

# Installation Manual

2019 Edition V2

For models:

UNI-GR/70CV

UNI-GR/90CV

UNI-GR/110CV

UNI-GR/125CV

Panel Support length

70"

90"

110"

125"



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## Introduction

The Universal Ground\Roof Mount is a simple and universal mounting solution for small area solar photovoltaic (PV) needs. With its user-adjustable angle settings, the Ground\Roof Mount can support installations in a wide range of locations, as a standalone or multiple mounts intertied in rows. Quantities of panels supported vary by panel model widths.

## Customer Support

Tamarack Solar makes every effort to ensure your mounting kit is easy to install. If you need assistance at any point in your installation or have suggestions on how we can improve your experience, call customer support at **1-800-819-7236** or email us at [info@tamaracksolar.com](mailto:info@tamaracksolar.com).

## Tools Required

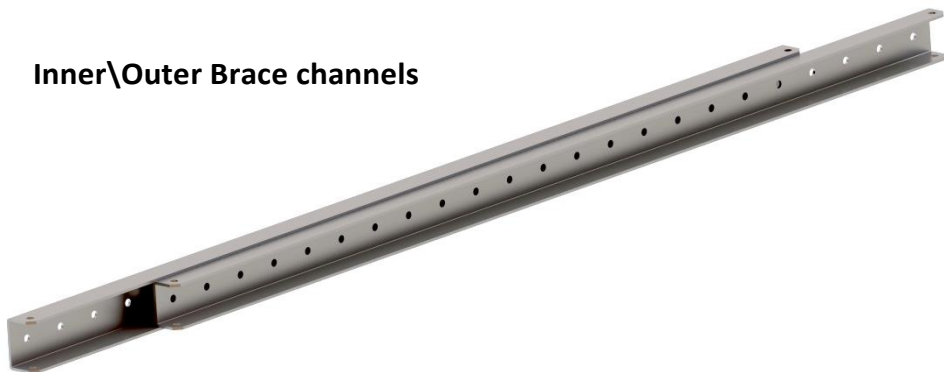
Tools that support the following size Hex heads: Torque values are “dry”, add 15% if using anti-seize lubricant on Stainless hardware (Recommended).

1. 5/16”= 132\11 In\Ft Lbs

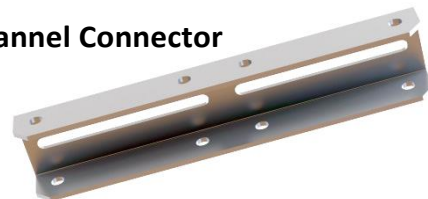
**Components List** The following parts are for all the GR mount models:

Part#	Description	UNI-GR/70CV	UNI-GR/90CV	UNI-GR/110CV	UNI-GR/125CV
51-0627-003	Channel, Connector 10"			2	2
51-0545-001	Channel, 45" Panel Support				2
51-0555-002	Channel, 55" Panel Support			4	
51-0570-000	Channel, 70" Panel Support	2			
51-0580-000	Channel, 80" Panel Support				2
51-0590-000	Channel, 90" Panel Support		2		
51-0534-000	Channel, 34.5" Inner Brace	2			
51-0534-001	Channel, 34.5" Outer Brace	2			
51-0546-000	Channel, 46" Inner Brace		2	2	2
51-0546-001	Channel, 46" Outer Brace		2	2	2
51-6000-004	Plate, Backing for U-Foot	4	4	4	4
51-6000-003	U-Foot, Gr Mnts	4	4	4	4
29-5001-100	Kit, 5/16 x 3/4 (8) Set SS	3	4	6	6
29-5005-100	Kit, 5/16 X 3/4 (4) SET SST	1			

