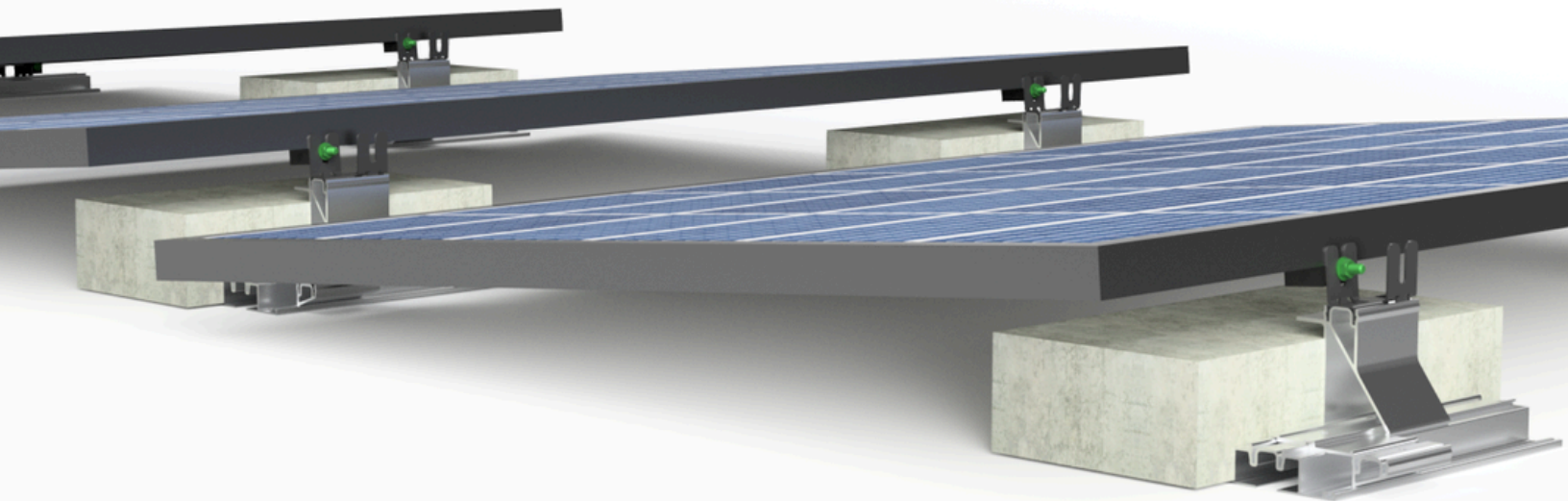




Revolutionary Solar Racking Systems



MultiBallast DB Series INSTALL INSTRUCTIONS

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IntegraRack® backs all products with a 25 year limited product warranty. We fully stand behind the quality, materials, and manufacturing process used. We also guarantee our products will hold up under the harshest conditions when properly installed.

Disclaimer

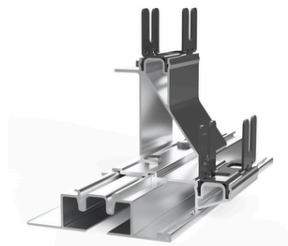
The instructions detailed in this manual will provide the knowledge and requirements necessary for proper installation of the given product. Be sure to read them thoroughly and make sure that you fully understand them before proceeding with installation. Any improper use or installation of these products will void any and all warranty coverage, and may cause failure, property damage or personal injury. IntegraRack is not responsible for any damages caused by improper use.

IT IS THE RESPONSIBILITY OF THE INSTALLER TO:

- Comply with any and all applicable local or national codes and regulations.
- Ensure all products are appropriate for the installation according to the environmental and loading conditions.
- Ensure roof structure is in good condition prior to installation
- Disconnect AC power before servicing or removing panels, micro-inverters or power optimizers.
- Review manufacturer's documentation for compatibility and compliance for solar panels and 3rd party systems.
- If loose components or loose fasteners are found during periodic inspection, re-tighten immediately. Any components showing signs of corrosion or damage that compromise safety shall be replaced immediately.
- Provide an appropriate method of direct-to-earth grounding according to the latest edition of the National Electrical Code, including NEC 250: Electrical Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.
- Ensure safe installation of all electrical aspects of the solar system (All electrical installation and procedures should be conducted by a licensed and bonded electrician or solar contractor). Regular maintenance of a panel or panels shall not involve breaking or disturbing the bonding path of the system. All work must comply with national, state and local installation procedures, product and safety standards.
- Ensure bare copper grounding wire does not contact aluminum and zinc-plated steel components, to prevent risk of galvanic corrosion.
- Ensure provided information is accurate. Issues resulting from inaccurate information are the installer's responsibility.

Included Components & Required Tools

Included Components

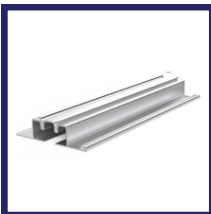


IR-00MBDB Included Components

- (2) DB Series Base Mounts (w/ H Module Mounting Brackets)
- (2) Full-Length Rubber Grip Strips
- (4) IR-F2 Flange Clamp Bonding Brackets

IR-05MBDB Included Components

- (2) DB Series Base Mounts
- (2) DB Series Lower Offset Brackets (w/ H Module Brackets Installed)
- (2) DB Series Riser Brackets (w/ H Module Brackets Installed)
- (4) Partial Length Rubber Grip Strips
- (2) Full Length Rubber Grip Strips
- (4) IR-F2 Flange Clamp Bonding Brackets
- (4) "A" Bolts
- (2) "B" Bolts
- (2) 40x40mm 3M Double Stick Squares
- (4) 40x40mm 3M Anti-Slip Rubber Pads



DB Series Base Mount



DB Series Lower Offset Bracket



DB Series Riser Bracket



H Module Mounting Bracket



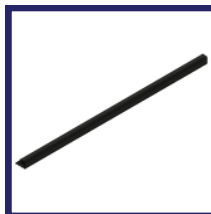
IR-F2 Solar Panel Flange Clamp Bonding Bracket



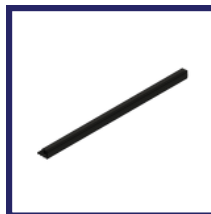
"A" Bolt (10mm)



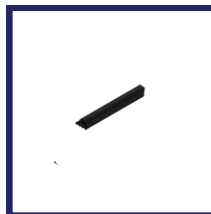
"B" Bolt (20mm)



Full-Length Rubber Grip Strip



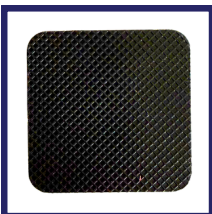
Long Rubber Grip Strip



Short Rubber Grip Strip



3M Double Stick Square



3M Anti-Slip Rubber Pad

Adhesive Bonding Install - Required Materials (Not Included)

IR-00MBDB

- (1) Tube of SikaFlex 1A Polyurethane Sealant for every ten mounts

IR-05MBDB

- (1) Tube of SikaFlex 1A Polyurethane Sealant for every ten mounts
- (1) IntegraRack Wind Spoiler Per Solar Panel (**Optional**)

Optional Ballasted Install - Required Materials (Not Included)

*No Adhesive Bonding Required

IR-00MBDB

- No ballasting options available

IR-05MBDB

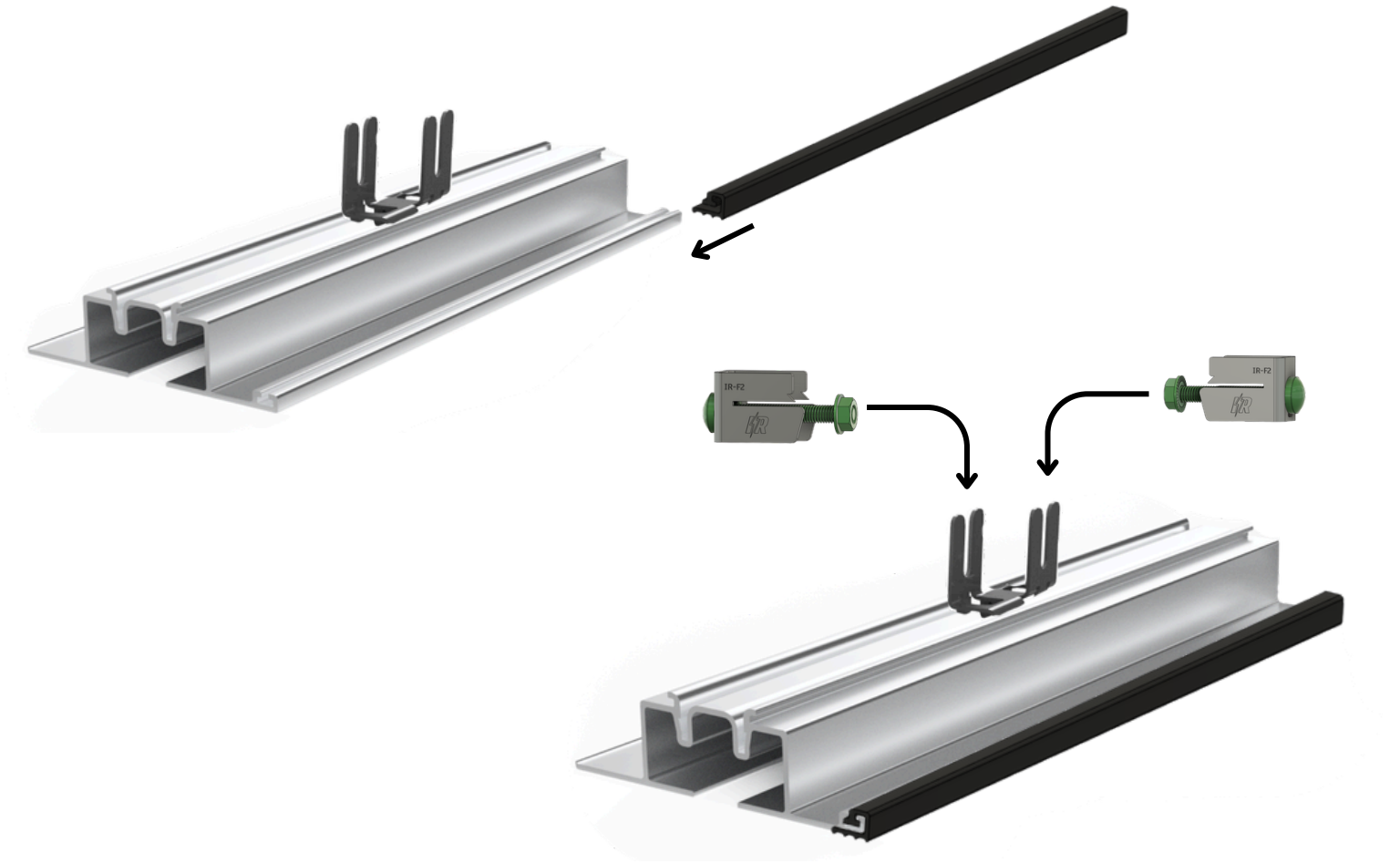
- (2) CMU Blocks Per Kit
- (1) IntegraRack Wind Spoiler Per Solar Panel (**Optional**)

