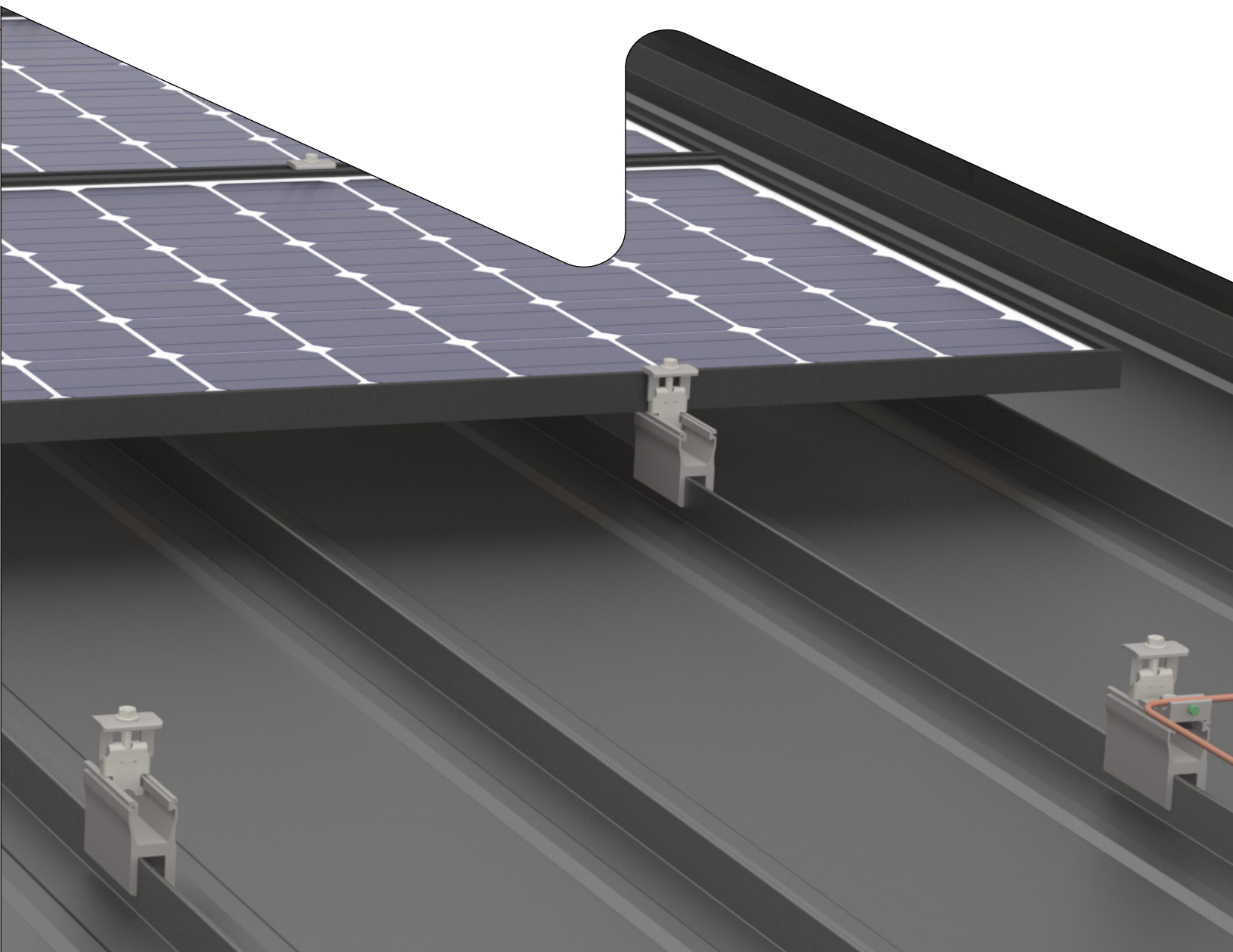




**Connecting Strength**

# SS PowerClamp Railless

**ASSEMBLY INSTRUCTIONS**





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## Quality tested - several certifications

K2 Systems stands for secure connections, highest quality and precision. Our customers and business partners have known that for a long time. Independent institutes have tested, confirmed and certified our capabilities and components.

Please find our quality and product certificates under:

<https://k2-systems.com/en-us/company/quality-management/>

# Engineering strength is at our core



With sophisticated product innovations and a deep customer focus, K2 Systems is the engineering leader for all your mounting system needs. We are a market leader with more than 29 GW installed worldwide.

We offer proven product solutions and innovative designs. Wind tunnel testing along with advanced structural and electrical validation to facilitate permitting, design and installation. Our designs result in cost competitive racking systems with dedicated support that will position you to win more projects.

We partner with our customers and suppliers for the long-term. High quality materials and cutting edge designs provide a durable, yet functional system. Our product line is comprised of a few, coordinated components that lower the cost of materials, and simplify installation, saving you time and money. All backed by German engineering, a long track record of quality and a company that is here to stay.

Thank you for choosing K2 Systems for your Solar PV Project.

# General Safety Information



Please note that our general mounting instructions must be followed at all times and can be viewed online at <https://k2-systems.com/en-us/resource-center-2/>

- /The equipment may only be installed and operated by qualified and adequately trained installers.
- /Prior to installation, ensure that the product complies with on-site static loading requirements. For roof-mounted systems, the roof load-bearing capacity must always be checked.
- /National and local building regulations and environmental requirements must be adhered to.
- /Compliance with health and safety regulations, accident prevention guidelines and applicable standards are required.
  - /Protective equipment such as safety helmet, boots and gloves must be worn.
  - /Roofing works must be in accordance with roofing regulations utilizing fall protection safeguards when working at heights of 6 feet or more above a lower level.
  - /At least two people must be present for the duration of the installation work in order to provide rapid assistance in the event of an emergency.
- /K2 mounting systems are continuously developed and improved and the installation process may thereby change at any time. Prior to installation consult our website at: <https://k2-systems.com/en-us/resource-center-2/>. We can send you the latest version on request.
- /The assembly instructions of the module manufacturer must be adhered to.
- /Equipotential bonding/grounding/earthing between individual parts is to be performed according to country specific standards, as well as national laws and regulations.
- /At least one copy of the assembly instructions should be available on site throughout the duration of the installation.
- /Failure to adhere to our general safety and assembly instructions and not using all system components, K2 is not liable for any resulting defects or damages. We do not accept liability for any damage resulting in the use of competitor's parts. Warranty is excluded in such cases.
- /If all safety instructions are adhered to and the system is correctly installed, there is a product warranty entitlement of 25 years! We strongly recommend reviewing our terms of guarantee, which can be viewed at <https://k2-systems.com/en-us/resource-center-2/>. We will also send this information on request.
- /Dismantling of the system is performed in reverse order to the assembly.
- /K2 stainless steel components are available in different corrosion resistance classes. Each structure or component must be carefully checked for possible corrosion exposure.

# The following guidelines apply



The system can be installed according to the following conditions. Even if the system is capable of meeting higher demands by integrating safety standards, contact your contact at K2 Systems if the specified values are exceeded.