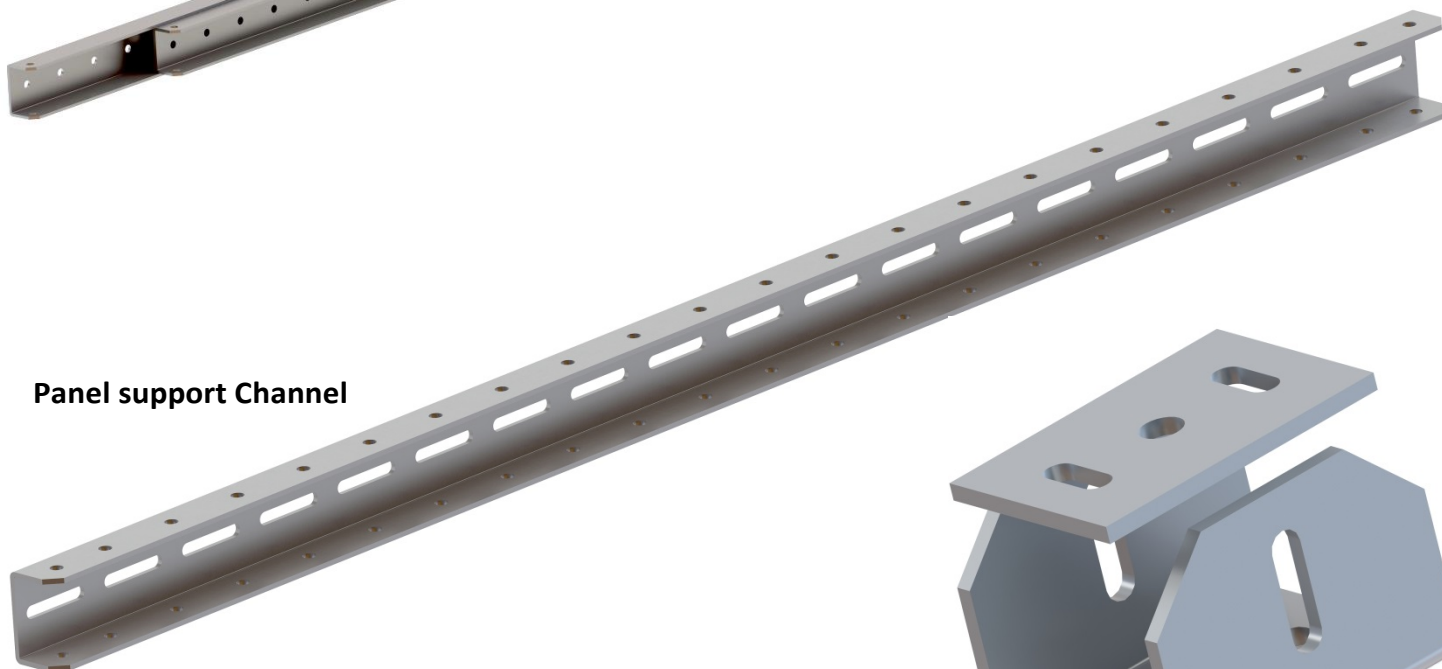
**Inner\Outer Brace channels**



**Channel Connector**



**Panel support Channel**



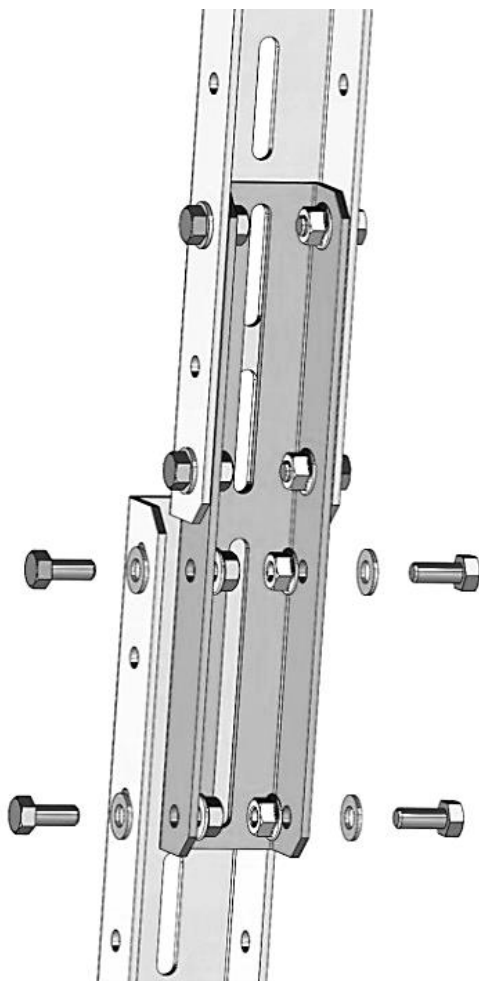
**U-Foot and Backing Plate**



## Pre Assembly

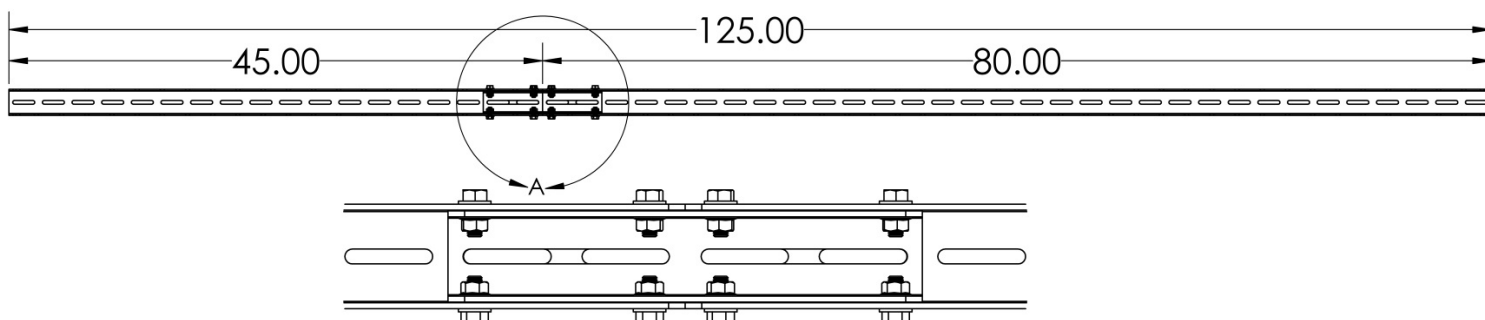
### Step 1: Connect Panel Support Channels (For UNI-GR/110CV, UNI-GR/125CV only)

- A. Slide the 10" connector halfway into the end of the panel support and install the 5/16 hardware, Torque to 132 In Lbs. repeat with the second panel support to achieve the overall panel support length