Required Tools

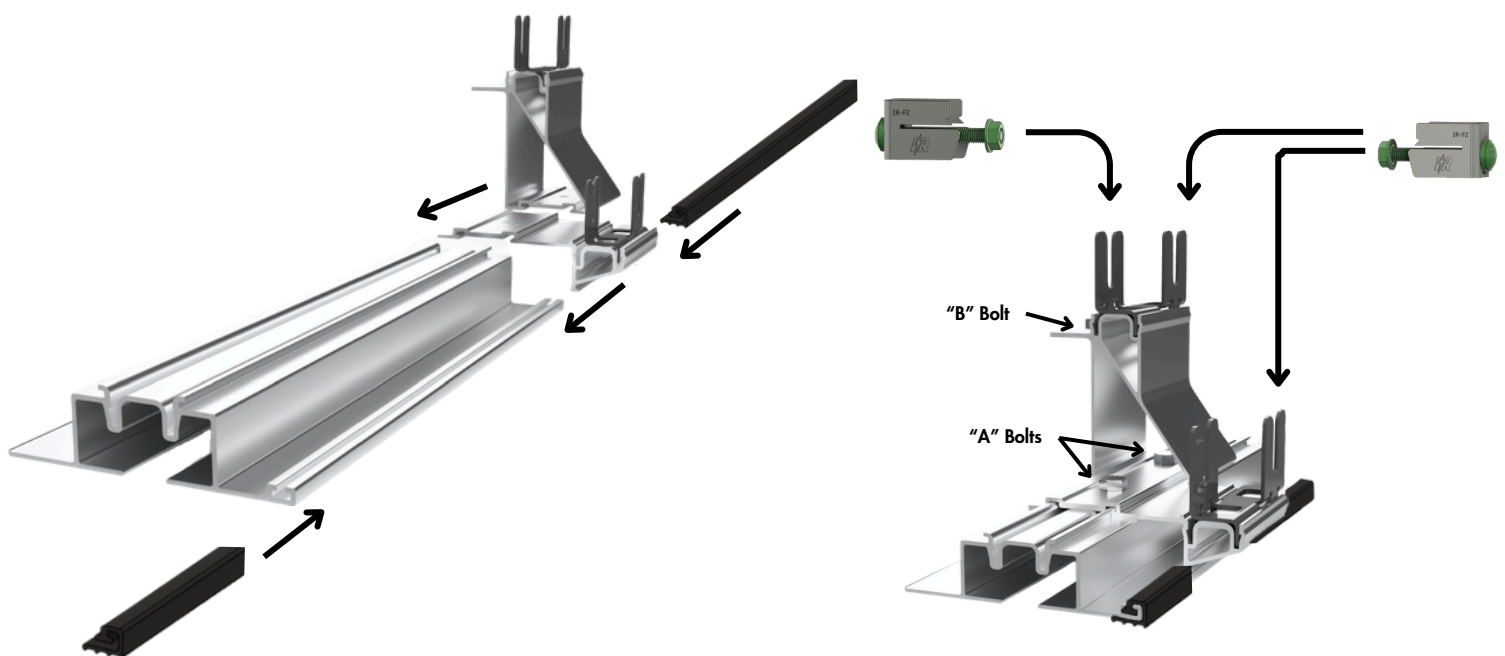
- ½" (13mm) Ratchet Wrench
- Line Chalk
- Tape Measure

Assembly & Fastener Locations

IR-00MBDB MultiBallast DB Series



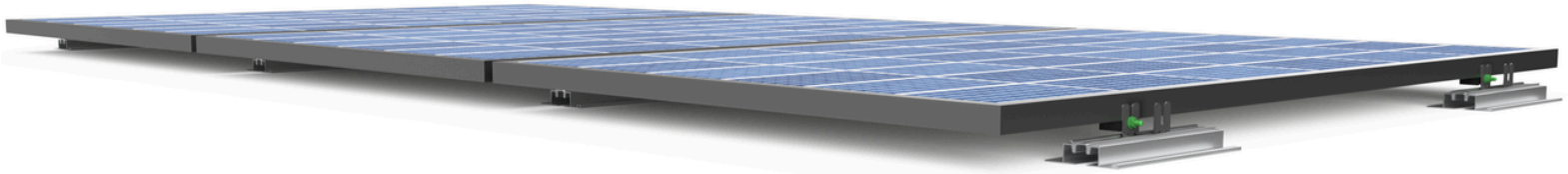
IR-05MBDB MultiBallast DB Series



MultiBallast DB Series Configurations

Configurations

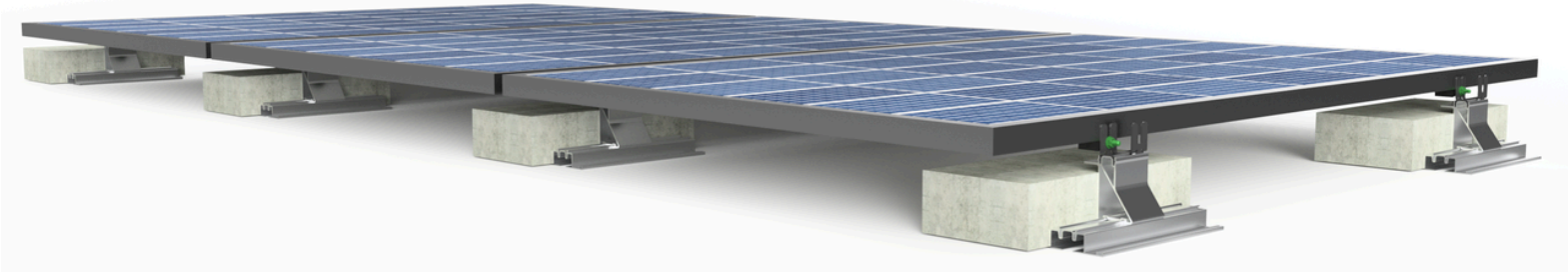
IR-00MBDB MultiBallast DB Series



0° Flat Configuration (Adhesive Bonding Install Only)

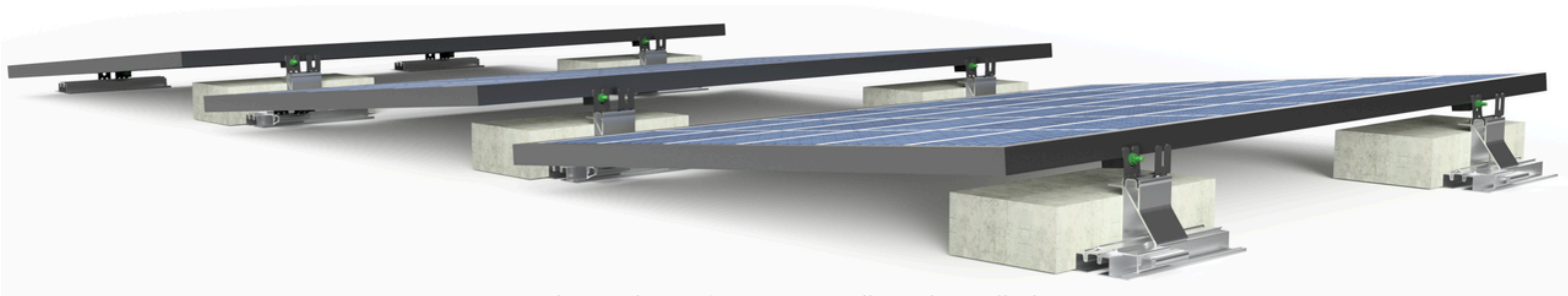
The 0° Flat Configuration can only be installed with SikaFlex 1A Polyurethane Adhesive

IR-05MBDB MultiBallast DB Series



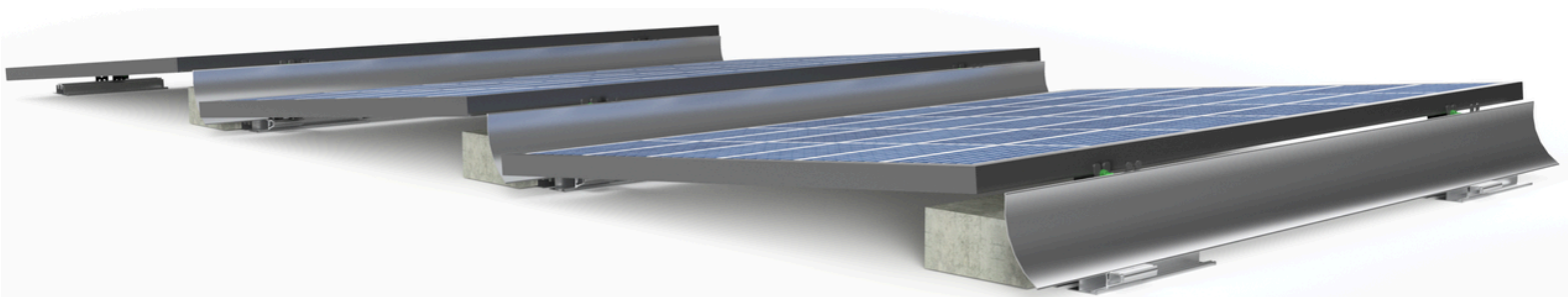
0° Raised Flat Configuration (Ballasted Install Only)

The 0° Raised Flat Configuration is only meant to be ballasted with standard CMU blocks



5° North/South Configuration (Ballasted Install Shown)

The 5° North/South Configuration can be adhesively bonded with SikaFlex 1A Polyurethane Adhesive or optionally ballasted with standard CMU blocks



5° North/South Configuration w/ Optional Wind Spoiler (Ballasted Install Shown)

The 5° North/South Configuration can be adhesively bonded with SikaFlex 1A Polyurethane Adhesive or optionally ballasted with standard CMU blocks

IR-00MBDB + IR-05MBDB MultiBallast DB Series



5° East/West 'W' Configuration (Adhesive Bonding Install Only)

The 5° East/West 'W' Configuration can only be installed with SikaFlex 1A Polyurethane Adhesive

Compatible Roof Types



Asbestos / Cement Board Roofs



Corrugated Metal Roofs



Clay / Concrete / Composite / Tile Roofs



TPO / Concrete / Asphalt Roofs

Roof Restrictions

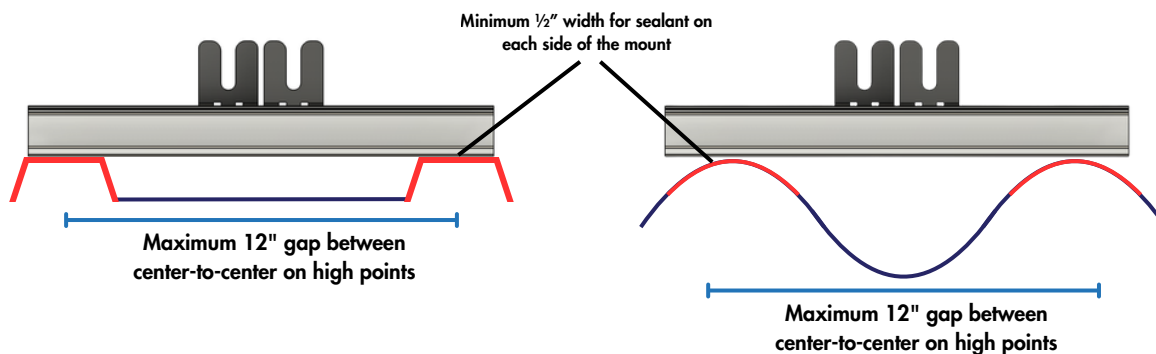
Maximum Roof Pitch

Adhesively Bonded Install
35% MAX PITCH

Ballasted Only Install
10% MAX PITCH

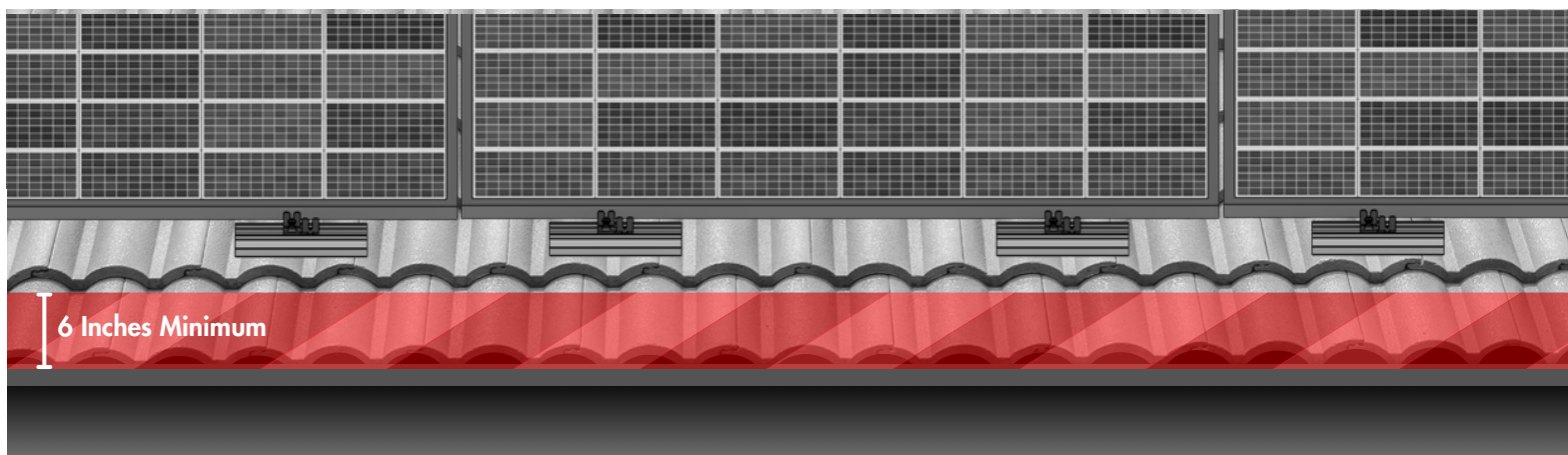
High Point Mounting

For non-flat roofs, such as tile and corrugated metal, all mounts must be installed on the high points. The IR MultiBallast DB Series cannot be installed if the high points are spaced more than 12 inches apart and the flat surface of the high point must be at least $\frac{1}{2}$ " wide to allow for the adhesive.



