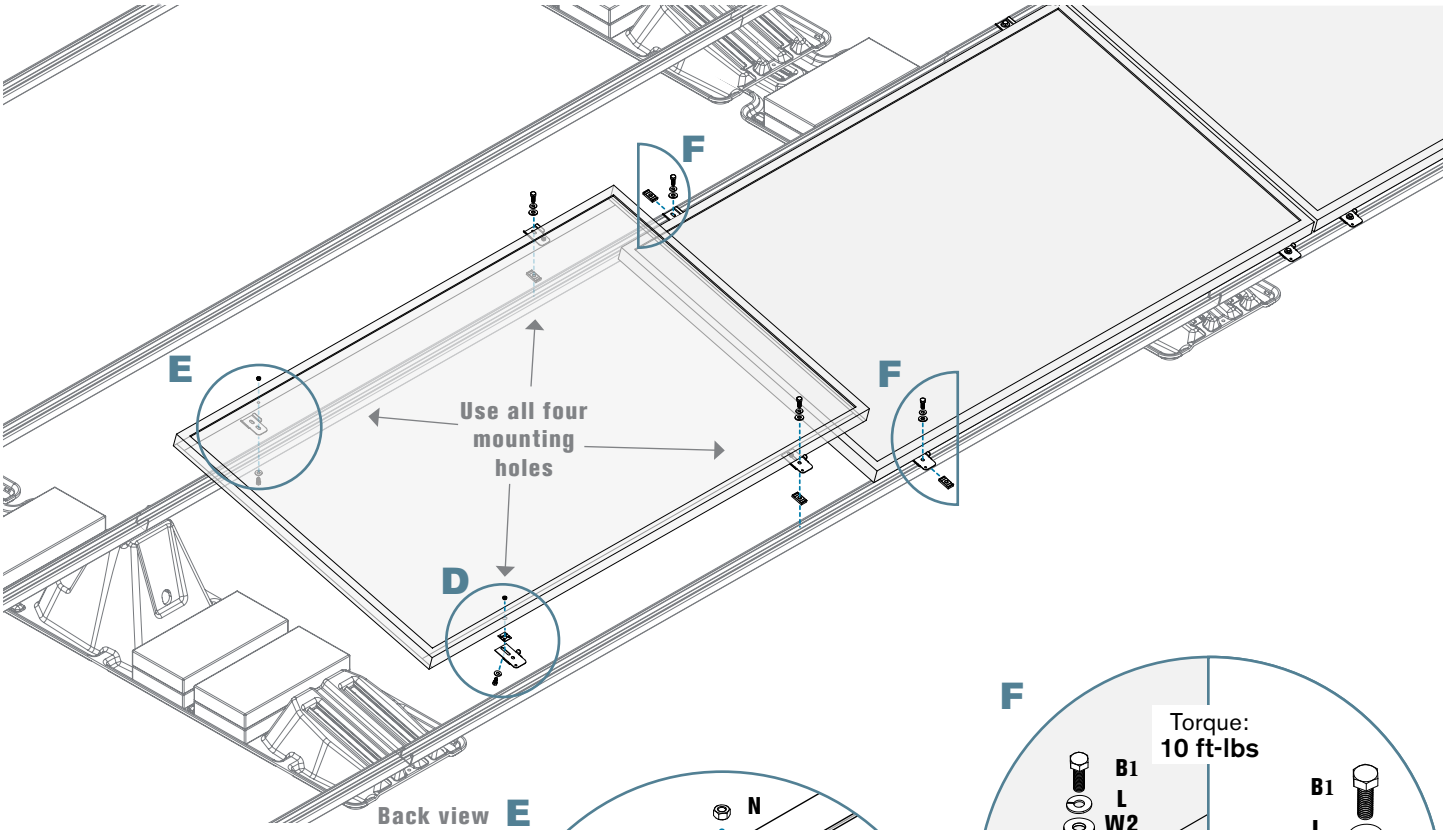
Insert the channel nut (T) into the strut and fasten the hinge plate (SL1) with a bolt (B1), flat washer (W2) and lock washer (L).