UNI-GR/110CV Join (2) 55" panel support channels

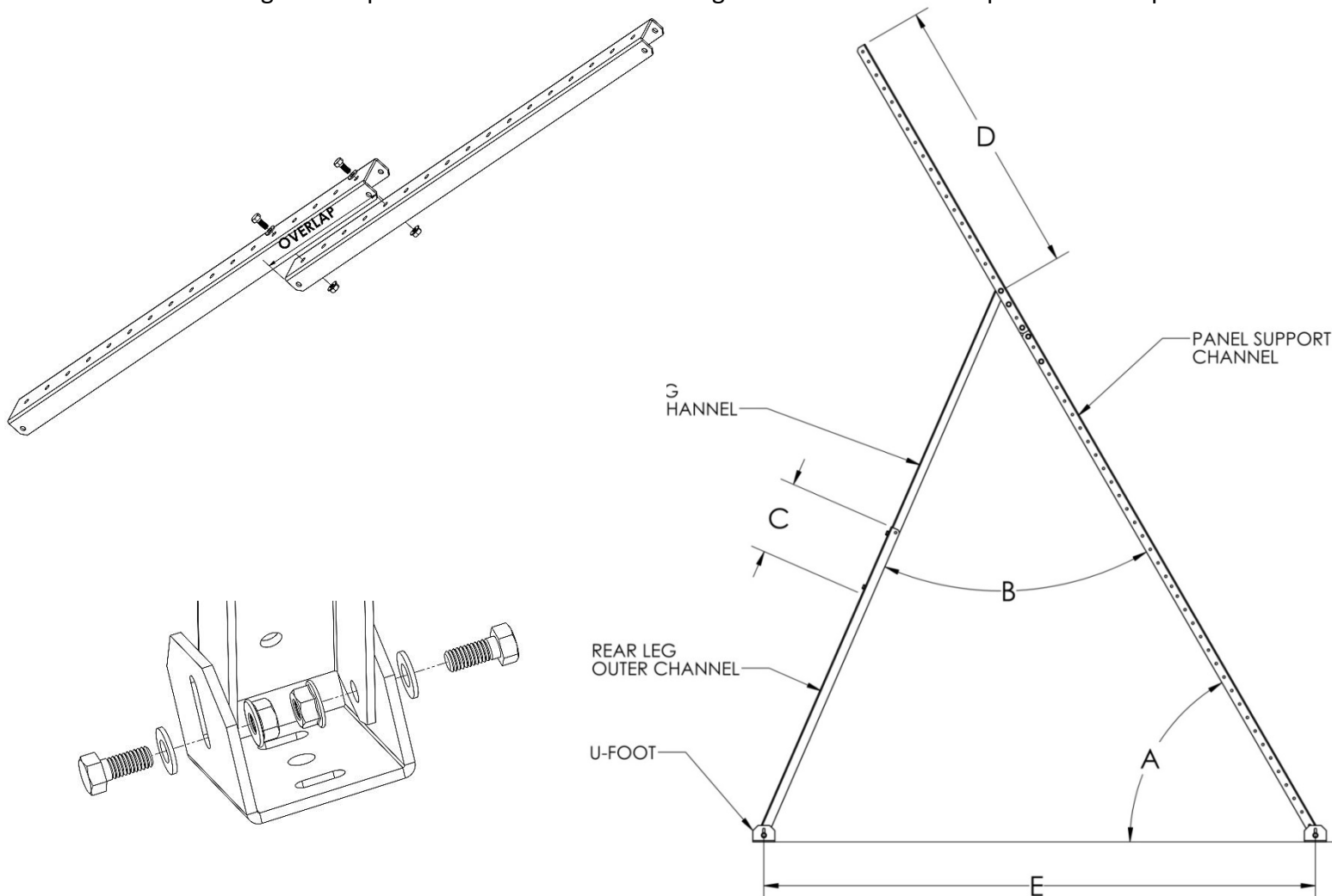
UNI-GR/125CV Join (1) 45" and (1) 80" panel support channels (shown)



## Step 2: Determine foot spacing

There are many combinations of bolting locations and brace overlap configurations to achieve foot spacing's for the angle(s) desired for your location, the following is a process to make that determination to fit your requirements, or use the **general specification chart on page 5**. If you plan on seasonal changes you may need to add multiple rear leg footings.

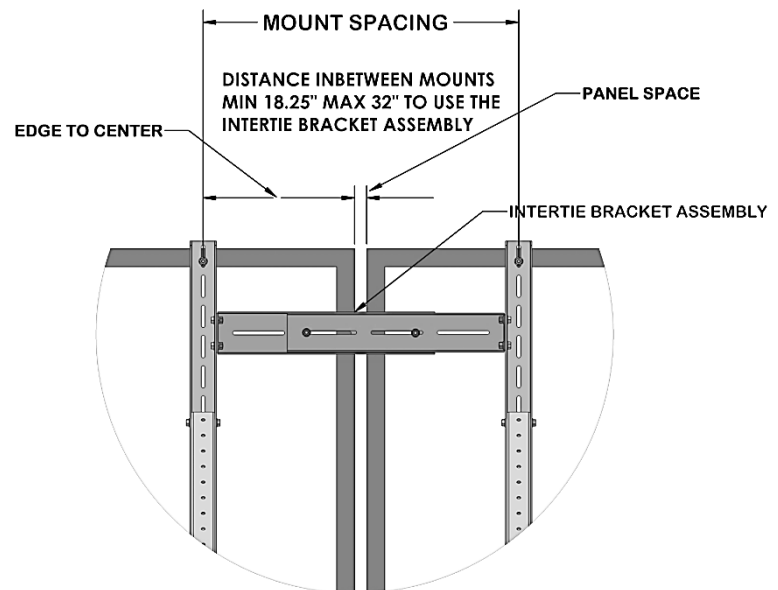
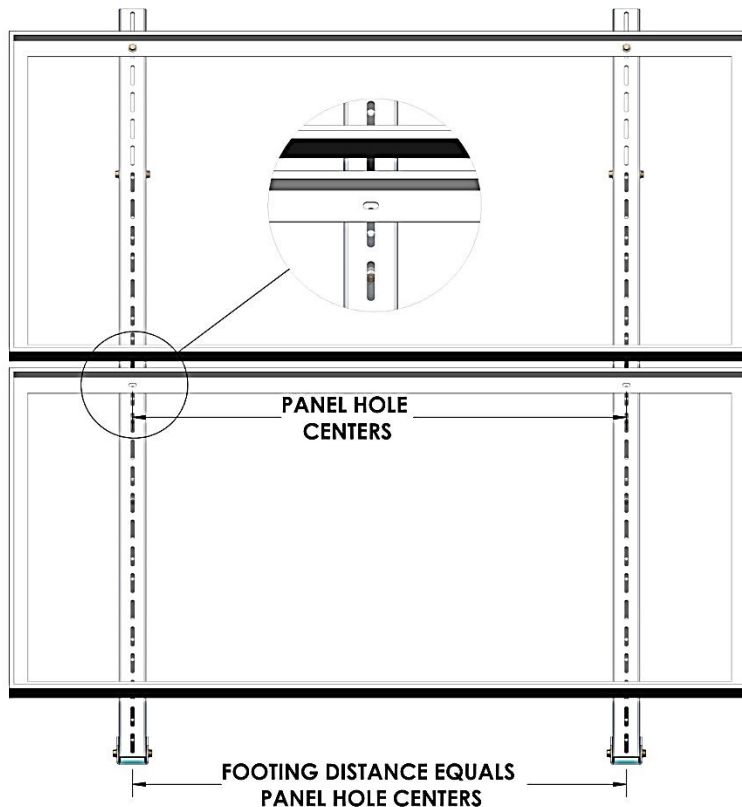
- For the front to rear distance, loosely assemble the A frame section as shown below, adjust the rear leg brace maintaining the minimum 6" overlap or more ("C") to support the panels at the desired angle to the sun and keeping the rear leg within 60° to 90° to the panel supports. With the "A" frame laying on a flat surface measure the center to center distance between the U-feet to determine the front to rear spacing for the footing.
- Keep the rear brace assembled at the overlap determined in prior operation, **pre assemble** the second pair and set aside.
- For the side to side footing of both "A" frames, the center to center spacing is equal to the center to center distance of the mounting holes on the PV module you are using, SEE PAGE 5.
- For intertied multiple mounts, to determine spacing between mounts, multiply times two, the distance from the edge of the panel to center of the mounting hole and add a 1 inch space between panels.