Exclusion Zones

When installing the IR MultiBallast DB Series, solar panels must be set back a minimum of 6 inches from the eaves or any roof edge, regardless of the roof type.

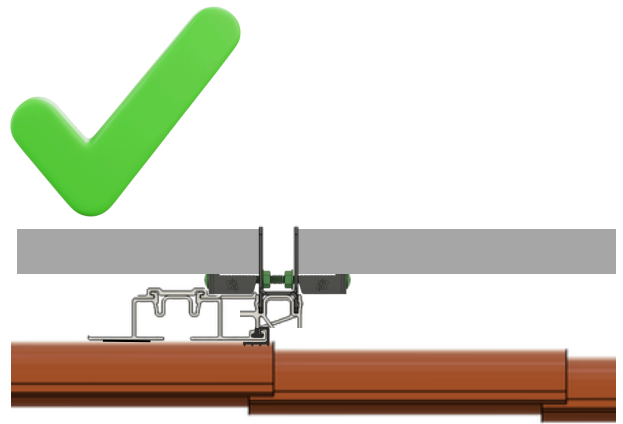
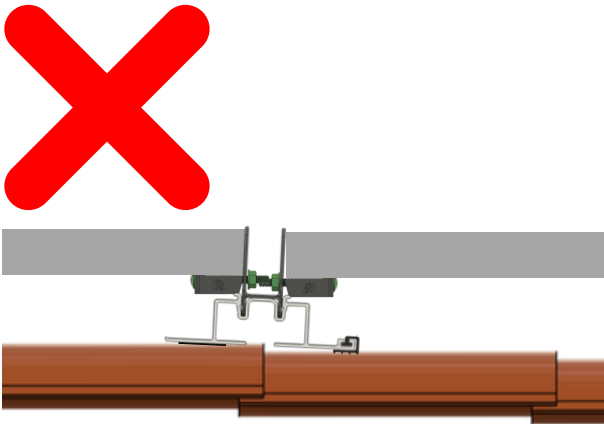
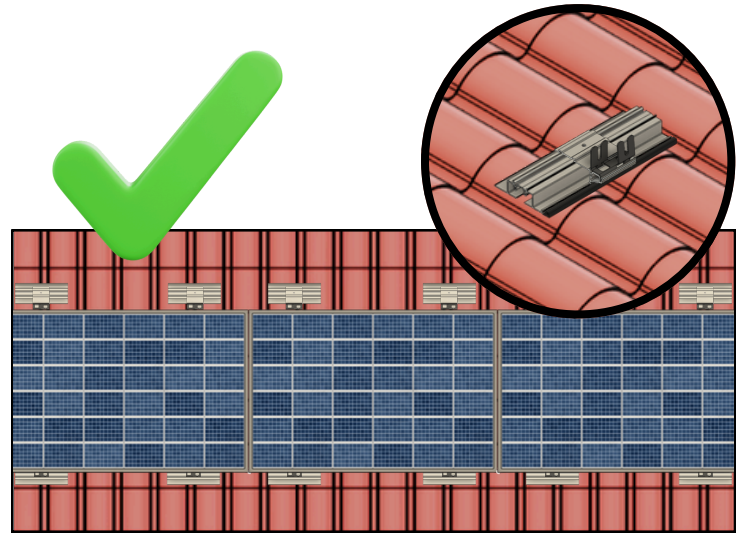
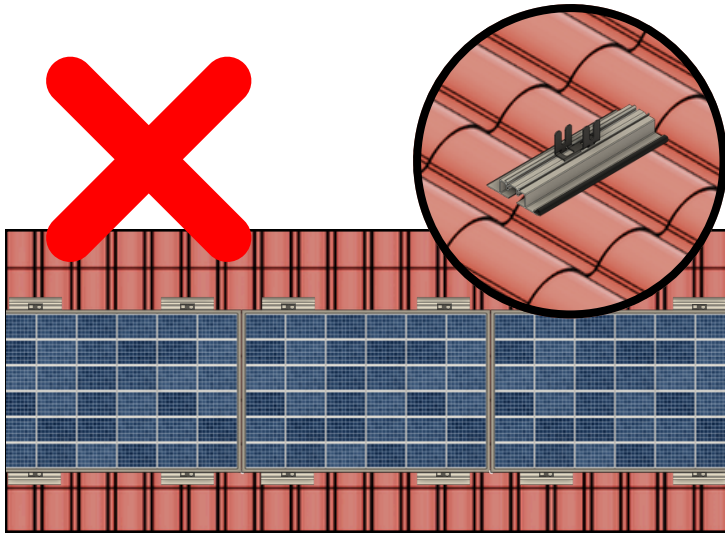


Tile Roof Guidelines

Tile Roof Offset

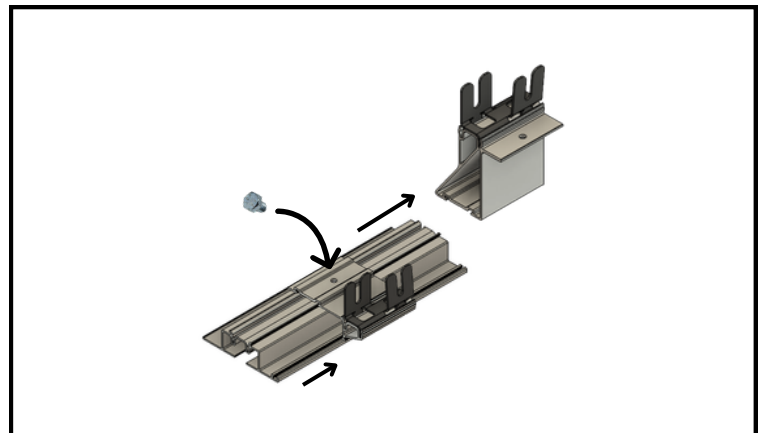
When installing the IR MultiBallast DB Series on a tile roof, some rows of mounts may land in between rows of tiles due to the width of your solar panels or the spacing of the roof tiles. The DB Series Base Mounts cannot be installed in between rows of tiles and all of them must be mounted flat on a single row of tiles without overhanging the next row of tiles (see example below).

If installing on a tile roof with the IR-00MBDB MultiBallast system, we recommend ordering some extra IR-05MBDB MultiBallast Kits so the included Lower Offset Bracket can be used to adjust the mounting point of the Base Mount just over 2 inches up or down and should solve all situations.



Converting IR-05MBDB Into Tile Offset Bracket

Slide the Riser Bracket off of the Base Mount and slide the Lower Offset Bracket into the center of the Base Mount and use a ½" (13mm) wrench to lock it in place with 1x "A" Bolt.



Adhesive Bonding & Ballasting Guidelines

Adhesive Bonding Restrictions

*No Ballasting Required

Up to 10 Base Mounts can be adhesively bonded to the roof surface using one tube of SikaFlex 1A Polyurethane Sealant. Using a standard caulk gun, apply two 4 inch long beads of adhesive (on the high points of the roof if applicable) under each end of the Base Mounts (four 4 inch beads per mount).



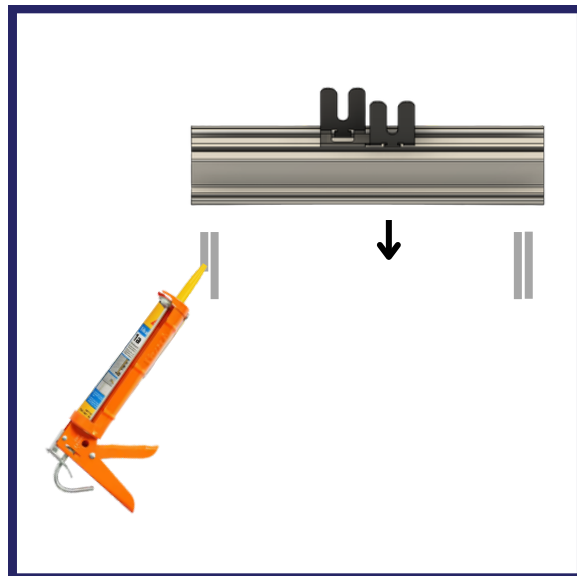
IMPORTANT:

SikaFlex 1A Technical Specs



Minimum Storage Temp: 40-95°F (4-35°C)

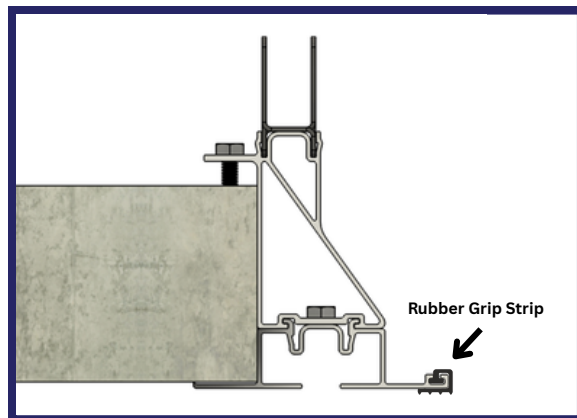
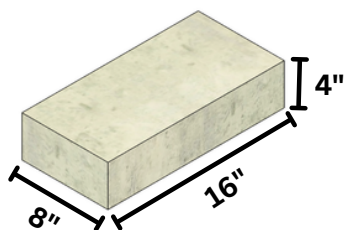
Cure Time: 4-7 days (73°F / 50% r.h.)



CMU Block Dimensions - IR-05MBDB Only

*No Adhesive Bonding Required

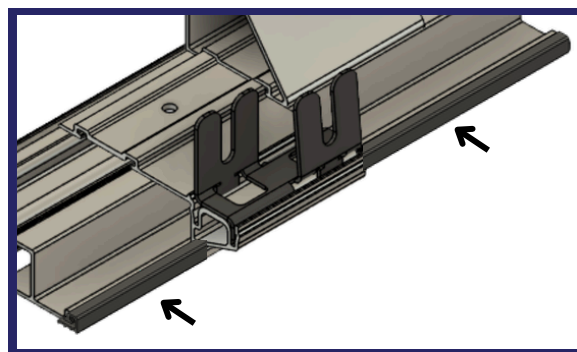
Each IR-05MBDB mount can be ballasted with a standard CMU block (two for each kit). The CMU block must always be mounted opposite of the Rubber Grip Strip.



Rubber Grip Strips & Anti-Slip Pads

Rubber Grip Strips

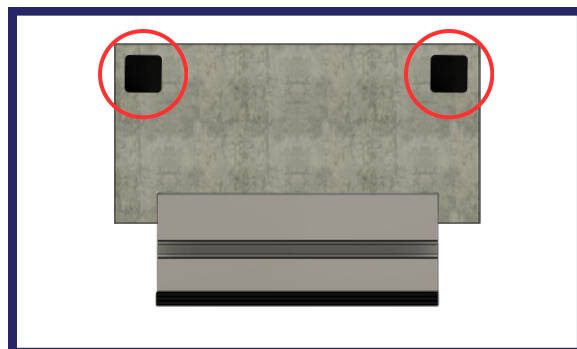
The included Rubber Grip Strips are required for all pitched roof installations to provide the necessary anti-slip grip to prevent the solar array from sliding off the roof while the system is being installed, and also during the adhesive curing process.



Rubber Anti-Slip Pads

The included 3M Anti-Slip Grip Pads are for use under the ballast blocks, where the ballast blocks contact the roofing material.