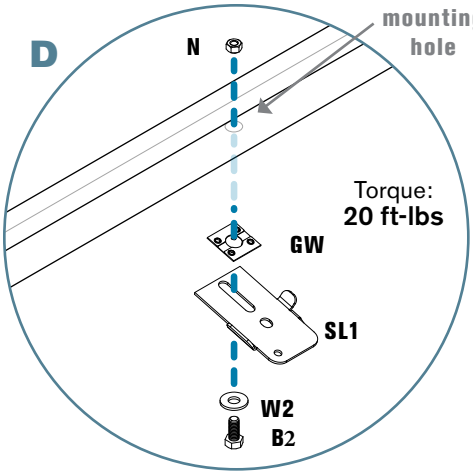
See **Grounding Manual** for more information on grounding installation.

Back Plate Method

Attach Modules to Strut

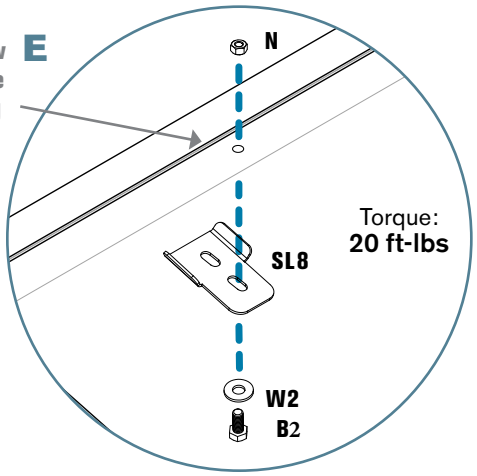
If you are installing with module clamps see previous page





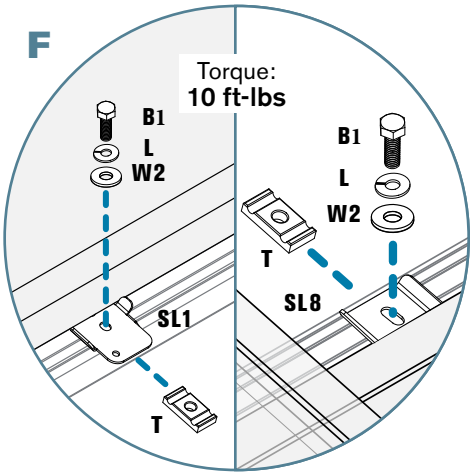
Attach the hinge plate (SL1/HP) to the module with the bolt (B2) and washer (W2) through the hinge plate and grounding washer (GW) through the module mounting hole with a locknut (N).

Note: Depending on diameter of module mounting holes, 1/4" diameter bolts, washer, and nuts may need to replace B2, W2, and N (above).



Attach the back plate (SL8/BP) to the module with a bolt (B2) and washer (W2) through the back plate and the module mounting hole with a locknut (N).