## Roof requirements

- /The structural integrity of the roof must be checked on site and approved by a licensed structural engineer.
- /Compatible metal roof panel profiles: Single Lock (90 degree), Double Lock, Trapezoidal.
- /Minimum thickness of metal panel: 24 gauge
- /Roof slope:  $>7^{\circ}$  -  $45^{\circ}$
- /Roof max height: 60ft



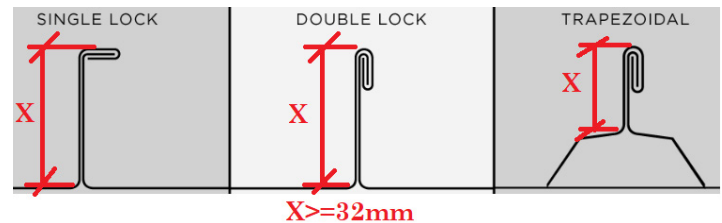
## Important mounting instructions

- /Modules must be mounted in landscape orientation
- /Seam height must be a minimum of 1.25"



## Structural Requirements

- /Max wind speed: 180mph
- /Ground snow load: 0 - 40 psf





# Bonding and Grounding

Proper bonding and grounding means are required by regulation. Information provided in this manual should always be checked against local and national building codes.

K2 Systems has obtained a UL 2703 system listing from Underwriter's Laboratories (UL).

An example electrical landing path diagram is shown in Figure 1 below. Your specific installation may vary, depending on site conditions and the requirements of your appropriate authority.

Each electrical connection has been rated with a maximum fuse capacity of 30A. At least one K2 Ground lug must be used for each column of modules. When installed in accordance with these assembly instructions, all connections meet the requirements of their appropriate authority.

This mounting system may be used to ground and/or mount a UL 2703 compliant PV module only when the specific module has been evaluated for grounding and/or mounting in accordance with the included instructions.

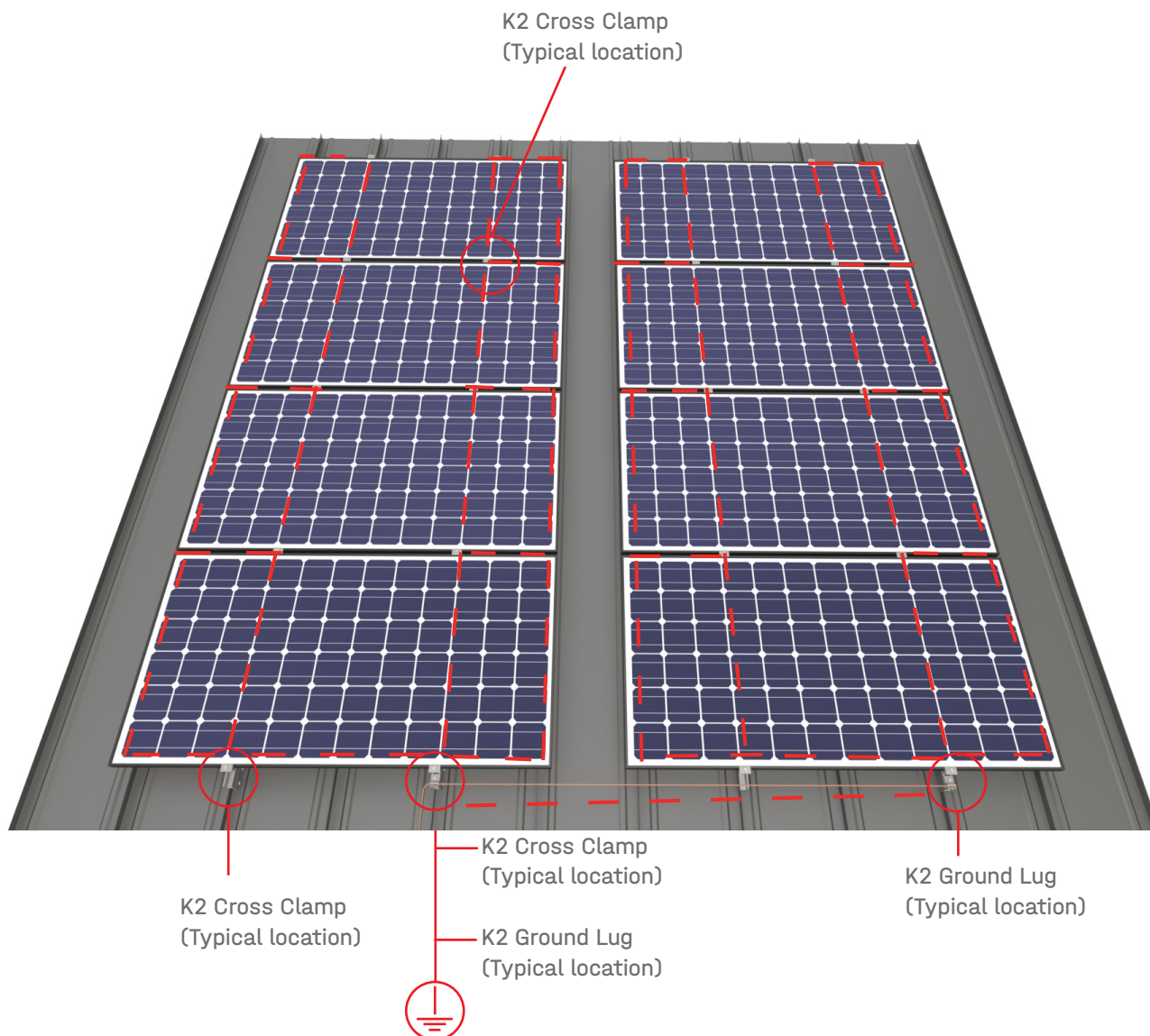


Figure 1: Ground connection through a K2 Ground Lug shown in red. For certain local regulations, bond and ground connections are identified in typical locations.



# Fire Rating

The SS PowerClamp Railless system has been tested for fire performance in accordance with UL 2703, Fire Performance. A Class A fire rating of the system is obtained when the SS PowerClamp Railless is used under the following conditions:

/Roof slope of 1.40% or greater (0.17" rise per linear foot)

/Used in conjunction with a UL 2703 listed module with a Type 1, Type 2, or Type 3 fire performance rating. Consult the module manufacturer for specific fire performance rating information.

/The SS PowerClamp Railless can be mounted using any standoff height to maintain the Class A fire rating. Always refer to the module manufacturer's installation instructions to ensure your installation complies with their UL 2703 listing.

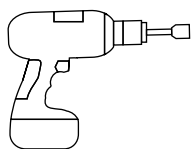
/The results of the mounting system do not improve the classification of the roof deck. All documentation can be found in the UL online database and on the K2 Systems website.

# Approved Modules

To see our list of compatible modules, click this link or scan the QR code:  
<https://k2-systems.com/wp-content/uploads/2023/10/Approved-Modules-EN-US.pdf>



# Required Tools



Cordless Drill



Torque Wrench  
2.9-25.8 ft-lb  
(4 - 35 Nm)



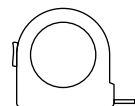
6mm Allen Socket  
Bit



13mm Socket



7/16" Socket



Measuring Tape <=5m



Chalk Line

# Torque

/Screws Oval 3-8in X 1.75in, 13mm according to the gauge of the sheet:

22 Gauge: 14.2 - 15 ft-lb (19.2 - 20.3 Nm)

24 Gauge: 12.5 - 13.3 ft-lb (17 - 18 Nm)

/K2 Cross Clamp Hex Head M8x50mm: 12 ft-lb (16.3 Nm)