Note: TPO roofs require full size roofing material slip sheets under each mount



UL 2703 & Mounting Restrictions

UL 2703 Compliance

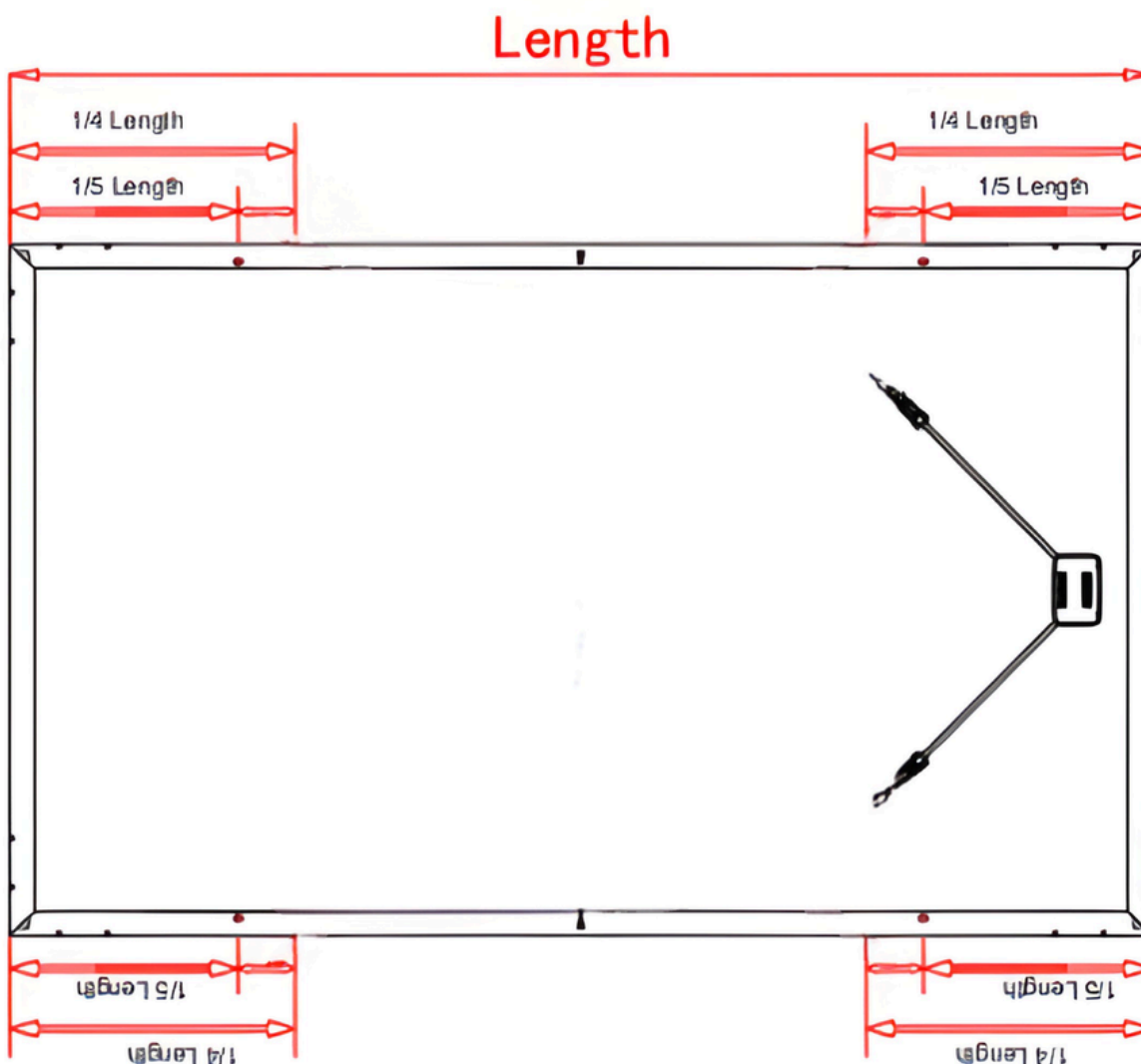
If UL 2703 compliance is required for your system you will need additional electrical bonding between each PV module using a UL 2703 recognized bonding jumper. IntegraRack offers IR=B1 bonding jumpers in 8 and 12 inch lengths as a solution for systems that require UL 2703 compliance.

The IR-F2 Flange Clamp Bonding Bracket has been evaluated by UL to ensure compliance with the bonding and grounding requirements has been met. As specified in UL 61730-1 5.2.3DV, PV modules are considered to be in compliance with the mechanical loading and bonding and grounding requirements of UL 61730-1 when mounted, bonded and grounded in the manner specified by either the PV module mounting instructions, or the mounting system manufacturer's instructions when the mounting, bonding, and grounding means have been evaluated with the PV module to UL 2703.

Electrical Bonding Overcurrent Protection Rating: 25A

Mounting Restrictions

The IR-F2 can be mounted anywhere along the flange of the solar panel, but it is important to install this clamp in accordance with the solar panel manufacturer's recommended clamping zones, typically found in the installation instructions provided by the solar panel manufacturer. For most solar panels, the ideal clamping zone is $\frac{1}{4}$ of the solar panels length in from each end, leaving $\frac{1}{2}$ of the solar panels length between two of the clamps (see example below)



Site Preparation & Planning

Determining the Number of MultiBallast Kits Needed

IntegraRack MultiBallast Kits

All IntegraRack MultiBallast mounts are sold in "Per Solar Panel Kits". For most MultiBallast configuration you will need one kit for each installed solar panel plus one additional kit to start each column of solar panels. The MultiBallast DB (Direct Bond) Series is meant to be adhesively bonded to the roof surface using SikaFlex 1A, but the IR-05MBDB can optionally be install with a standard solid CMU block (Dimensions: 4x8x16") and no polyurethane would be required. The IntegraRack Wind Spoiler (sold separately) can be used for each solar panel installed on the 5° North/South Configuration.

How Many Kits Will You Need?

IR-00MBDB

- (1) IR-00MBDB Kit per solar panel
- (1) IR-00MBDB Kit to start each column

IR-05MBDB (0° Raised Flat)

- (1) IR-05MBDB Kit per solar panel
- (1) IR-05MBDB Kit to start each column

IR-05MBDB (5° North/South)

- (1) IR-05MBDB Kit per solar panel
- (1) IR-05MBDB Kit to start each column

IR-05MBDB + IR-00MBDB (5° 'W' Conf.)

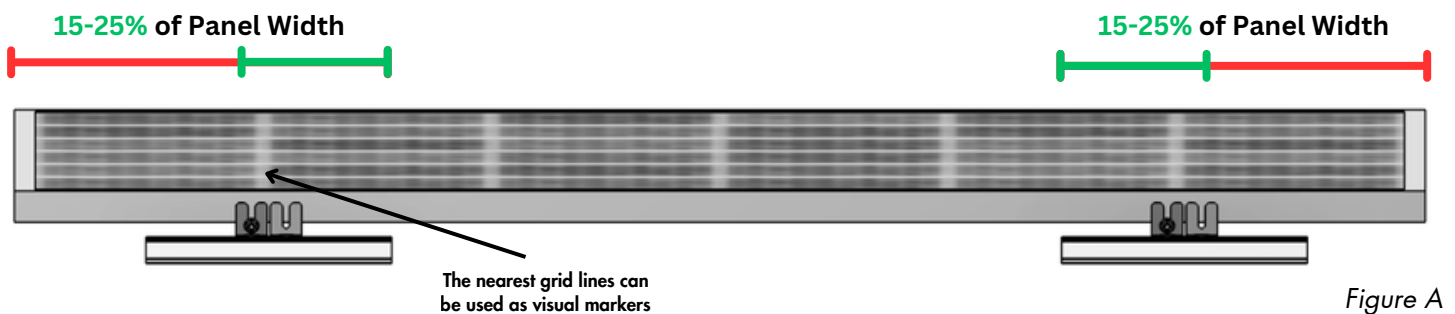
- (1) IR-00MBDB Kit for half of the solar panels
- (1) IR-05MBDB Kit for half of the solar panels
- (1) IR-00MBDB Kit to start each column

Planning the Layout of the Solar Array

MultiBallast Pair Spacing

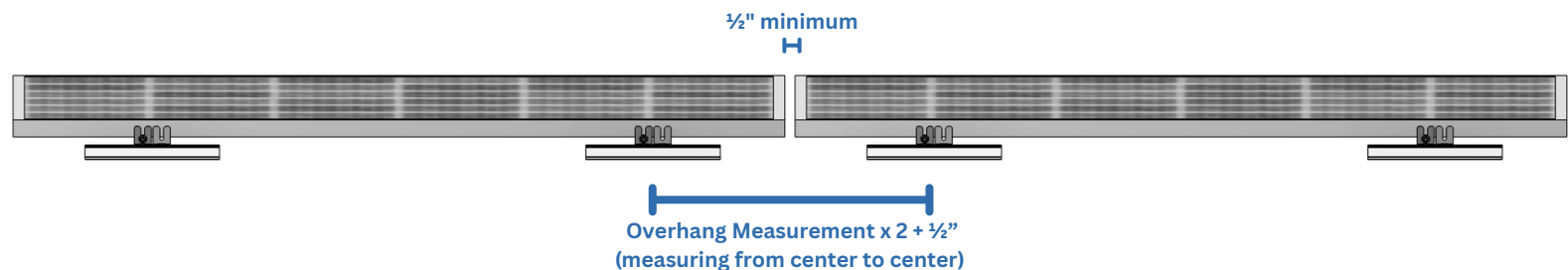
This system is designed to fit solar panels of any size in landscape orientation. The spacing measurement is the spacing between the pair of MultiBallast mounts in front of each panel and will be determined by the length of your panel and the manufacturer recommended mounting points (see Mounting Restrictions on page 11). The typical mounting points are going to be 15-25% of the length of your solar panel measuring from the nearest end (see Figure A). For easier calculations, place the center of the MultiBallast at the recommended mounting points according to the solar panel manufacturers specified mounting points.

**In order to meet the expected wind and snow load ratings, the overhang of your solar panel should never exceed 25% of its total length.*



Spacing Between MultiBallast Pairs

To determine the spacing between columns, you will need to use the overhang measurement from the previous step. Multiply the overhang measurement by 2 and add the required $\frac{1}{2}$ " minimum space in between the panels. This spacing measurement will be from center to center of the MultiBallast mounts.



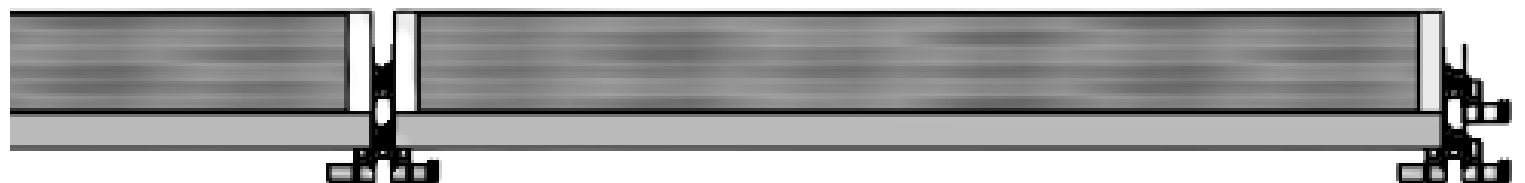
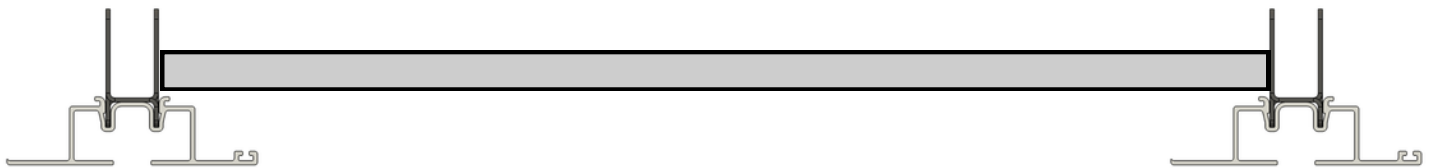
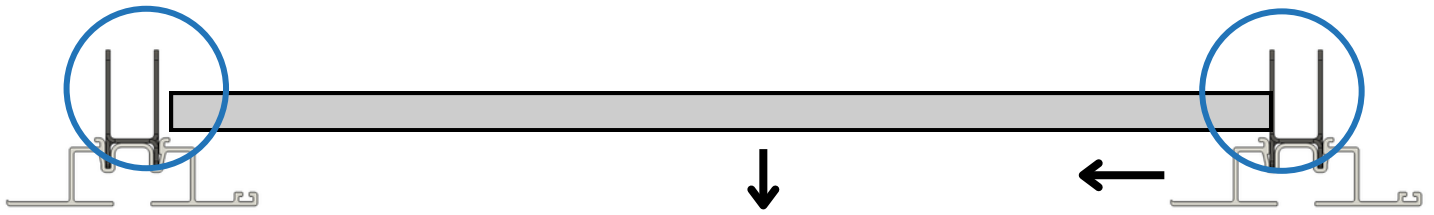
Site Preparation

Prepping The Roof Surface (Adhesive Bonding)

The roof surface must be cleaned with rubbing alcohol before bonding the mounts with polyurethane adhesive.