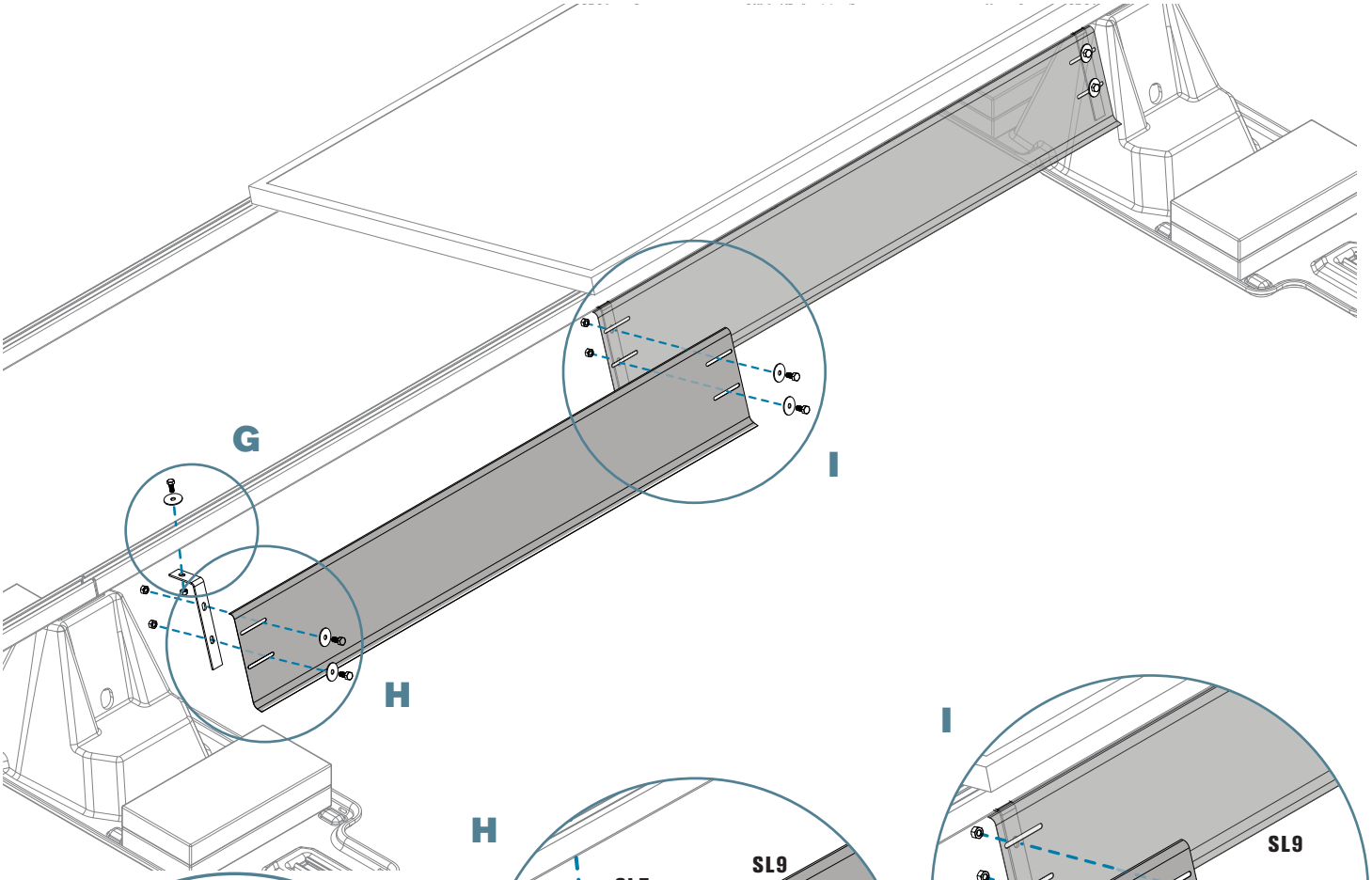
Note: Depending on diameter of module mounting holes, 1/4" diameter bolts, washer, and nuts may need to replace B2, W2, and N (above).

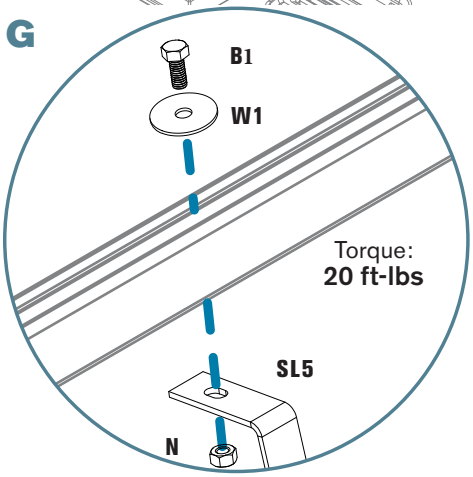


Insert the channel nut (T) into the strut and fasten the plates (SL1 & SL8) with a bolt (B1), flat washer (W2) and lock washer (L).