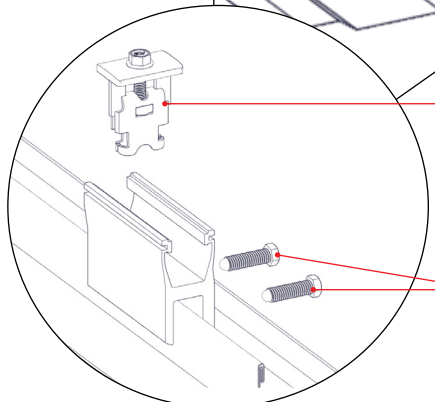
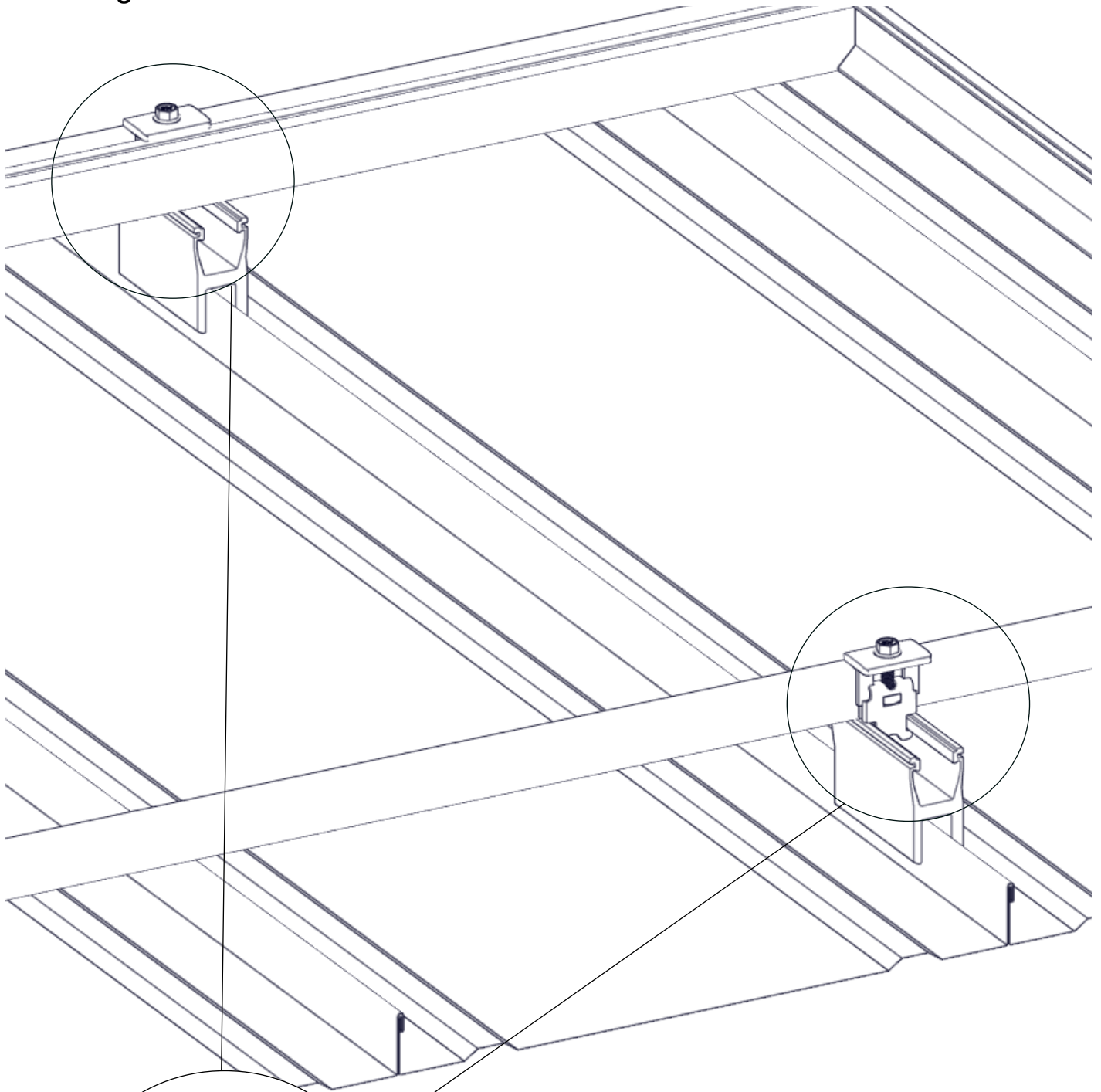
/K2 Ground Lug: M8 Hex Bolt: 10.3 ft-lbs (14 Nm), Terminal Screw: 3-5 ft-lbs (4-6.8 Nm)

/ILSCO Lug: 6.3 ft-lbs (8.5 Nm)

/MLPE, Module Frame Mount, Kit M8 Hex Bolt: 10-50 ft-lbs (6-35 Nm)