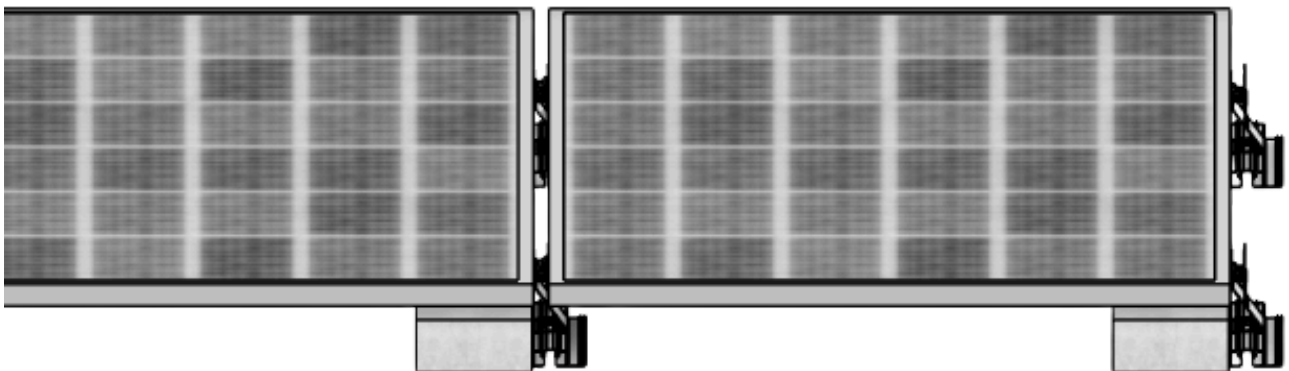
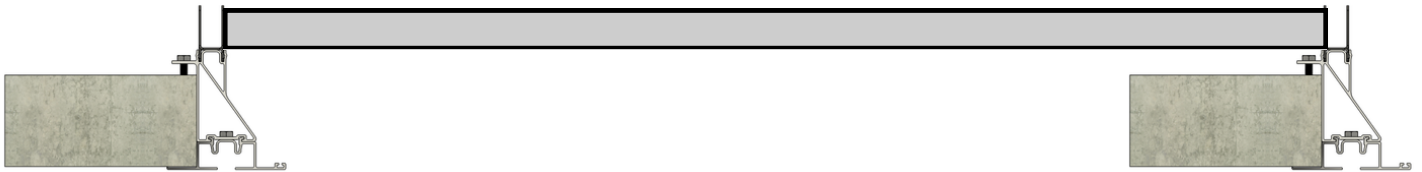
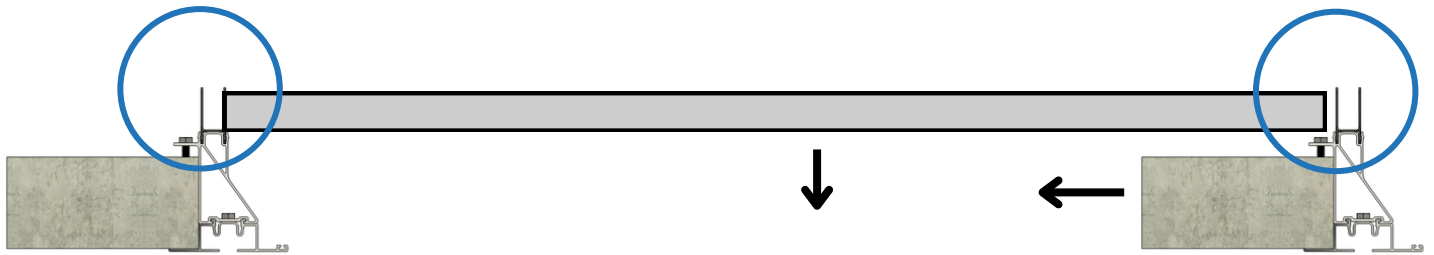
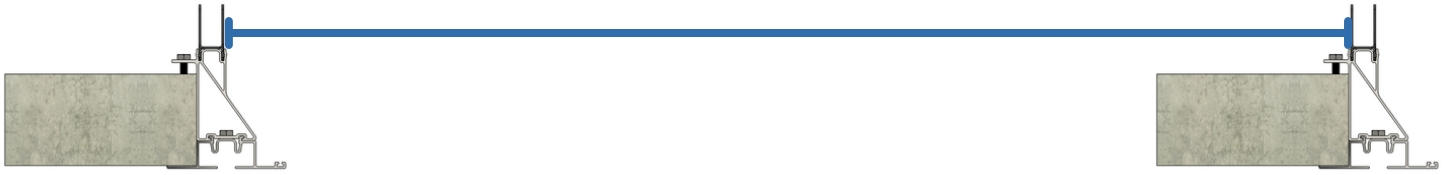
Solar Panel Spacing

IR-00MBDB - 0° Flat Configuration



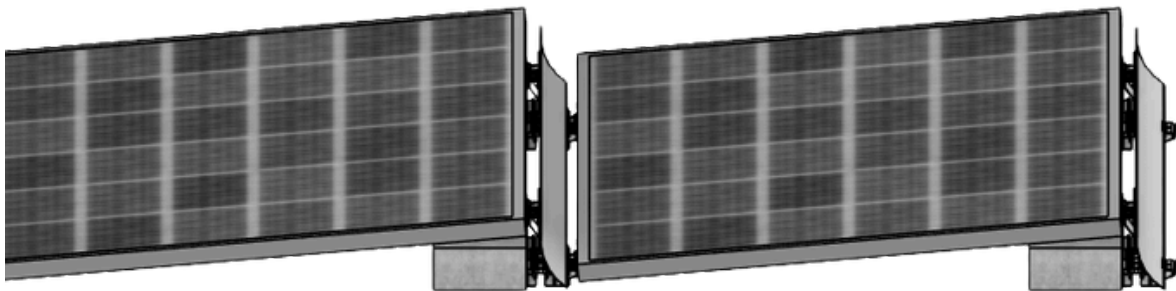
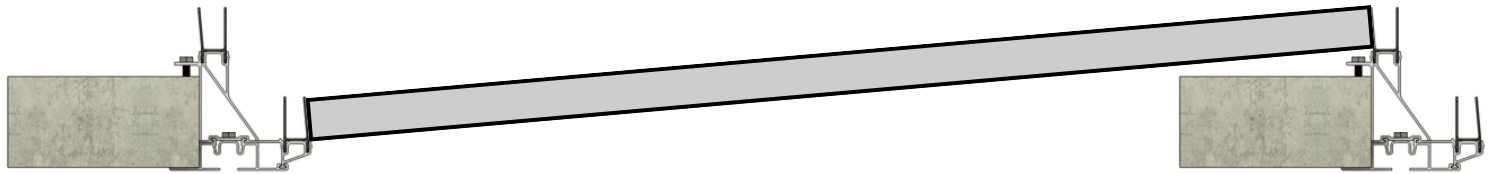
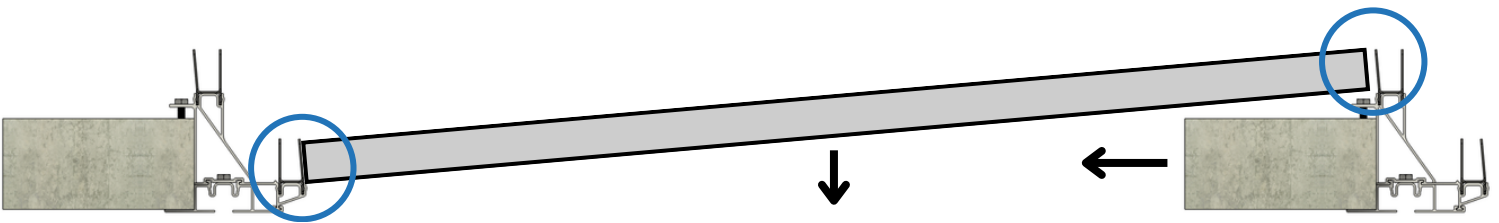
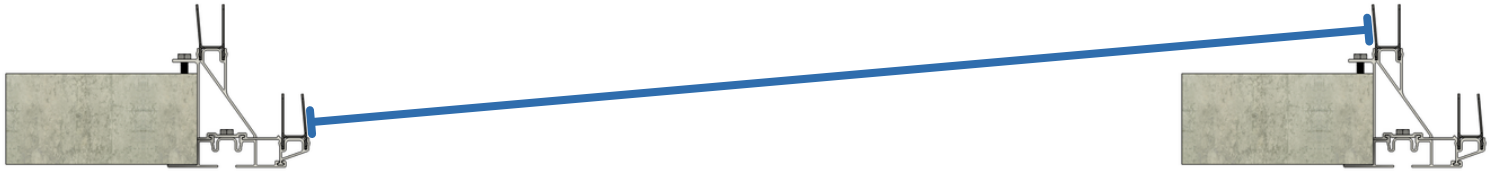
Solar Panel Spacing

IR-05MBDB - 0° Raised Flat Configuration



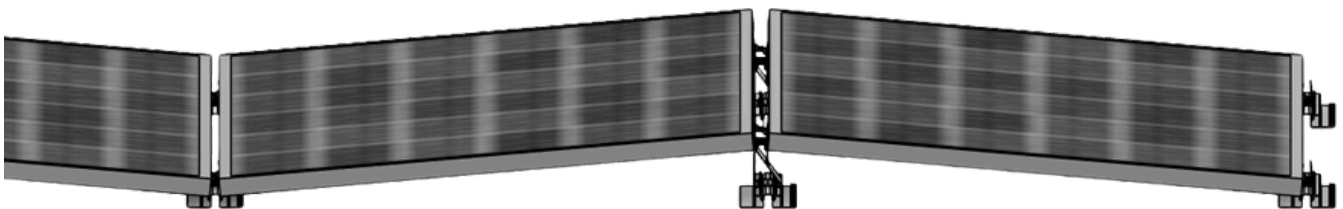
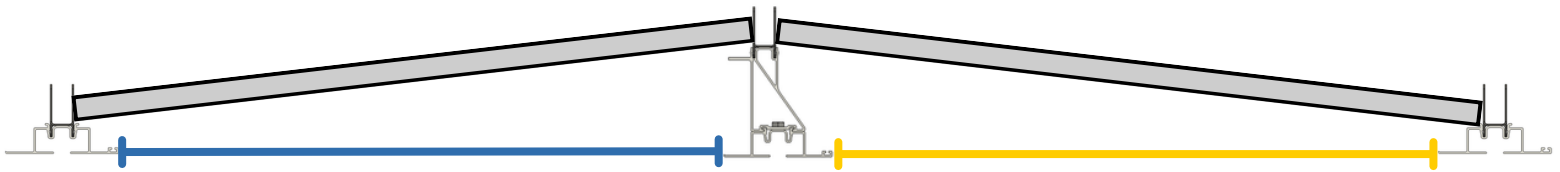
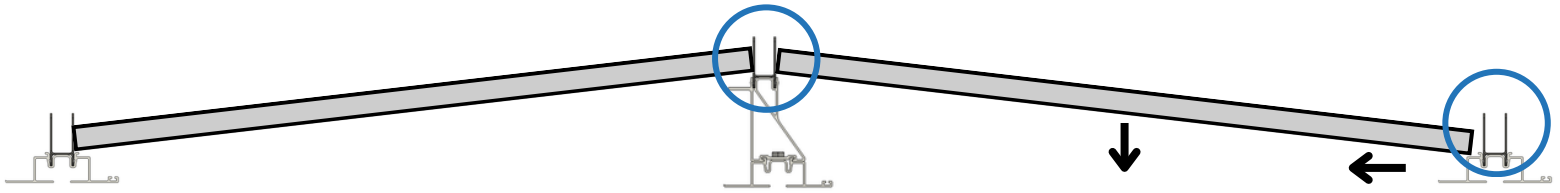
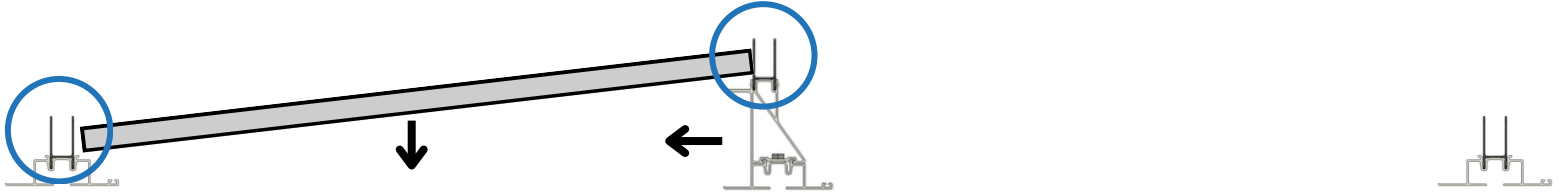
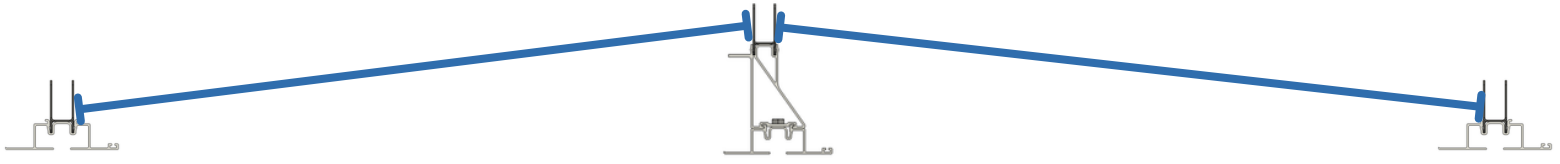
Solar Panel Spacing