## General specification chart

UNI-GR/125CV						UNI-GR/110CV					
"A" ANGLE	60°	50°	40°	30°	25°	"A" ANGLE	60°	50°	40°	30°	25°
"B" ANGLE (ref)	53°	74°	71°	76°	70°	"B" ANGLE (ref)	64°	75°	82°	84°	90°
"C" OVERLAP	10"	12"	26"	42"	42"	"C" OVERLAP	10"	18"	32"	44"	44"
"D" DISTANCE	38.44"	38.44"	29.94"	29.94"	8.69"	"D" DISTANCE	31.44"	31.44"	31.44"	23.56"	8.69"
"E" FOOT SPACING	75.25"	99.06"	95.83"	95.17"	109.28"	"E" FOOT SPACING	83.94"	92.24"	91"	93.65"	111.33"
UNI-GR/90CV						UNI-GR/70CV					
"A" ANGLE	60°	50°	40°	30°	25°	"A" ANGLE	60°	50°	40°	30°	25°
"B" ANGLE (ref)	61°	75°	80°	88°	n/a	"B" ANGLE (ref)	65°	76°	87°	88°	n/a
"C" OVERLAP	16"	22"	36"	44"	n/a	"C" OVERLAP	10.5"	16.5"	24.5"	32.5"	n/a
"D" DISTANCE	15.06"	15.06"	15.06"	6.56"	n/a	"D" DISTANCE	15.06"	15.06"	15.06"	6.56"	n/a
"E" FOOT SPACING	75.88"	86.91"	84.34"	94.07"	n/a	"E" FOOT SPACING	60.41"	65.4"	67.65"	71.06"	n/a

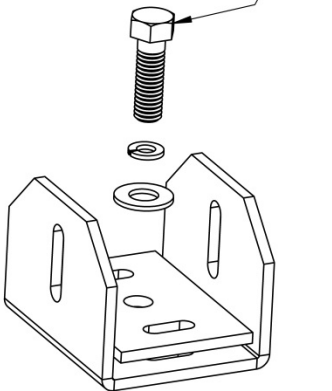


### Step 3: Foot attaching options

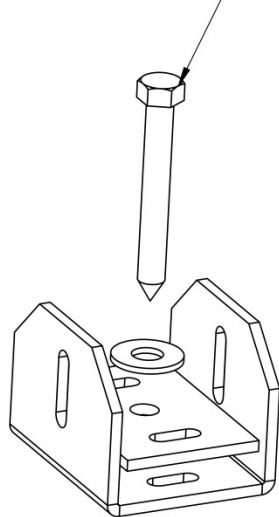
Lag bolt options for  
wood attach points

Note: keep the imbedded J-Bolt  
above the pier 1" to 1.25"

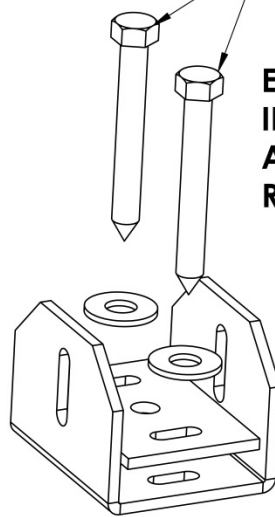
**3/8-16 HEX, LOCK,  
FENDER WASHER FOR UNISTRUT, OR  
STANDOFF  
APPLICATIONS**



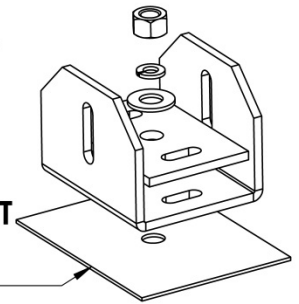
**3/8 LAG BOLT**



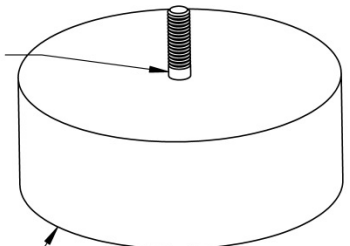
**1/4" LAG BOLT**



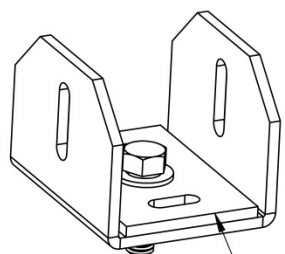
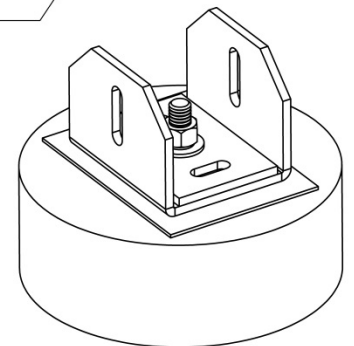
**EPDM BARRIER  
IN BETWEEN FOOT  
AND CEMENT  
RECCOMENDED**



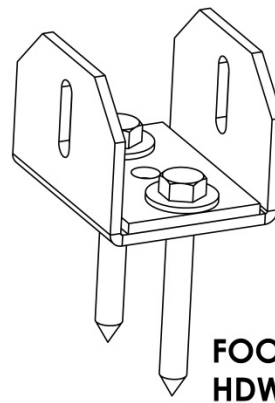
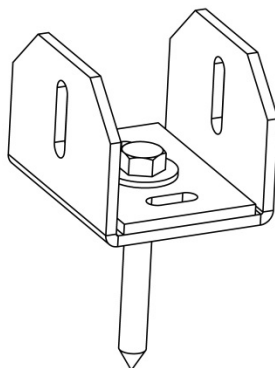
**3/8 J-BOLT  
IMBEDDED  
INTO PIER**