# Components

## Standing Seam



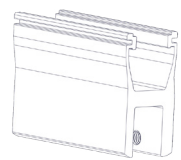
2

1.1

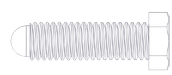
4000531

1.2

4000530



SS PowerClamp Railless, Mill



Screw Oval 3-8in X 1.75in,  
13mm

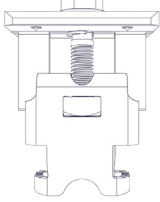


# Components

## System Components

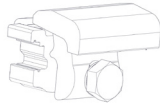


2 4000135/4000145



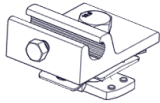
K2 Cross Clamp Set, Mill/Dark

3 4000050-B



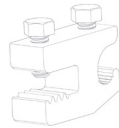
Yeti Clamp 2.0, Set

4 4000006-H



K2 Ground Lug, 13mm Hex Set

6 4000960



ILSCO Lug


7 4000083



MLPE, Module Frame Mount, Kit

# Assembly

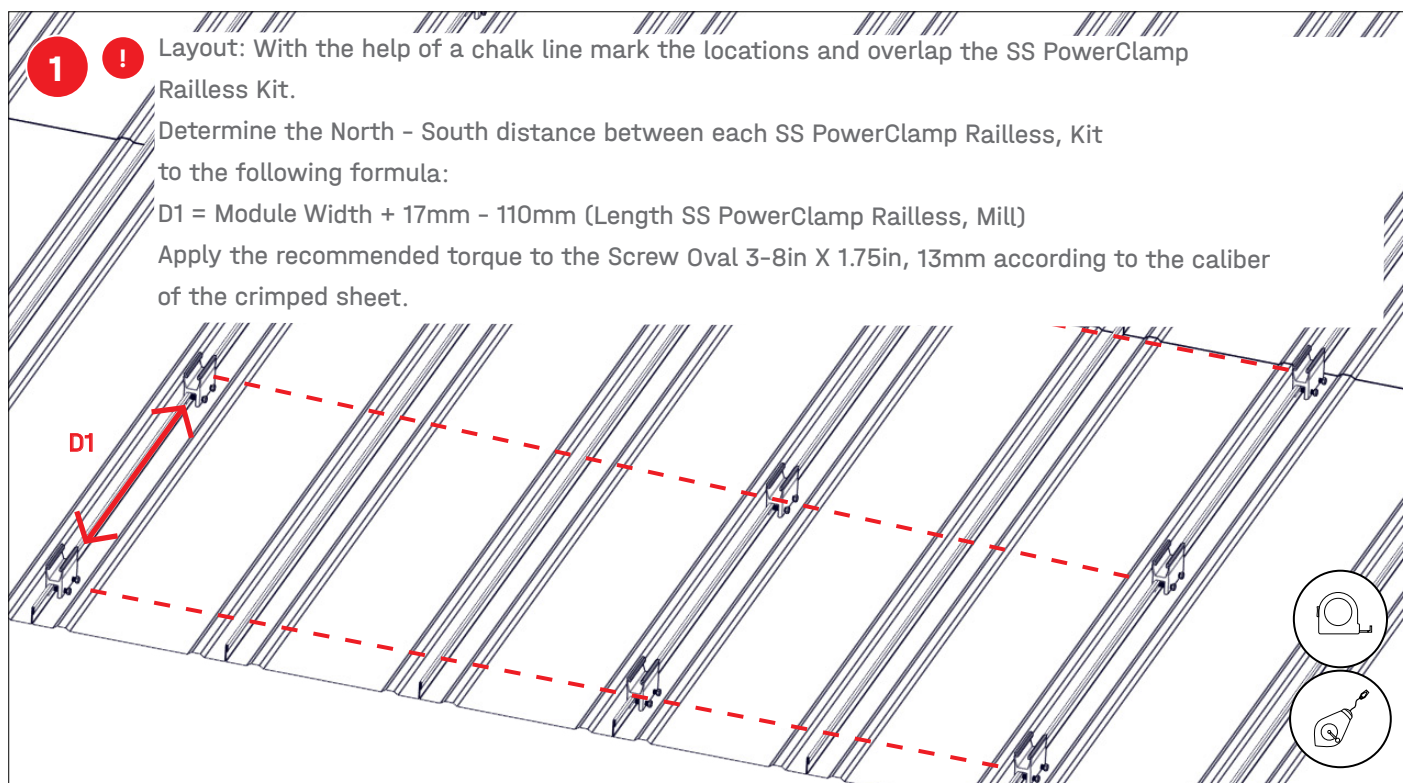
## Standing Seam


**1**  Layout: With the help of a chalk line mark the locations and overlap the SS PowerClamp Railless Kit.

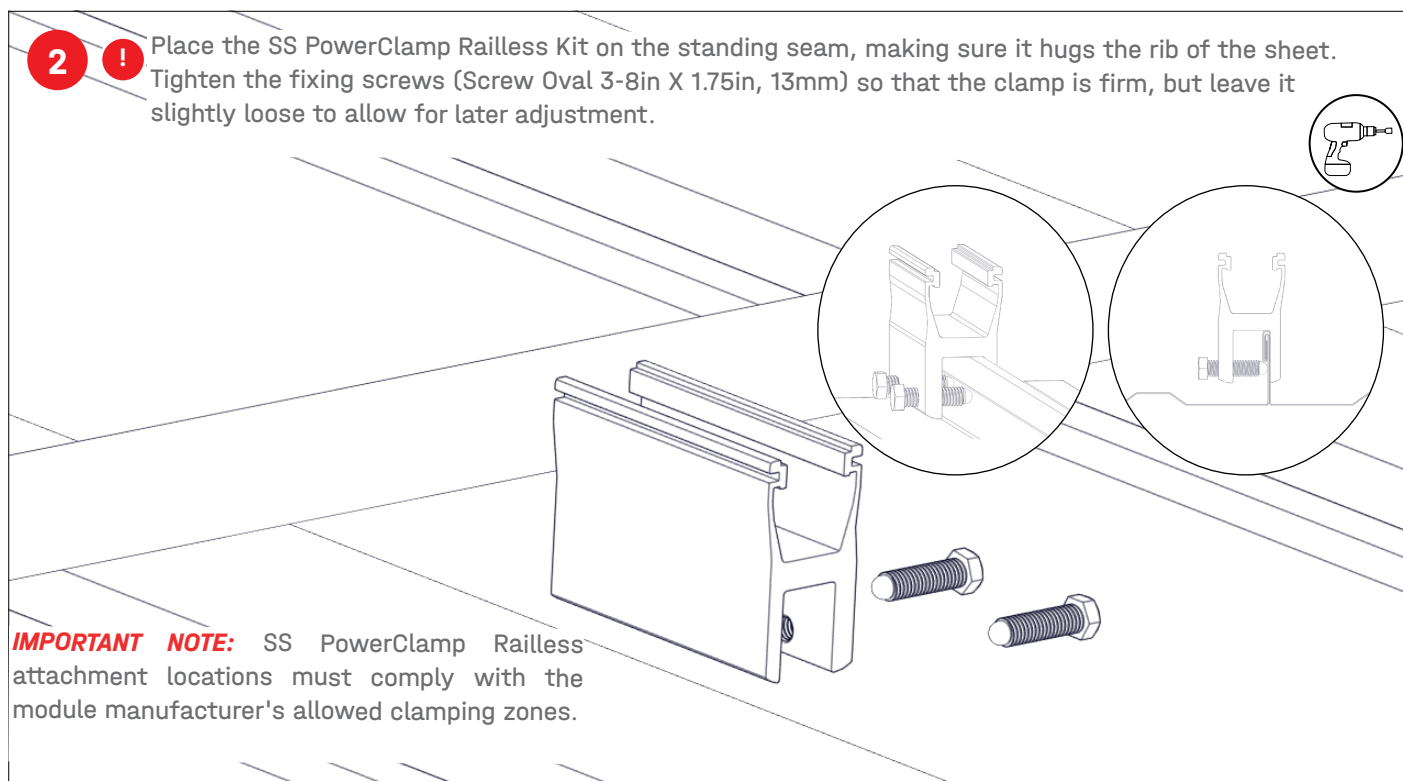
Determine the North - South distance between each SS PowerClamp Railless, Kit to the following formula:

$$D1 = \text{Module Width} + 17\text{mm} - 110\text{mm (Length SS PowerClamp Railless, Mill)}$$