IR-05MBDB - 5° North/South Configuration



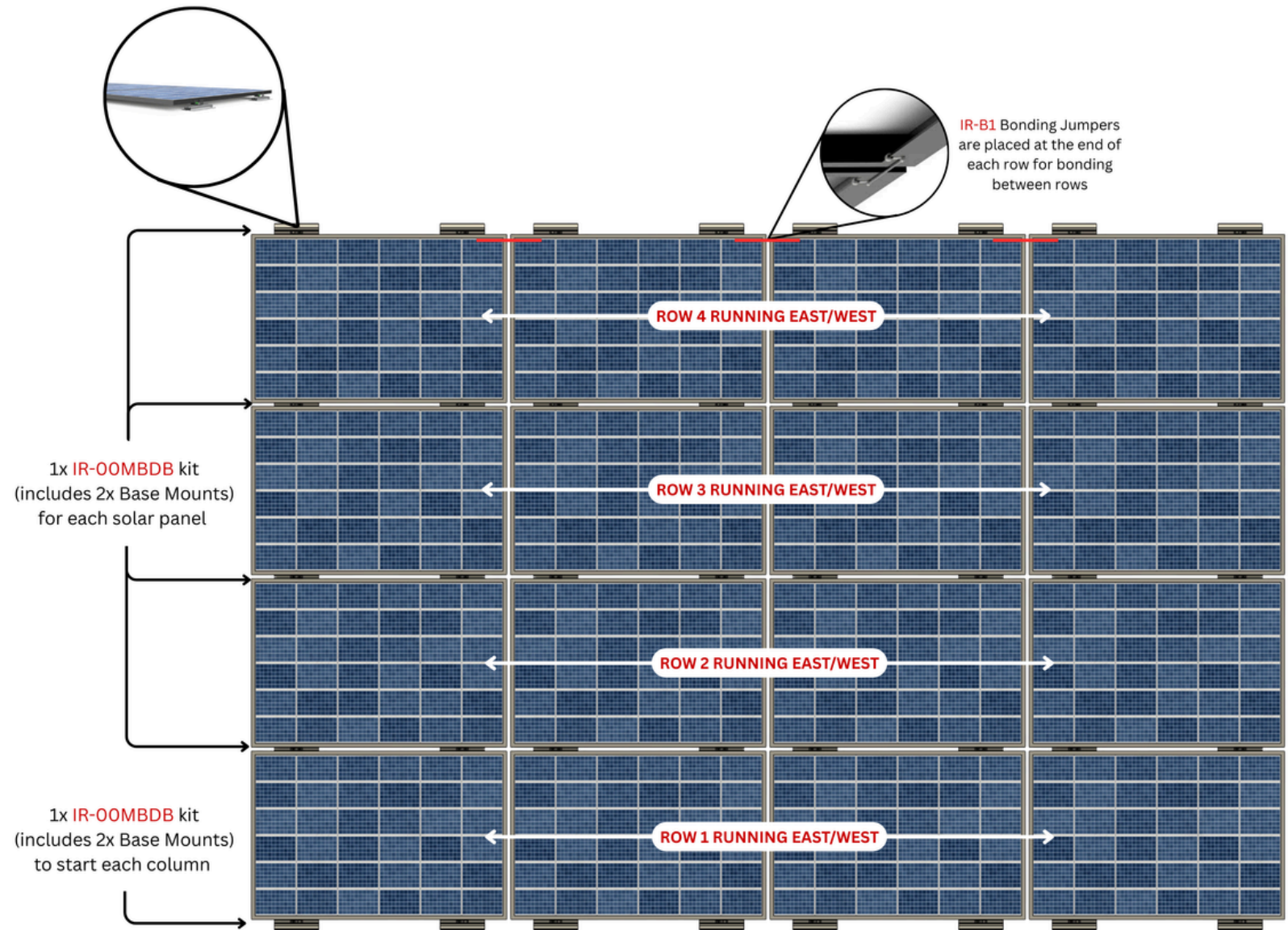
Solar Panel Spacing

IR-00MBDB & IR-05MBDB - 5° East/West Conf.



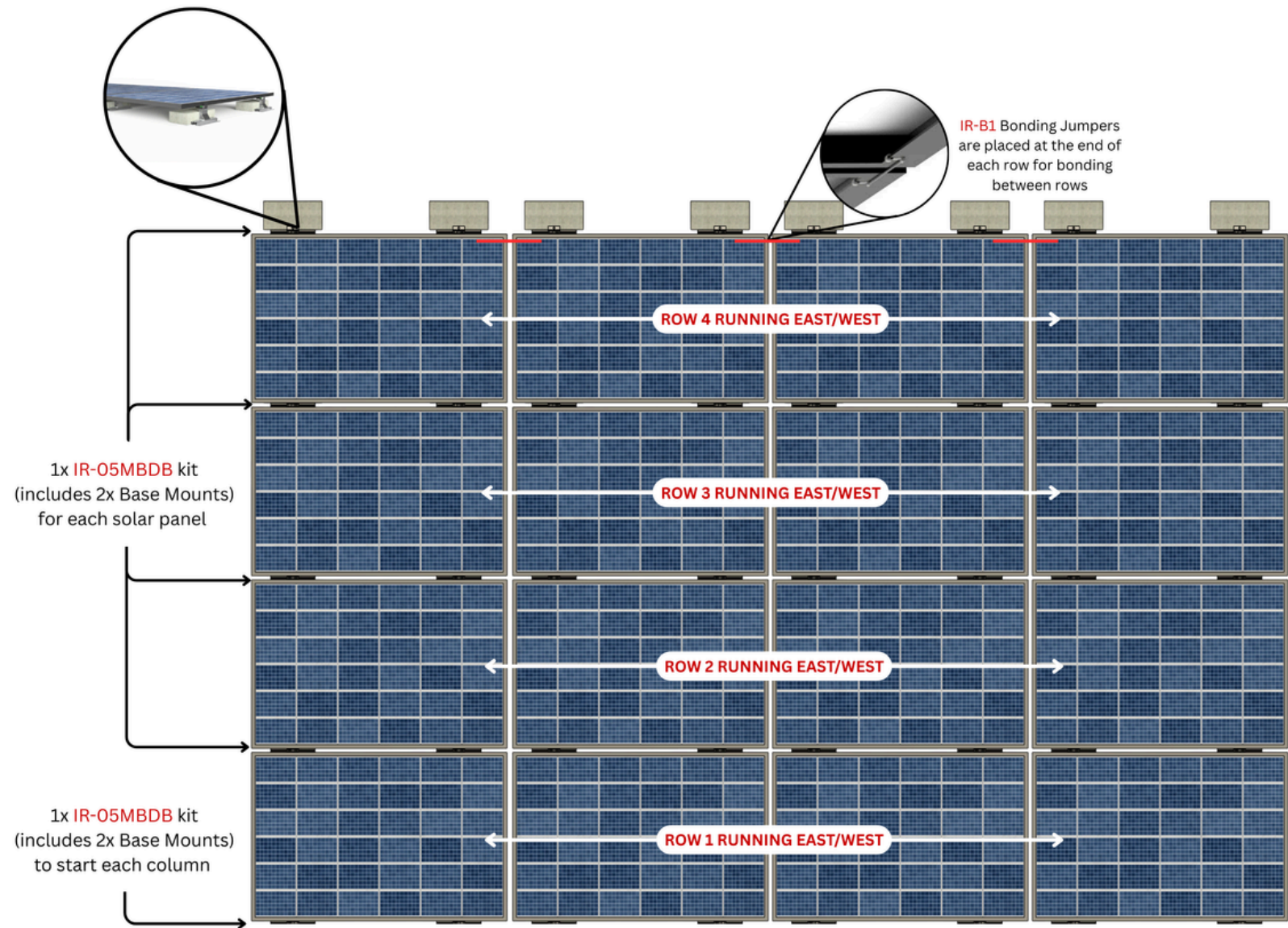
IR-00MBDB - Layout & Electrical Bonding Example

0° Flat Configuration



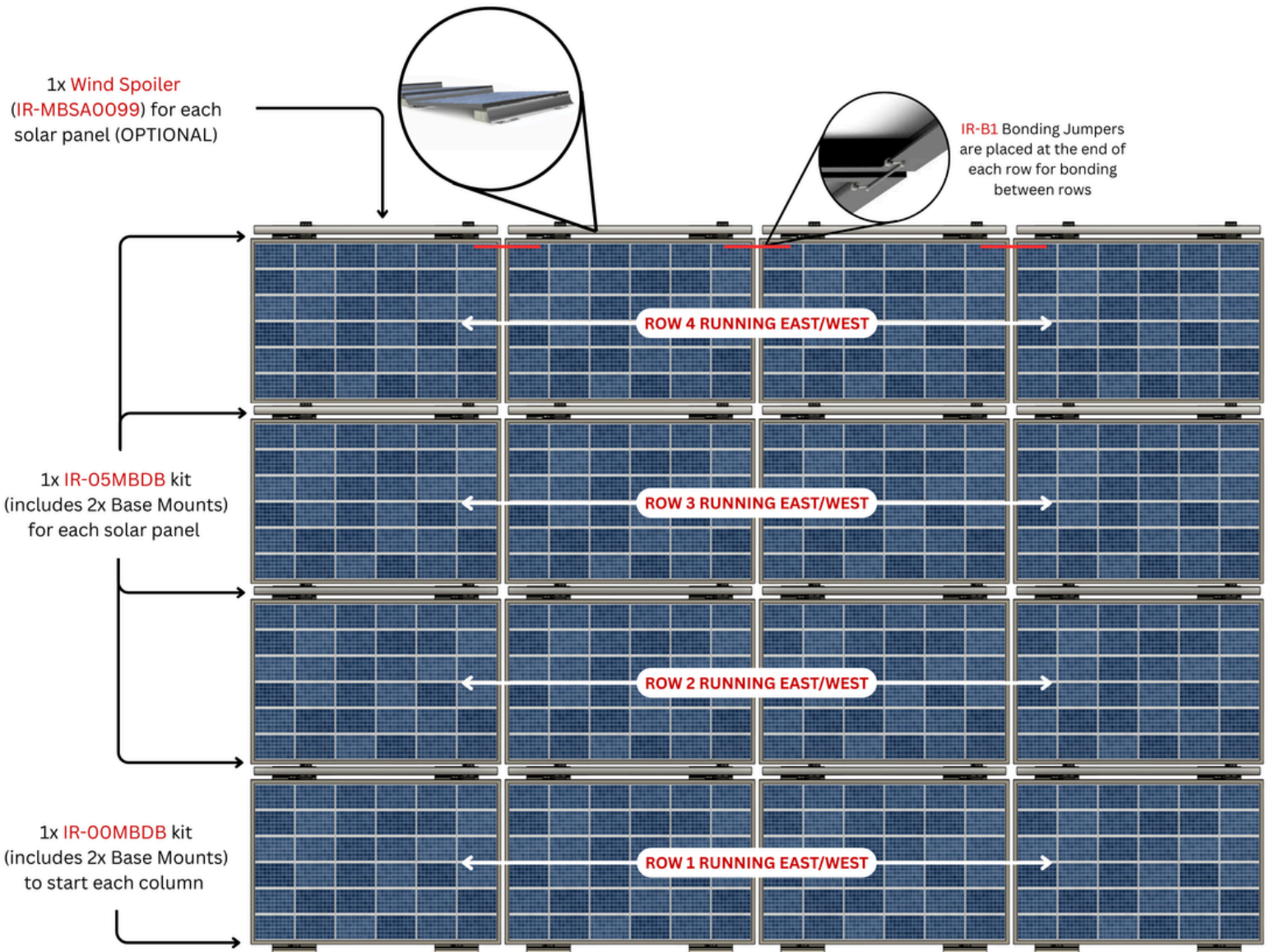
IR-05MBDB - Layout & Electrical Bonding Example