**CEMENT  
PIER**



**BACKING PLATE  
(INCLUDED)**

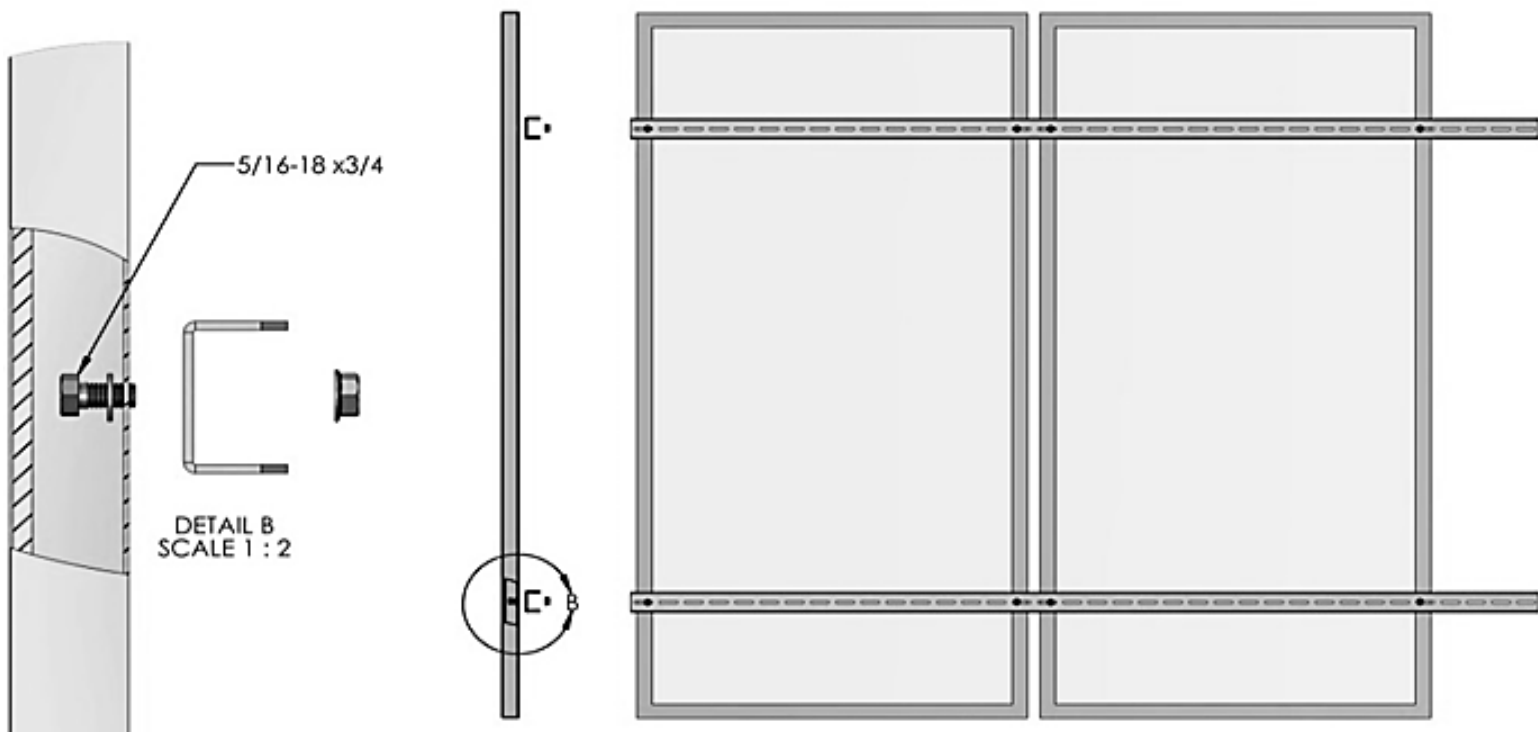


**FOOT ATTACHING OPTIONS, ATTACHING  
HDW CUSTOMER SUPPLIED (SST OR GLV),  
BACKING PLATE AND WIDE WASHERS  
TO BE USED IN ALL CONFIGURATIONS**

#### Step 4 Attaching PV modules to panel supports

- A. Lay the PV Modules face-down on a protected flat surface mounting hole side up.
- B. Lay the flat side of the panel support channels across the panels keeping panels and supports parallel.
- C. Align mounting holes on the panels with the slots on the panel supports, allow Approximately 1/4" to 1" in between PV modules and leave any available left over support length at the bottom of the array for ground clearance to allow for vegetation management.
- D. Secure with 5/16 hardware and torque to 132 In Lbs

**If your panels only have 1/4" clearance holes, order 1 optional HDW kit PN# 29-5000-000  
1/4 x 3/4 (4set), per panel.**