See **Grounding Manual** for more information on grounding installation.

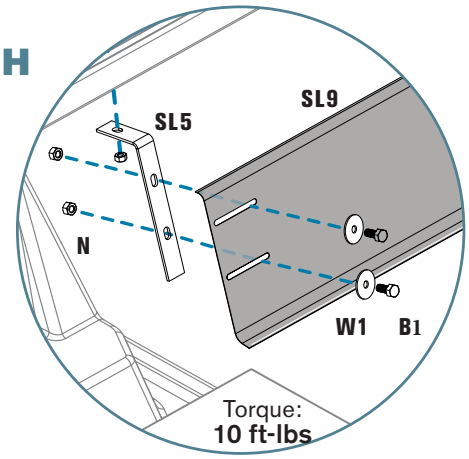
Attach Windscreens to Strut



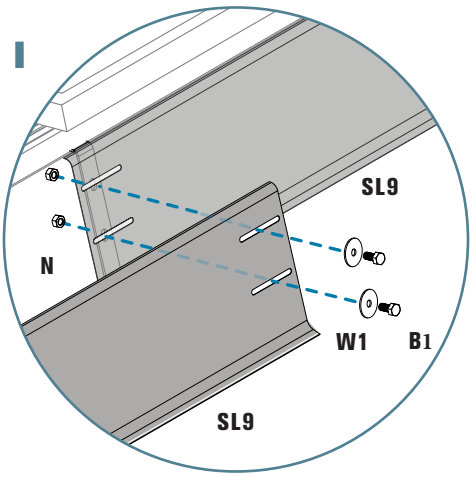


Important: Attach the windscreen bracket (SL5/WSB) before attaching the modules.

Attach the bolt (B1) and fender washer (W1) through a slot in the strut and attach the windscreen bracket (SL5) with a locknut (N). Use three (3) brackets per span, one (1) at each end, one (1) in the middle.