0° Raised Flat Configuration



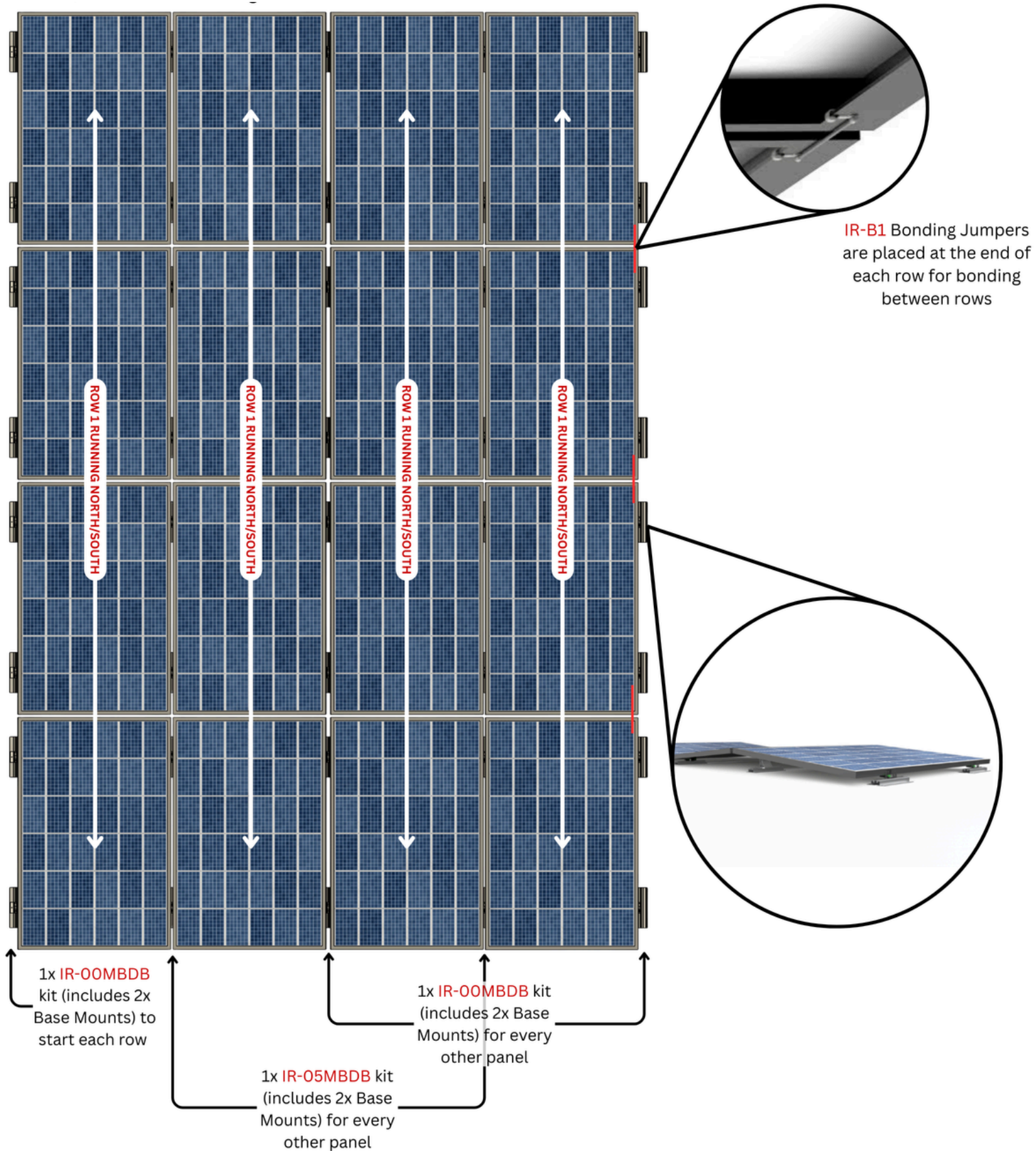
IR-05MBDB - Layout & Electrical Bonding Example

5° North/South Configuration



IR-00MBDB + IR-05MBDB - Layout & Electrical Bonding Example

5° East/West 'W' Configuration

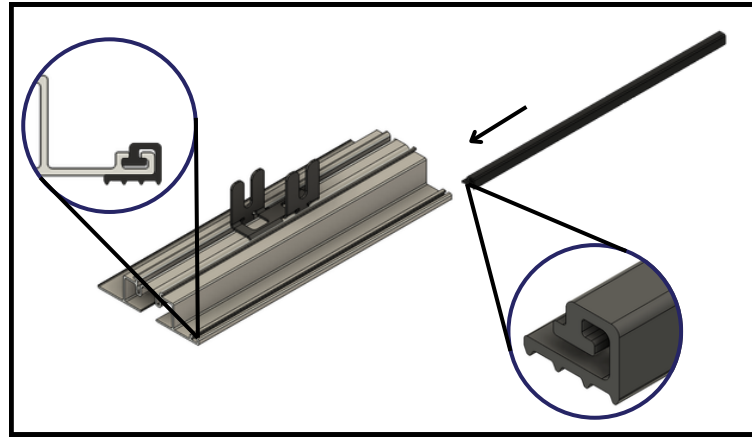


IR-00MBDB Assembly & Install

Direct Bonded Install Assembly

1. Install The Rubber Grip Strips

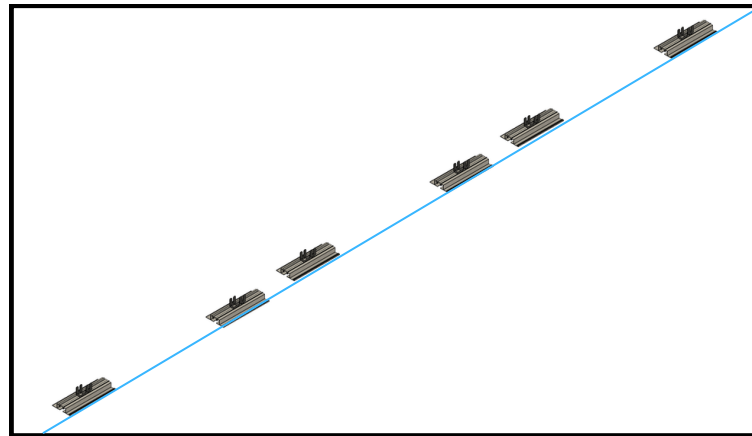
Install the Full Length Rubber Grip Strip on the front edge of the Base Mount, sliding the “T” shaped edge into the corresponding slot.



Install

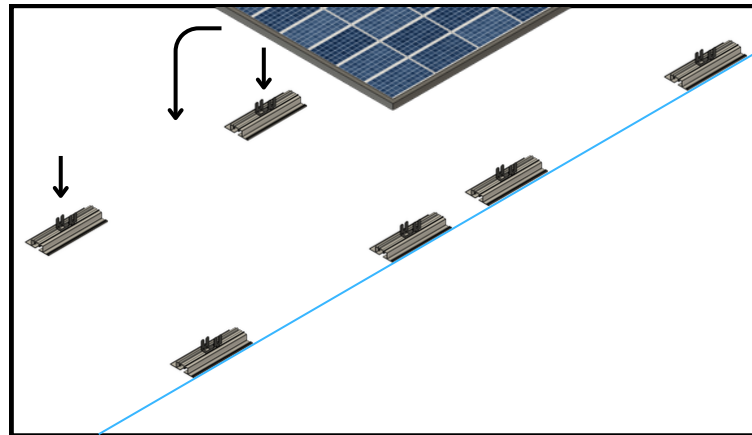
1. Place The First Row Of Mounts

Install the first row of mounts (2x IR-00MBDB mounts per solar panel in the row) using the measurements on page 13 to determine spacing between them. You can use the roof lines or a chalk line to line them up.



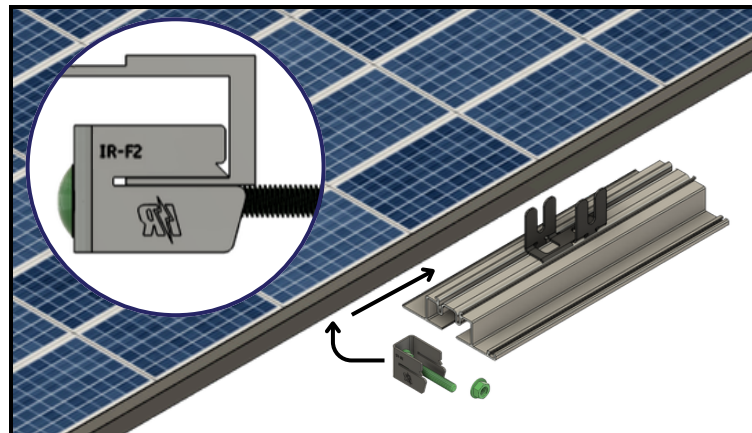
2. Placing The First Solar Panel

Start the second row with just two mounts, placed directly behind the first two mounts of the first row, spaced back roughly the width of your chosen solar panel. Place your panel in between these pairs of mounts. DO NOT adhesively bond these mounts yet.



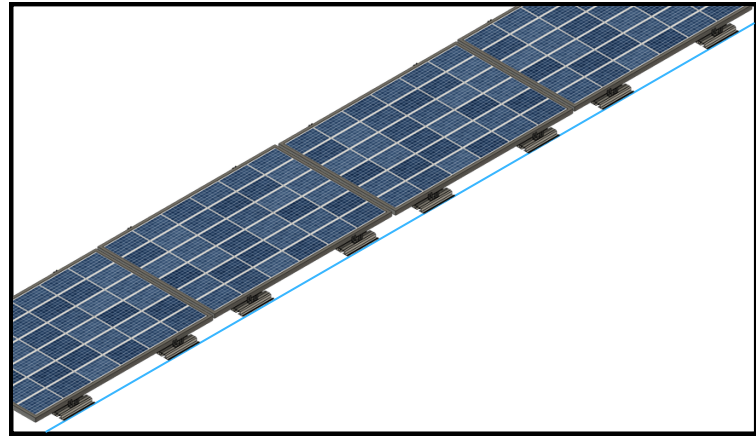
3. Mount The First Solar Panel

Mount the panel in place using 4x IR-F2 Flange Clamp Bonding Brackets. First, remove the nuts from the end of each IR-F2, slide it onto the flange of the solar panel with the pointed barbs touching the inside of the flange and fasten the nut back onto the end of the IR-F2 bolt. Lift up the solar panel, slide the IR-F2 along the flange and drop the bolt into the open slot of the H Module Mounting Brackets. Use a ½” (13mm) wrench to tighten the nuts on each IR-F2.



4. Finish The First Row

Use the same process to mount the rest of the panels in the row, checking the alignment of the system and making adjustments after each panel is placed.



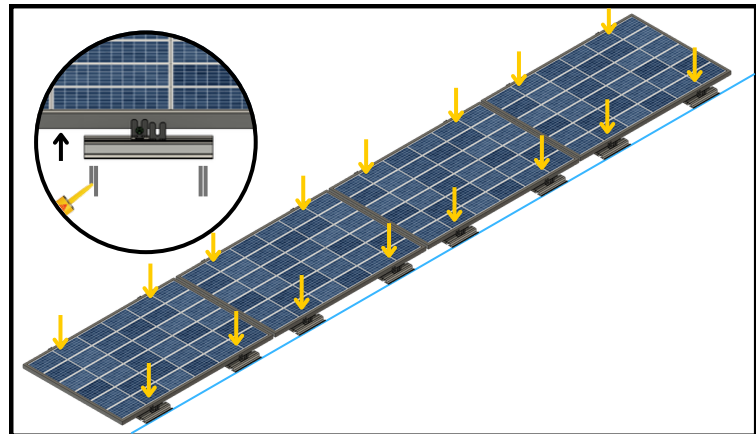
5. Prep The Roof Surface

Before adhesively bonding any mounts to the roof, be sure to lift up each mount and clean the area underneath with rubbing alcohol.