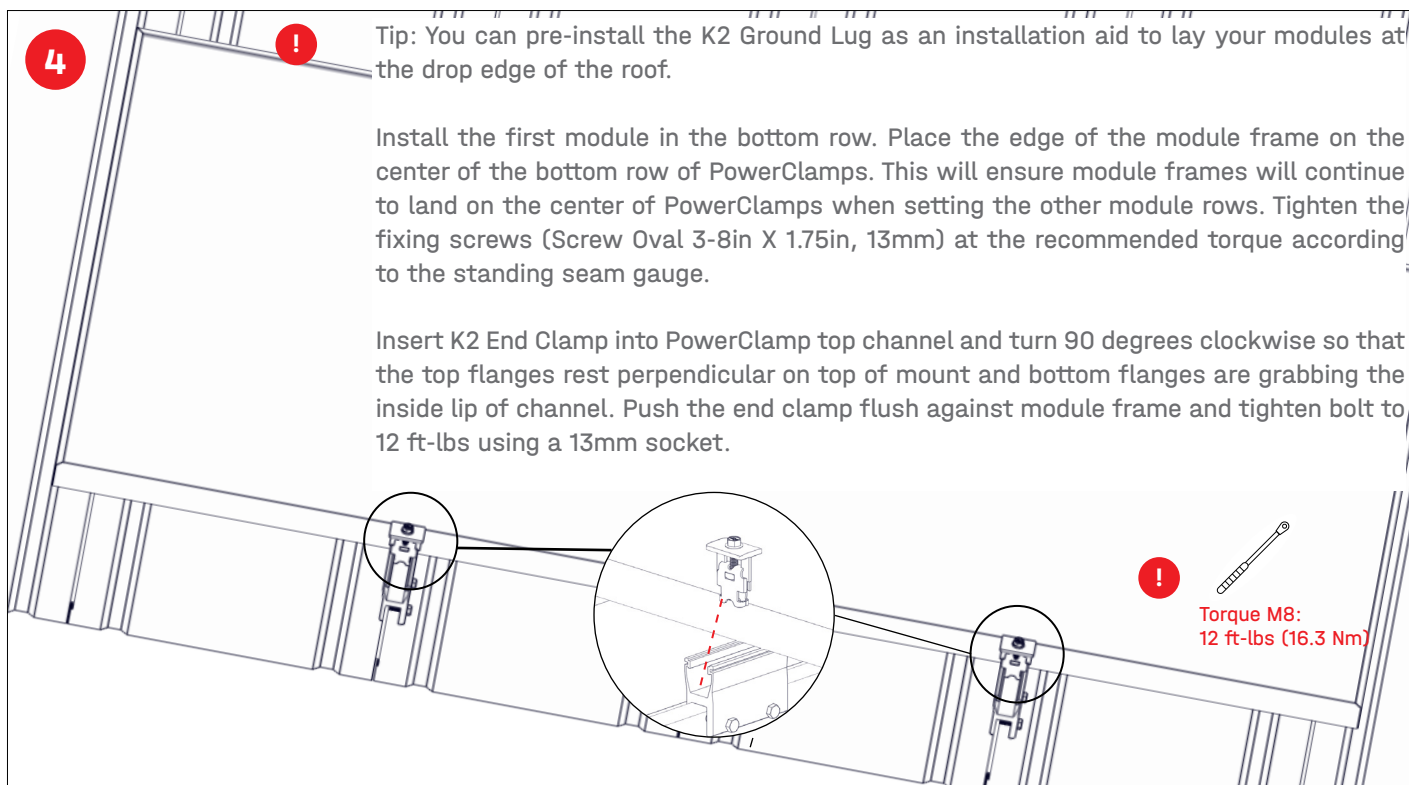
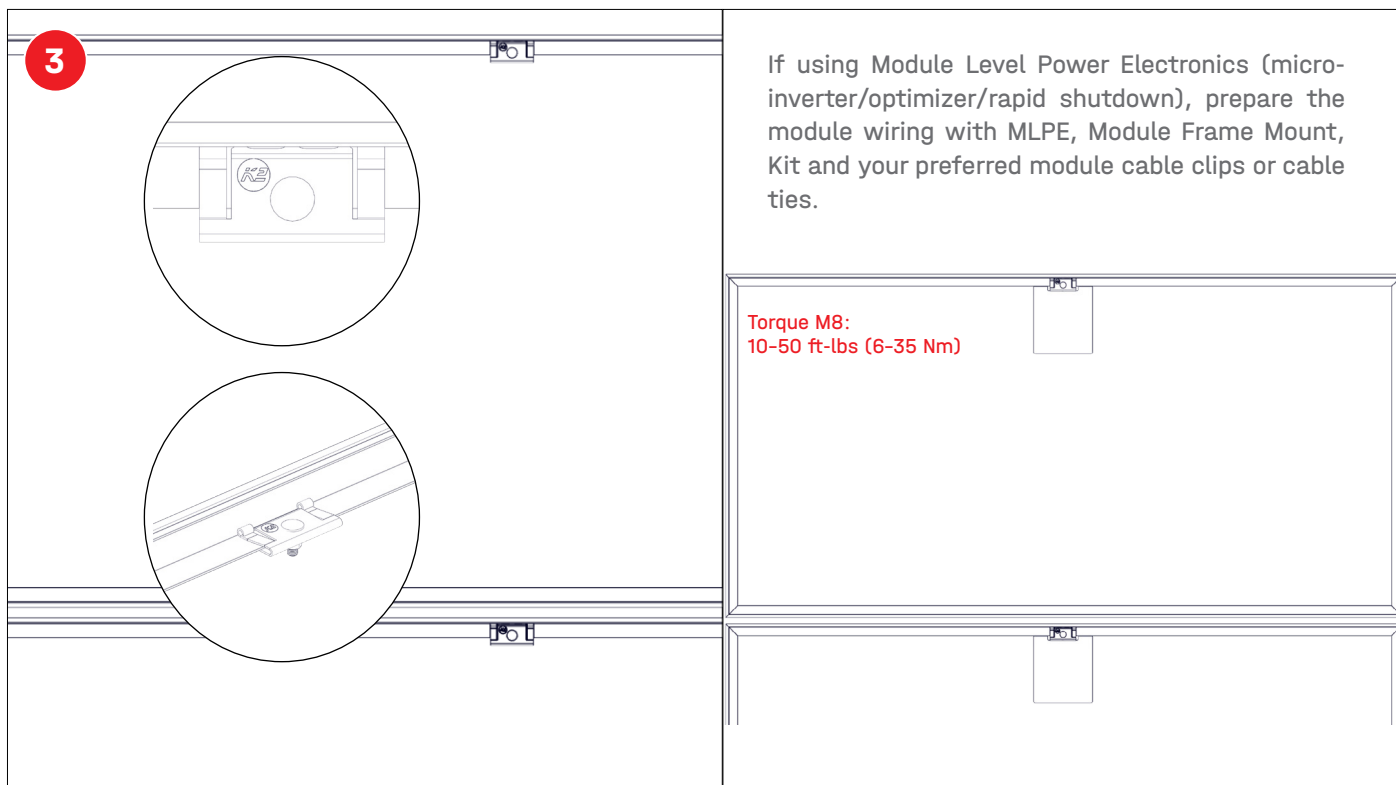
Apply the recommended torque to the Screw Oval 3-8in X 1.75in, 13mm according to the caliber of the crimped sheet.



**2**  Place the SS PowerClamp Railless Kit on the standing seam, making sure it hugs the rib of the sheet. Tighten the fixing screws (Screw Oval 3-8in X 1.75in, 13mm) so that the clamp is firm, but leave it slightly loose to allow for later adjustment.

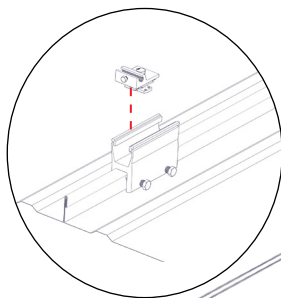


**IMPORTANT NOTE:** SS PowerClamp Railless attachment locations must comply with the module manufacturer's allowed clamping zones.