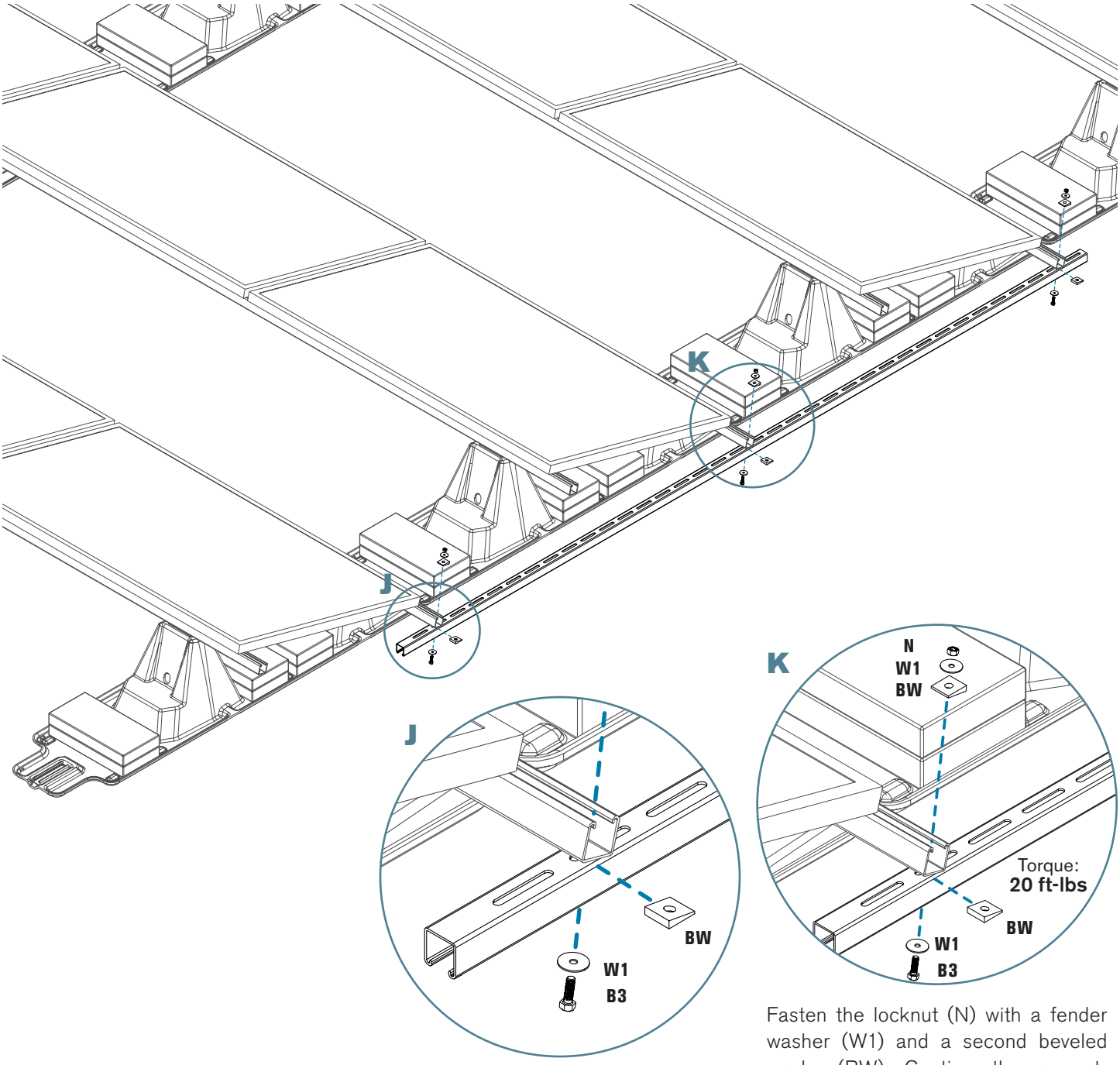


Use two (2) metal windscreens per span. Insert a bolt (B1) and fender washer (W1) through the slot in the windscreen (SL9/WS-[66/77]) and fasten with a locknut (N) through the windscreen bracket (SL5). Do this at each end of the span.



Join the two (2) windscreens together using the third windscreen bracket. Insert a bolt (B1) and fender washer (W1) through the slots in the overlapping windscreens (SL9) and fasten with a locknut (N) through the windscreen bracket (SL5).