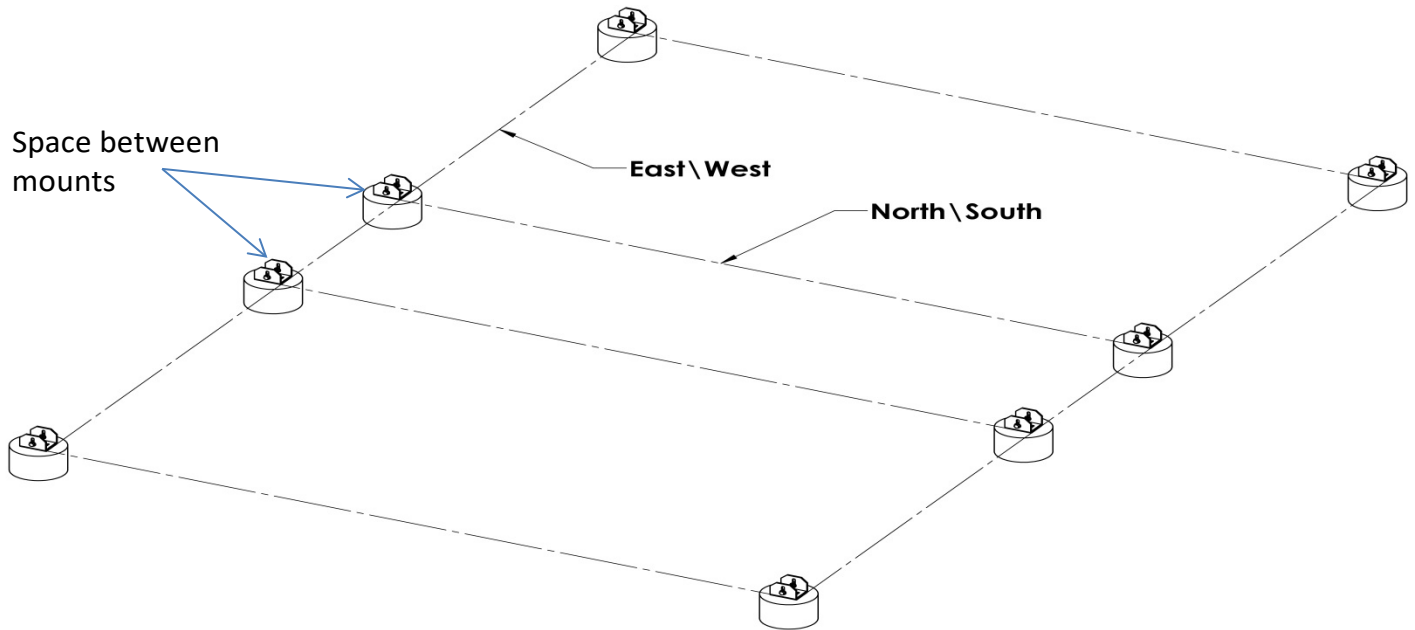




## Final Assembly

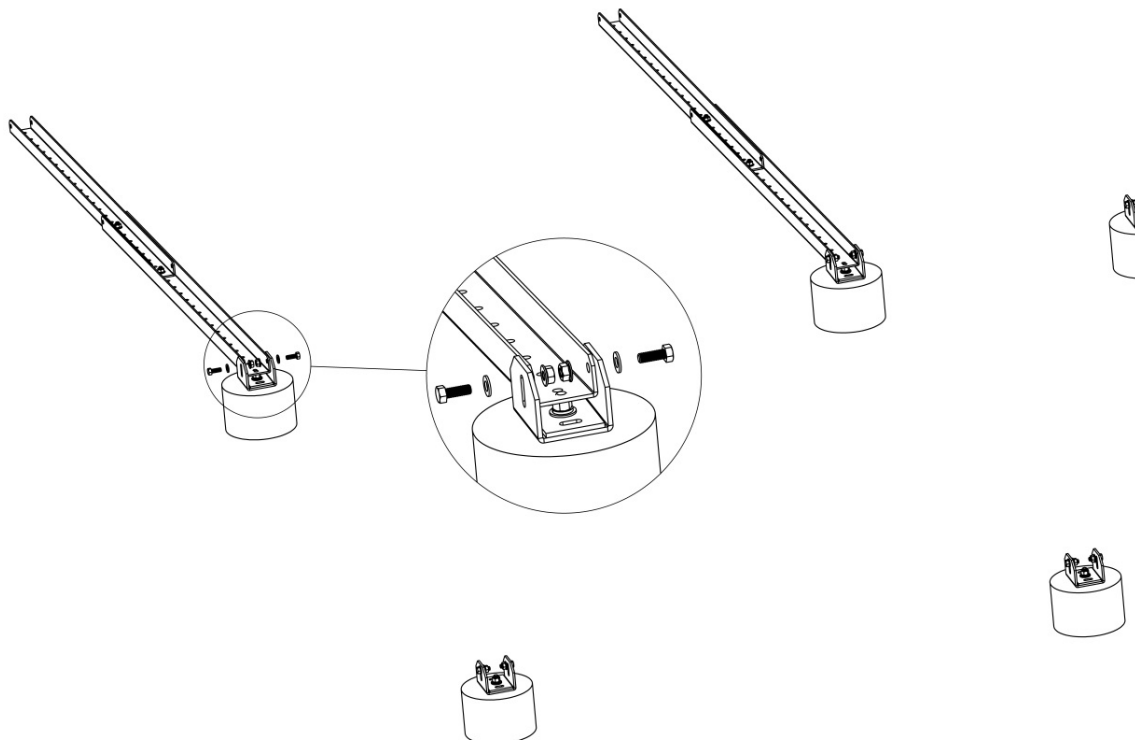
### Step : 1

- A. Attach the U-foot and backing plate to your footings, align the feet east\west and north\south and torque 3/8-16 galvanized hardware to 20 Ft Lbs. (cement footings shown)



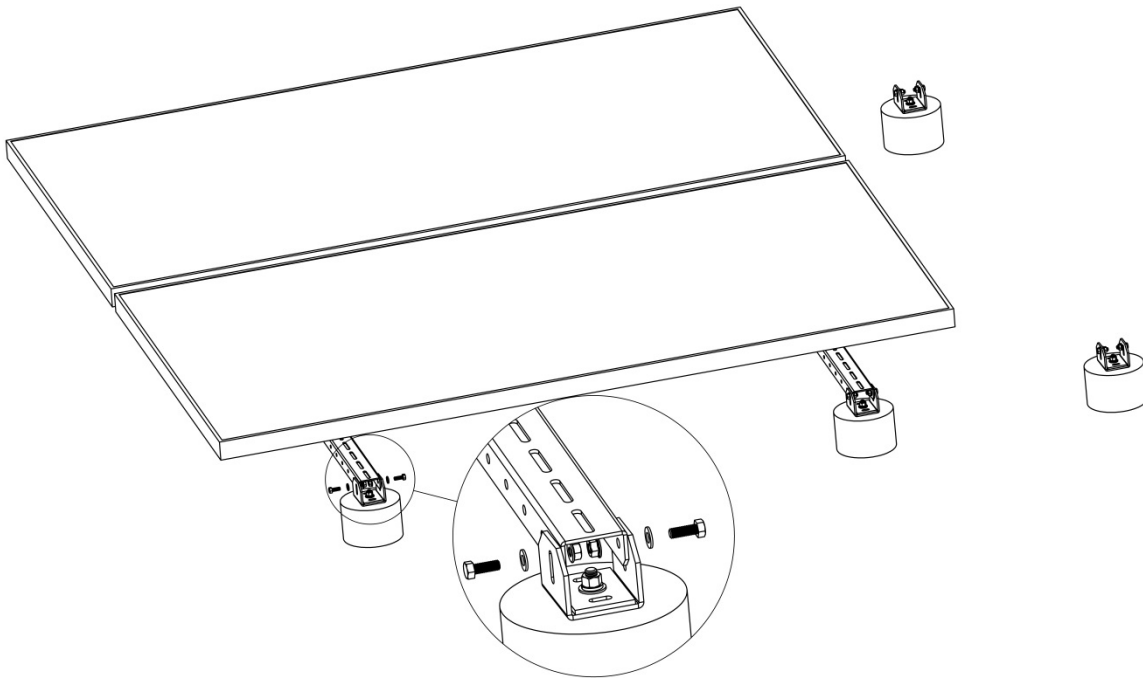
### Step 2: Attach Preassembled rear braces to footings.