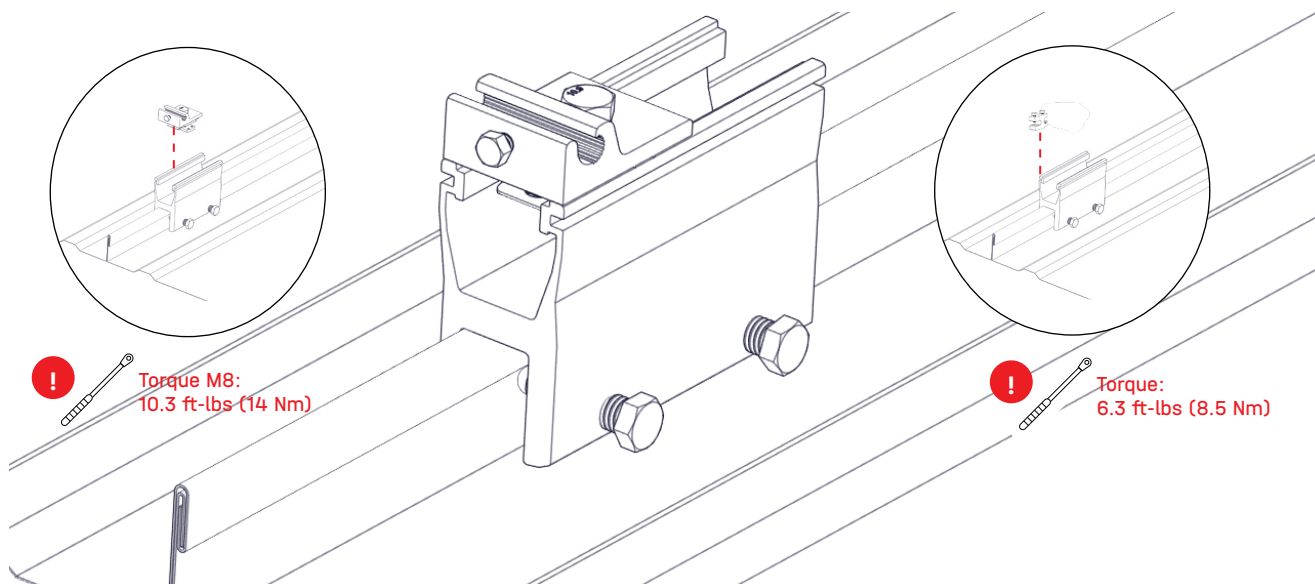


5

! Insert MK3 Nut of K2 Ground Lug by slightly pinching the plastic tabs upward between your fingers and rotating 90 degrees clockwise to seat the MK3 Nut perpendicular to the PowerClamp channel. This will ensure the bonding teeth on the MK3 are biting into the inside lip of the channel. Tighten the M8 bolt to 10.3 ft-lbs. You can use the ILSCO Lug if you prefer. Torque to 6.3 ft-lbs.



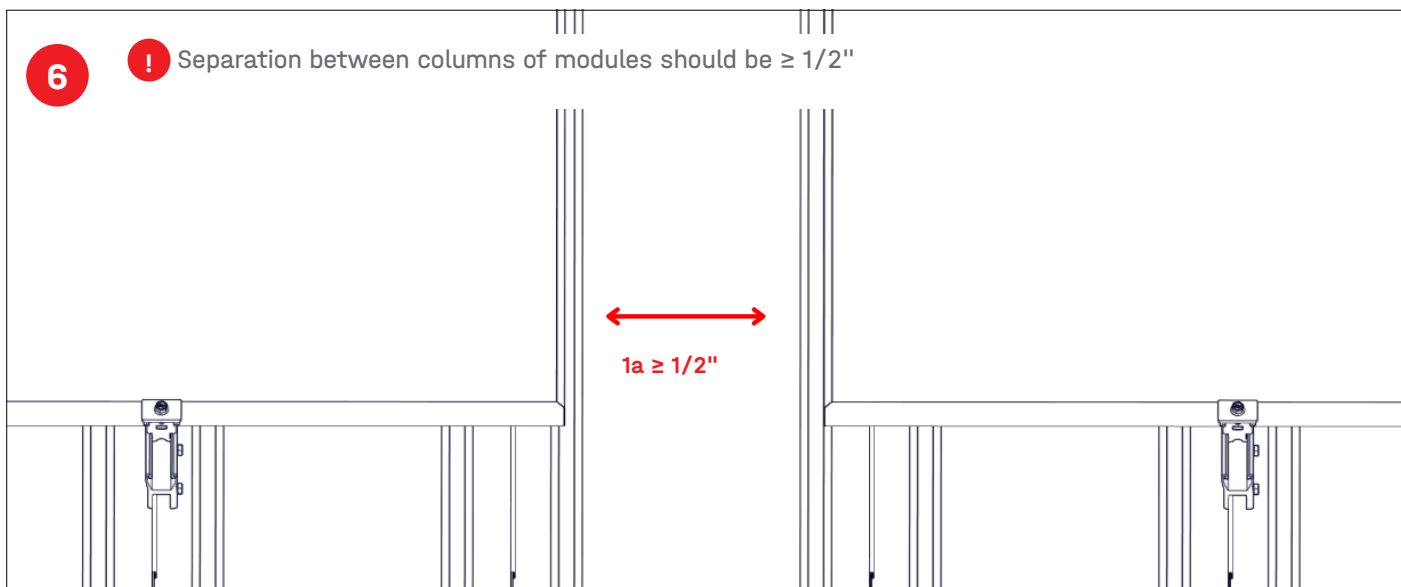
Torque M8:  
10.3 ft-lbs (14 Nm)



Torque:  
6.3 ft-lbs (8.5 Nm)

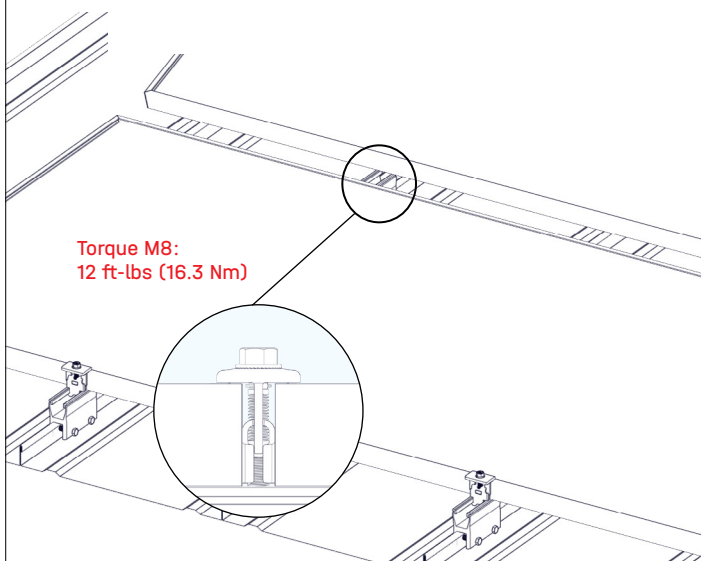
6

! Separation between columns of modules should be  $\geq 1/2''$

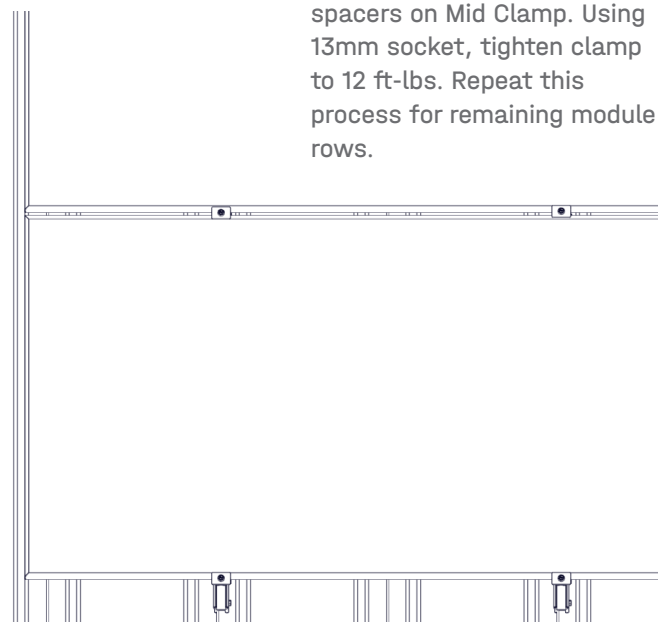


**IMPORTANT NOTE:** The East-West separation between each SS PowerClamp Railless Kit must comply with the clamping zones of the solar photovoltaic module being installed.

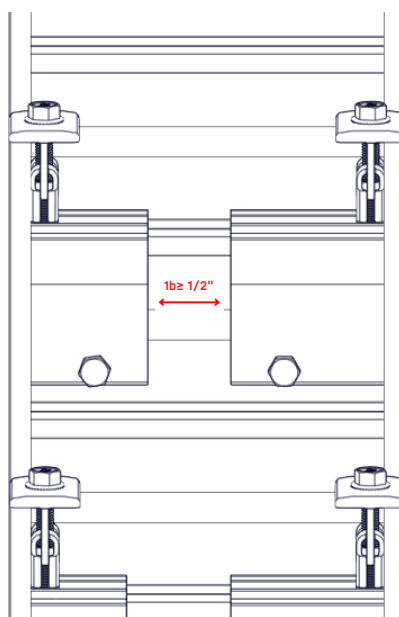
- 7** Install second row of modules. Pre-install K2 Mid Clamps into PowerClamp Railless channels the same way as K2 End Clamp. Insert bottom of clamp, rotate one quarter turn clockwise and push flush against frames of 1st module row.