Attach Corner Supports

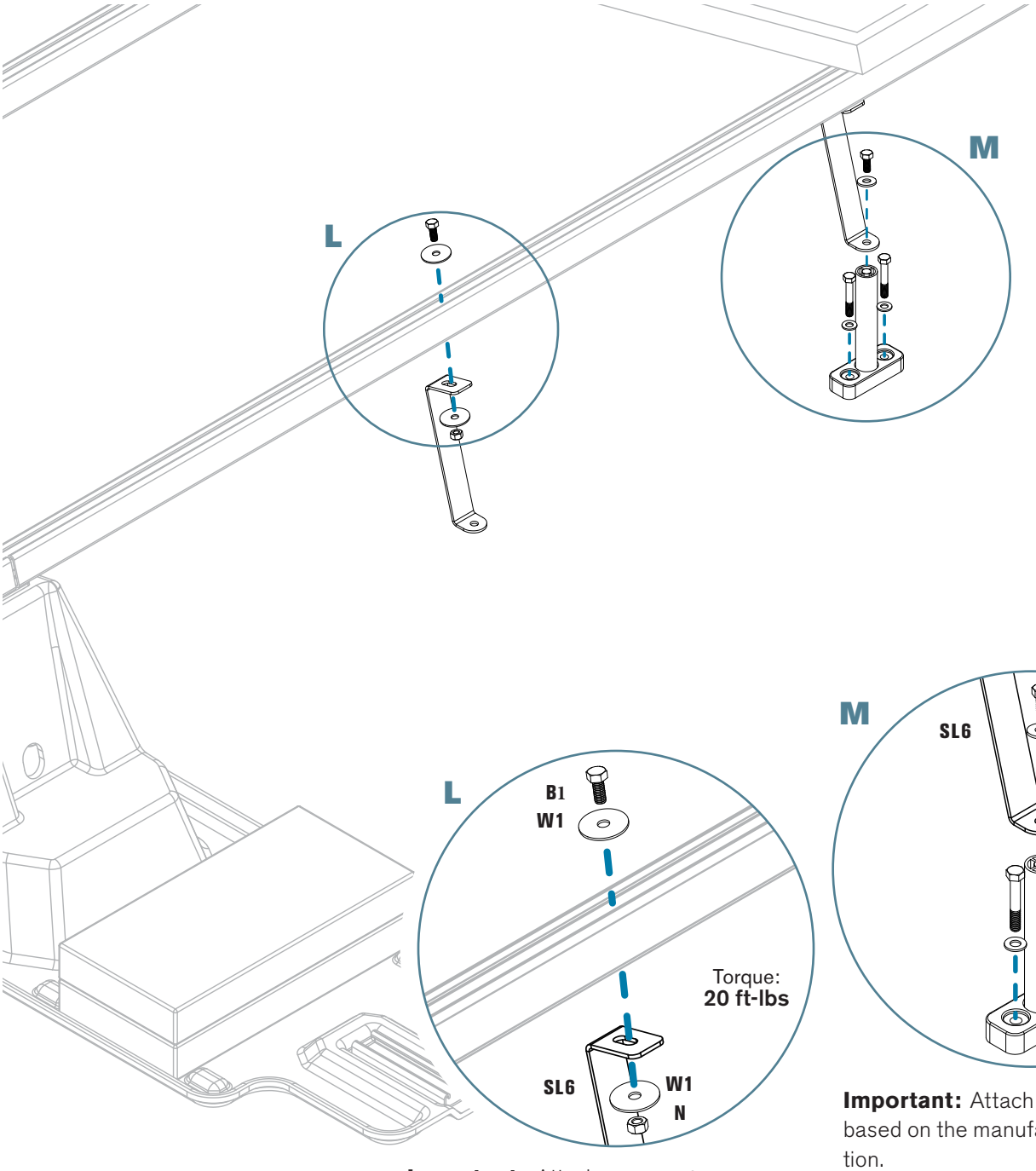


Insert the bolt (B3) and fender washer (W1) through the bottom strut with a beveled washer between each strut to match the angles for a flush connection.

Fasten the locknut (N) with a fender washer (W1) and a second beveled washer (BW). Continue the same attachment for the other two rows.

Note: *In some scenarios, it may be beneficial to use a corner support plate and double the quantities of hardware listed above. Corner supports might also be mounted in the interior of the InstaRacks in some cases.*

OPTIONAL: Attach Roof Anchor



Important: Attach the Roof Anchor brackets (SL6/SB) before attaching the modules.