- A. Loosely attach the pre-assembled rear brace to the rear footings (pre-assembled from the prior angle determination step). The "outer leg" is attached to the foot. Lay back away from the front for next step.



**Step 2: Attach Pre Assembled Panel array to footings.**

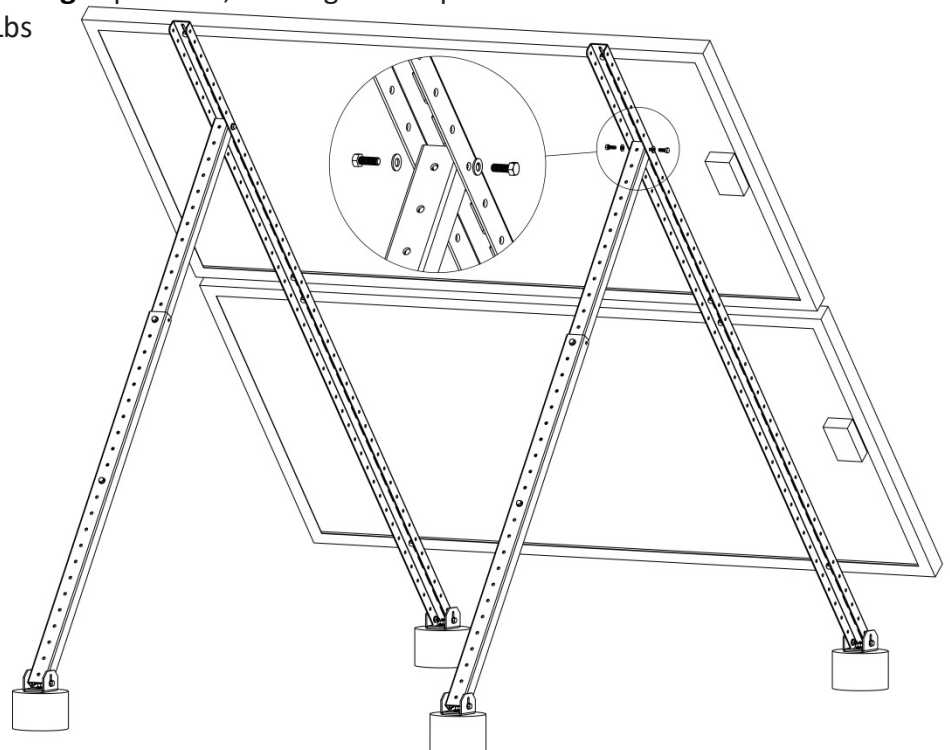
- A. Loosely attach one end of the Panel assembly to the U-feet on the footings.



**Step 3: Attach rear braces to panel supports**

- A. Tilt up the array, and the rear braces, and bolt the rear leg into the hole chosen at the distance on **step 2** of "**Determine foot spacing**" operation, or the general spec chart.