- !** Slide 2nd module into place, ensure module edges align and frames are flush with spacers on Mid Clamp. Using 13mm socket, tighten clamp to 12 ft-lbs. Repeat this process for remaining module rows.



- 8** **!** A thermal break is required for continuous columns that exceed 45 feet. Install new row of SS PowerClamp Railless with at least 1/2" of separation from the adjacent row.

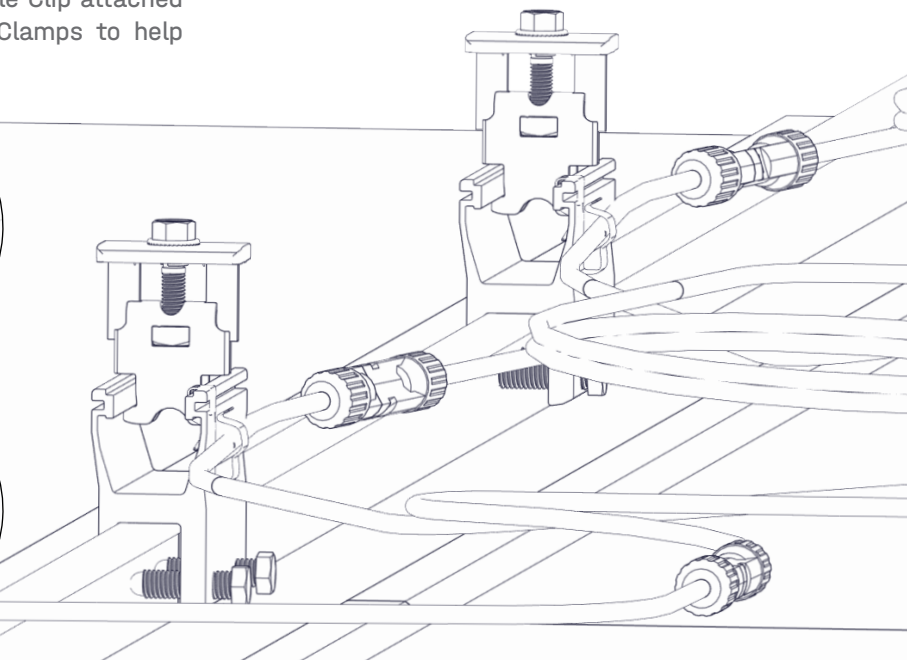
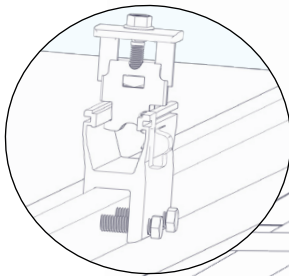
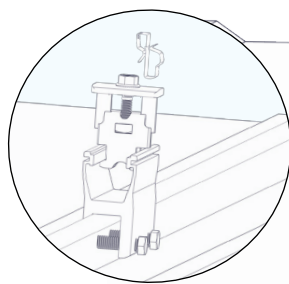


9a



Wire Management :

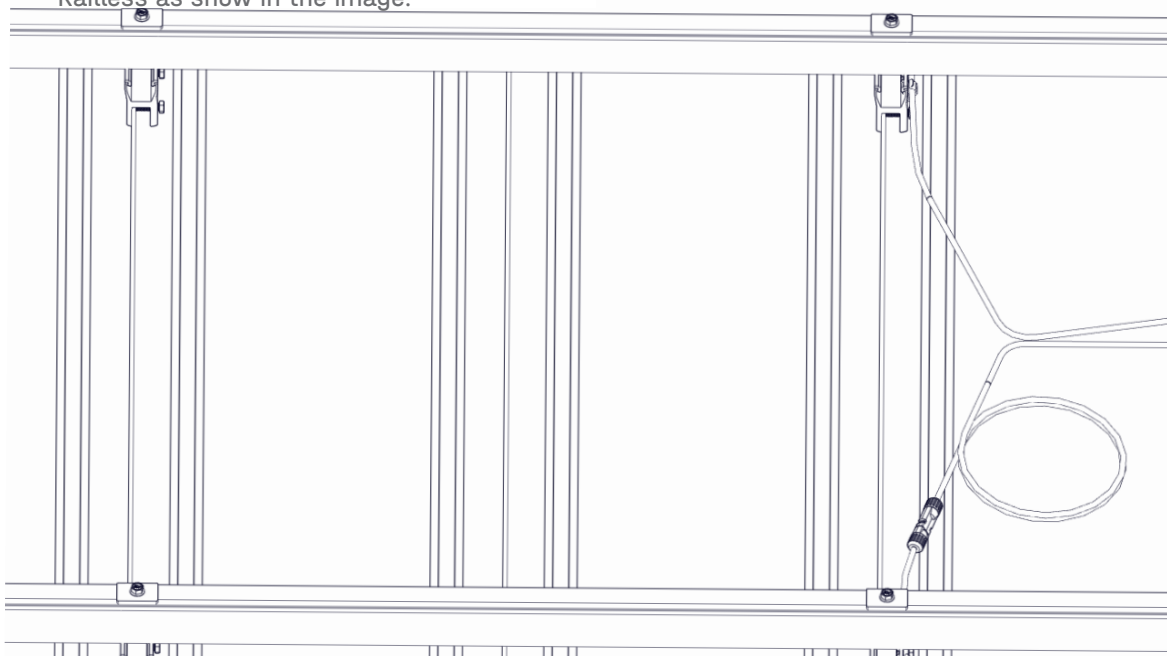
Use HeyClip SunRunner Cable Clip attached to the side wall of PowerClamps to help manage wires.



9b



Pass the cable through each SS PowerClamp Railless as show in the image.