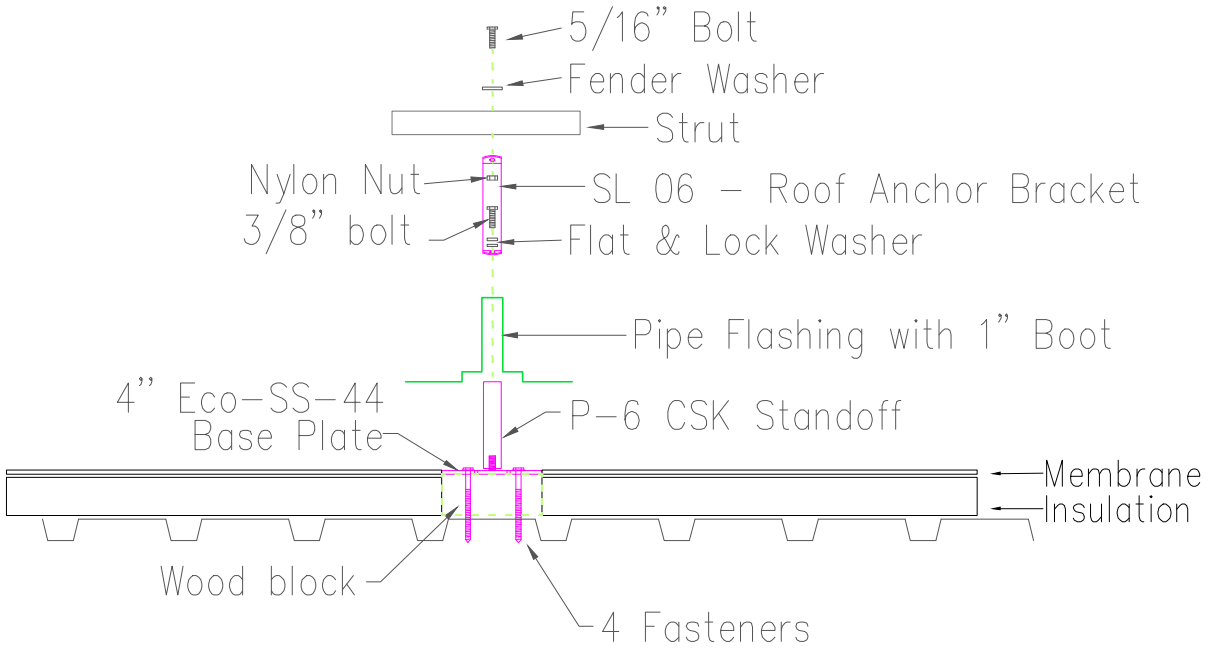
Attach the bolt(B1) and fender washer (W1) through the bottom channel in the strut and attach the roof anchor bracket (SL6) with a fender washer (W1) and locknut (N).

Important: Attach the Roof Anchors based on the manufacturer's specification.

Fasten the provided bolt and washer through the Roof Anchor Bracket (SL6) and into the roof anchor.

See Page 13 for more details.

EcoFasten Exploded View



If your project is not compatible with the above drawing, please contact engineering@sollega.com. Otherwise, use the tools that are available at www.Sollega.com/techsupport.

Manufacturer	Model	SKU Number
EcoFasten Solar	Eco-44R with P6 Bracket	ECO44R-P6
EcoFasten Solar	Eco-44 with P6 Bracket	ECO44-P6
ProSolar	Commercial FastJack E-Series with 6" standoff (Hardware not included)	CFJE-600-18

The installer is solely responsible for:

- 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
- Following the roofing manufacturer's installation procedure and guidelines before beginning the installation.

Sollega InstaRack 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 InstaRack™ Photovoltaic (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 InstaRack.

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 InstaRack 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 InstaRack owner only and is only applicable to the original installation of the SOLLEGA InstaRack. This Warranty does not apply to damage to the SOLLEGA InstaRack that is the result of weather conditions that exceed local building code limits that were applicable at the time that the SOLLEGA InstaRack 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. InstaRack 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. InstaRack by the Purchaser or by third parties without SOLLEGA's prior written authorization. In the event of the authorized correction of a defective SOLLEGA InstaRack, 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 InstaRacks, modules, windscreens, roof anchors, roof pavers, ballast trays, or any other racking system components.

SOLLEGA Inc.'s total liability hereunder for the repair or replacement of a SOLLEGA InstaRack, 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 photovoltaic (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 InstaRack 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.

Sollega™

The Simple Solar Racking Solution™

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