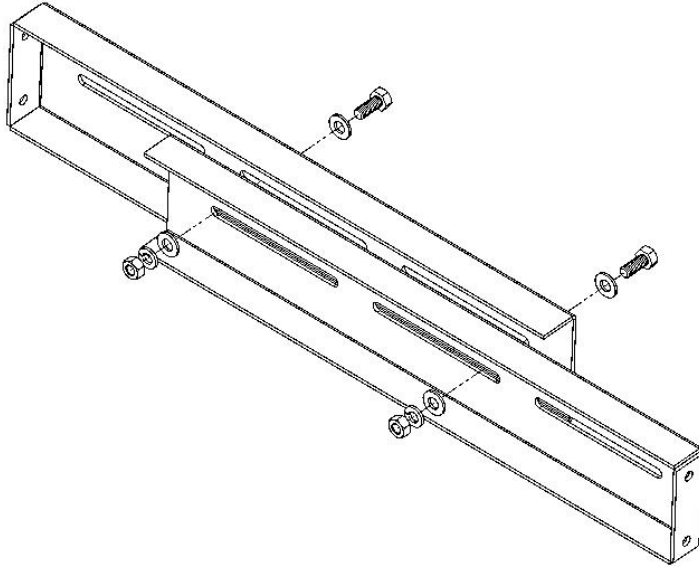
Torque all locations to 132In Lbs



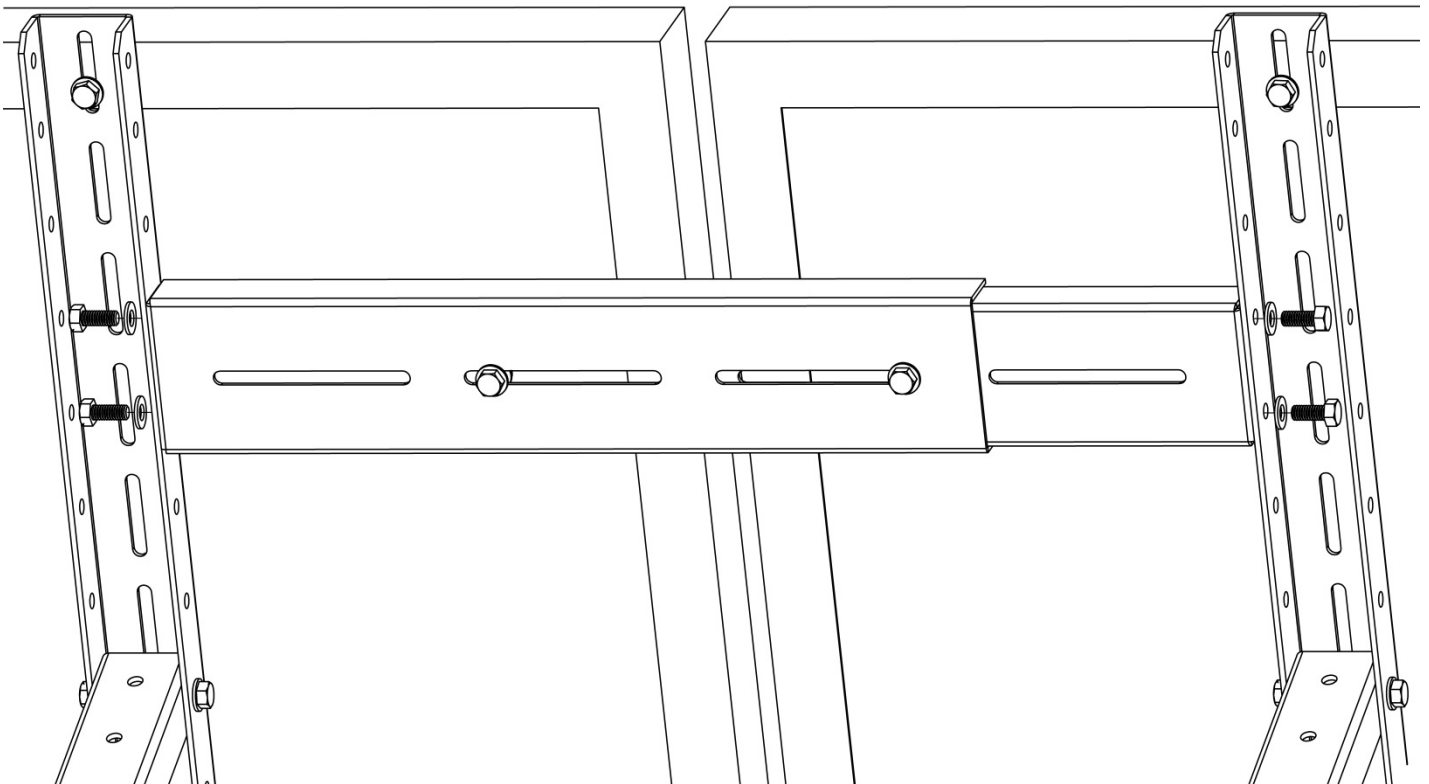
**(If only one mount is installed, you are done at this point)**

**Step 4: Multi-Mount Intertie Installation**

- A.** Loosely connect the inner and outer intertie channels with the 5/16 bolt, lock washer, flat washer and hex nut.



- B.** Place the intertie as shown about midway between the rear brace connection and the end of the panel support channels, slide the channels out to meet the panel support channels, connect with the 5/16 hardware, torque to 132 In Lbs 6 places.



## Installer Responsibility

The installer is solely responsible for:

- i. Complying with all applicable local or national building codes, including any that may supersede this manual;
- ii. Ensuring that Tamarack Solar and other products are appropriate for the particular installation and the installation environment;
- iii. Using only Tamarack Solar parts and installer-supplied parts as specified by Tamarack Solar. Substitution parts may void the warranty;
- iv. Ensuring safe installation of all electrical aspects of the PV array; and
- v. Ensuring correct and appropriate design parameters are used in determining the design loading used for the specific installation. Parameters, such as snow loading, wind speed, exposure and topographic factor should be confirmed with the local building official or a licensed professional engineer.

## Warranty Information

Tamarack Solar warrants each Mounting Structure to be free from defects in materials and workmanship for ten (10) years from the date of first purchase ("Warranty Period"), when installed properly and used for the purpose for which it is designed, except for the finish, which shall be free from visible peeling, or cracking or chalking under normal atmospheric conditions for a period of three (3) years, from the earlier of 1) the date the installation of the Product is completed, or 2) 30 days after the purchase of the Product by the original Purchaser ("Finish Warranty"). The Finish Warranty does not apply to any foreign residue deposited on the finish.

**Galvanized coated sheet steel components will show rust on cut edges and is normal and will not affect the structure and function of the mount.**

**All installations in corrosive atmospheric conditions are excluded.** The Finish Warranty is VOID if the practices specified by AAMA 609 & 610-02 – "Cleaning and Maintenance for Architecturally Finished Aluminum" ([www.aamanet.org](http://www.aamanet.org)) are not followed by Purchaser for Tamarack Solar's aluminum based products.

The warranty covers the replacement cost of parts to repair the product to proper working condition. Transportation and incidental costs associated with warranty items are not reimbursable. The warranty does not cover normal wear, or damage resulting from misuse, abuse, improper installation, negligence, or accident, or **typographical errors in instruction manuals**. The Warranty does not cover any defect that has not been reported in writing to Tamarack Solar within ten (10) days after discovery of such defect. Furthermore, it does not cover units that have been altered, modified or repaired without written authorization from the manufacturer or its authorized representative, or units used in a manner or for a purpose other than that specified by the manufacturer. Tamarack Solar's entire liability and Purchaser exclusive remedy, whether in contract, tort or otherwise, for any claim related to or arising out of breach of the warranty covering the Mounting Structures shall be correction of defects by repair, replacement, or credit, at Tamarack Solar's discretion. Refurbished Mounting Structures may be used to repair or replace the Mounting Structures

Tamarack Solar shall have no liability for any injuries or damages to persons or property resulting from any cause, whatsoever, or any claims or demands brought against Tamarack Solar by Purchaser, any employee of Purchaser, client of Purchaser, end-user of the Product or other party, even if Tamarack Solar has been advised of the possibility of such claims or demands (collectively, "Third Party Claims"). This limitation applies to all materials provided by Tamarack Solar during and after the Warranty Period.