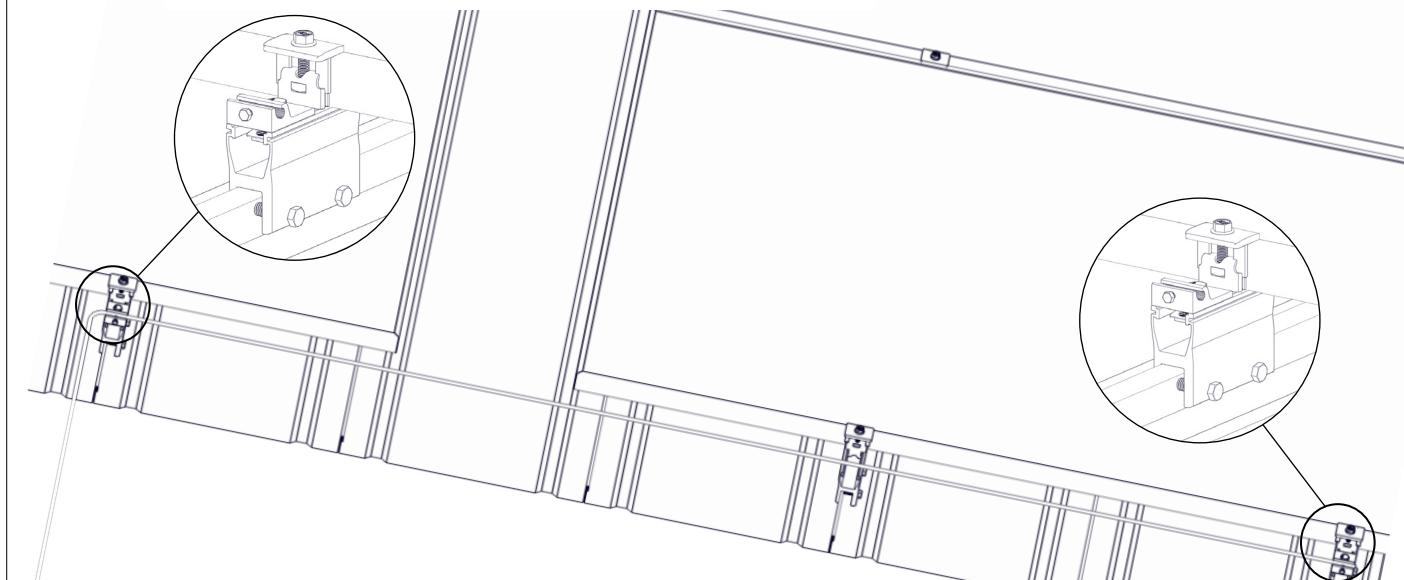
10



Repeat installation of grounding wire to bond and ground each separate column of modules. Place bare wire into the terminal screw channel, using a 7/16" socket, tighten screw to 3-5 ft-lbs depending on wire gauge and type. Install one lug per column of modules.



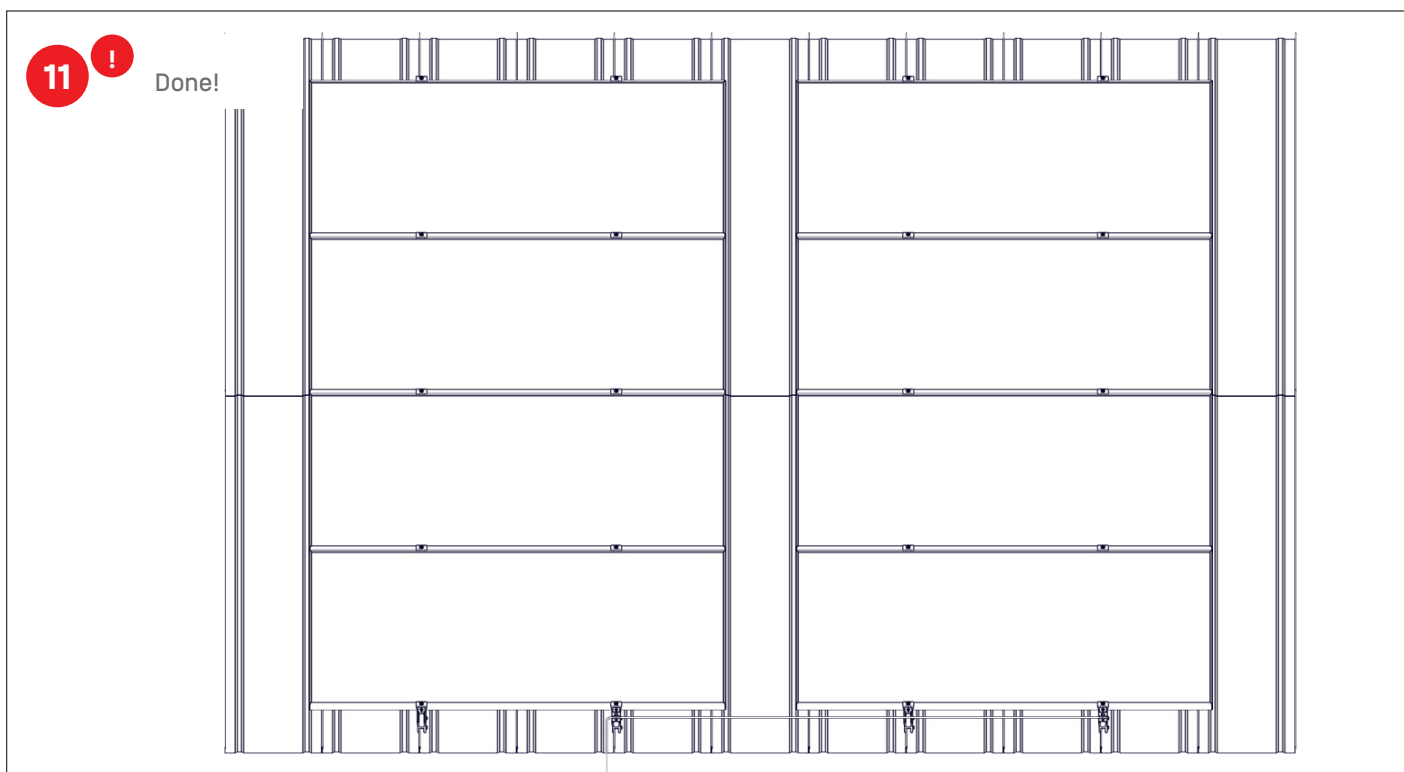
Torque M8:  
10.3ft-lbs (14 Nm)



11



Done!



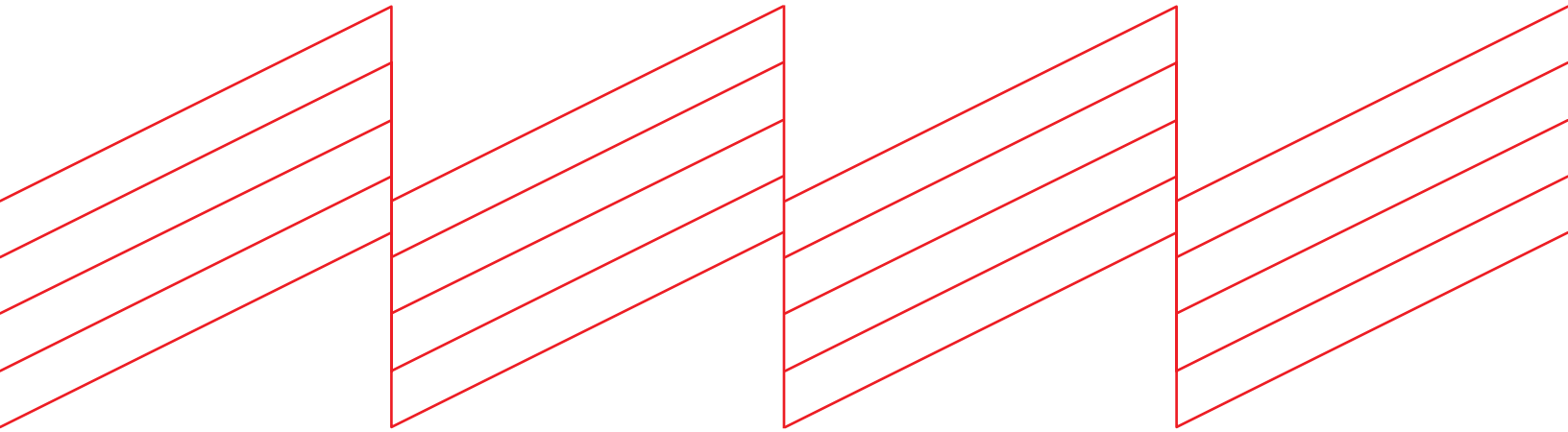








# Connecting Strength



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[www.k2-systems.com](http://www.k2-systems.com)

SS PowerClamp Railless System V2 | 0224 • Subject to change  
Product illustrations are exemplary and may differ from the original.