6. Adhesively Bond The Mounts In Place

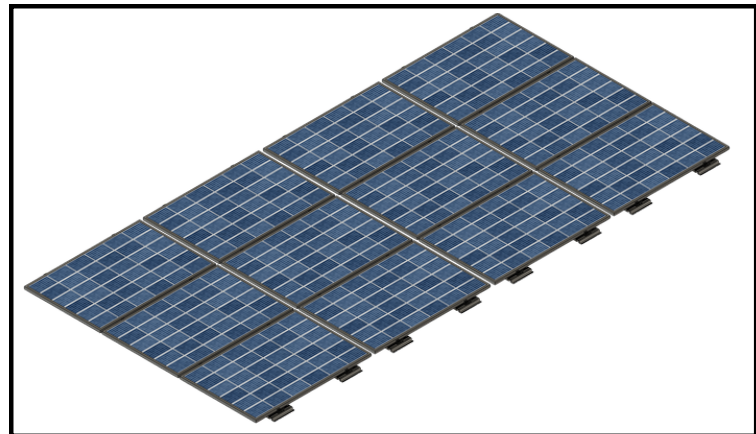
Mark the position of each mount, lift them up and apply two 4 inch beads of SikaFlex 1A Polyurethane Adhesive underneath each end of the mounts. You should have two beads side by side under each end for a total of four 4 inch beads of adhesive. Then, press the mounts into the adhesive. It is best to have a second person hold up the panel and mounts while the adhesive is applied.

*Be sure to check the alignment of the panels and mounts, making adjustments before adhesively bonding the next pair of mounts.



7. Complete The System

Repeat this process along each row until the system is complete. Once the first row, only 2x IR-05MBDB mounts will be required for each solar panel.

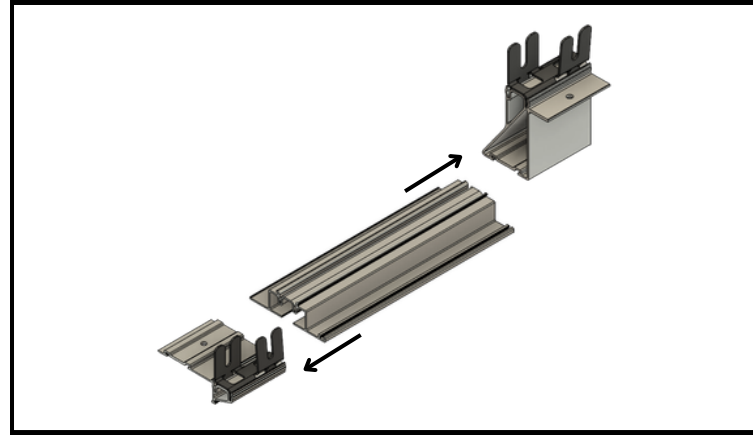


IR-05MBDB Assembly & Install - 0° Raised Flat Conf.

Ballasted Install Assembly

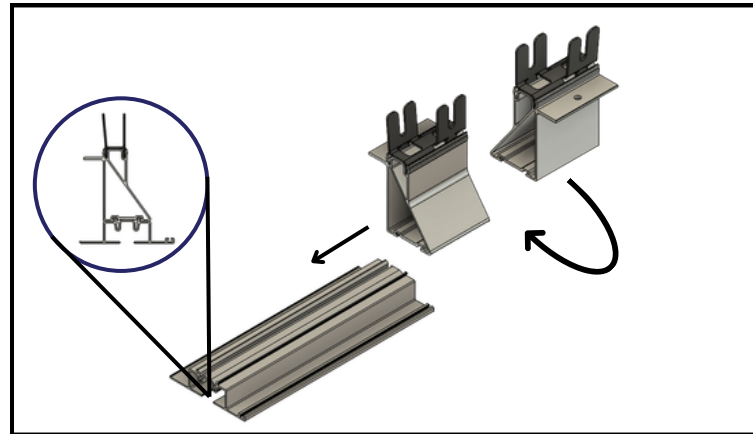
1.Remove The Brackets

Slide the Riser Bracket and Lower Offset Bracket off of the Base Mount.



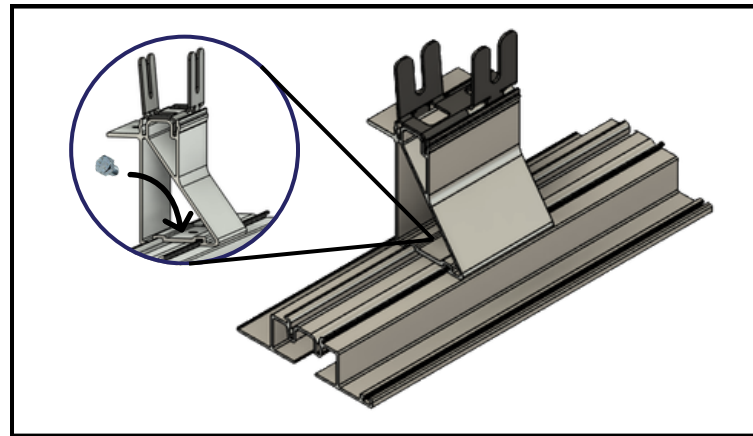
2.Rotate The Riser Bracket

Rotate the Riser Bracket 180° and slide it back onto the Base Mount.



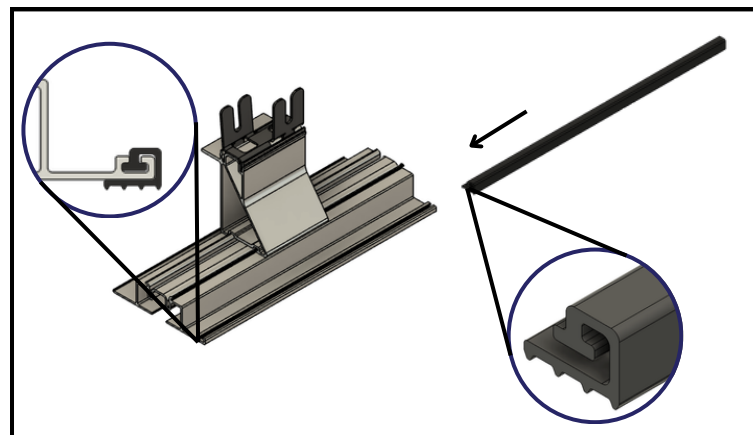
3.Lock The Riser Bracket In Place

Center the Riser Bracket on the Base Mount and use 1x "A" Bolt to lock it in place.



4.Install The Rubber Grip Strips

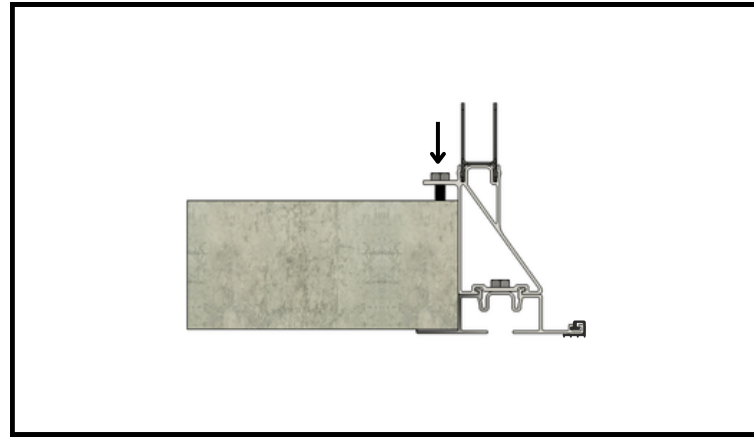
Install the Full Length Rubber Grip Strip on the front edge of the Base Mount, sliding the "T" shaped edge into the corresponding slot.



5. Place The CMU Block

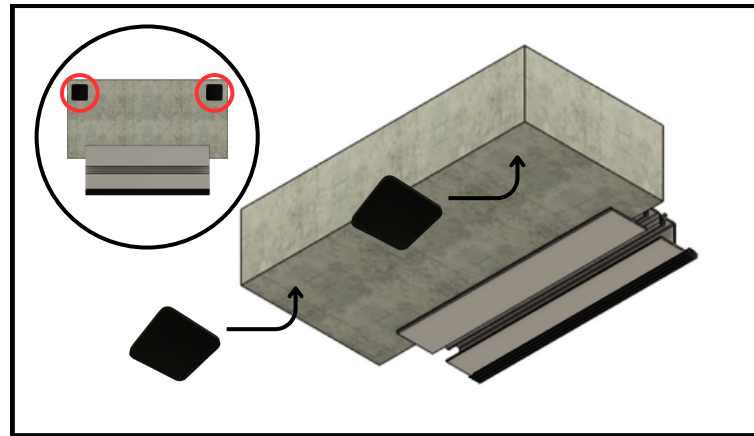
Place the CMU block onto the rear lip of the Base Mount, underneath the overhanging edge of the Riser Bracket and use 1x "B" Bolt to lock it in place.

**Do NOT over tighten bolt on CMU block*



6. Install The Rubber Anti-Slip Pads

Peel the backing off of the Rubber Anti-Slip Pads and install them on the bottom surface of the Base Mount, opposite of the Rubber Grip Strip.

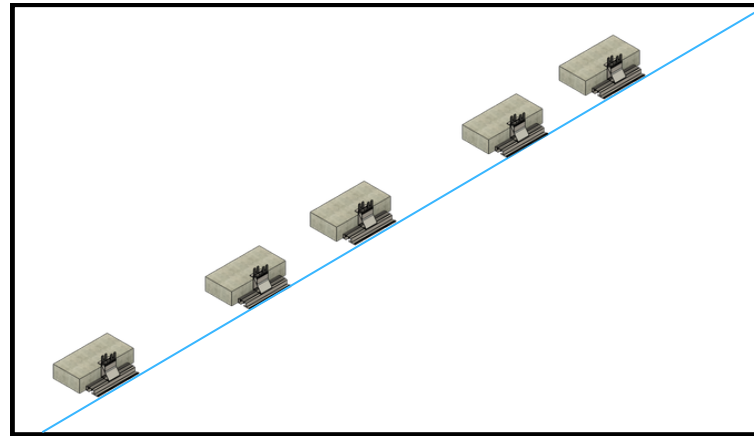


Install

1. Place The First Row Of Mounts

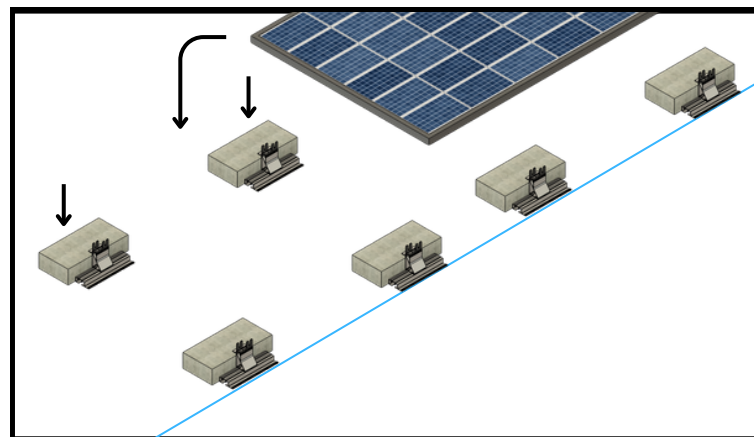
Install the first row of mounts (2x IR-05MBDB mounts per solar panel in the row) using the measurements on page 13 to determine spacing between them. You can use the roof lines or a chalk line to line them up.

**TPO roofs require full size roofing material slip sheets under each mount*



2. Placing The First Solar Panel

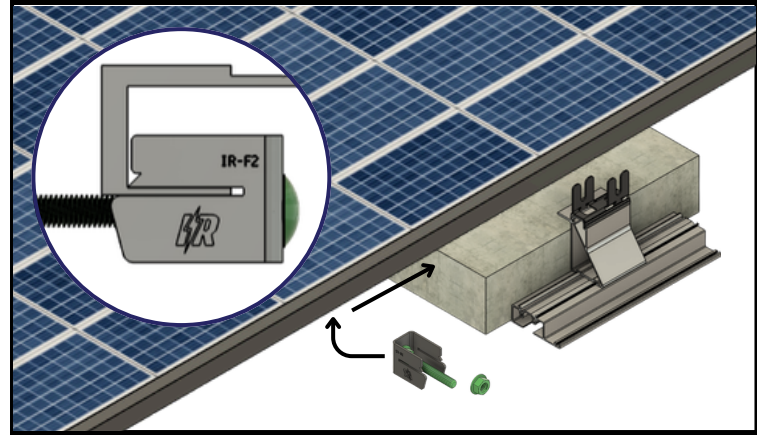
Start the second row with just two mounts, placed directly behind the first two mounts of the first row, spaced back roughly the width of your chosen solar panel. Place your panel in between the four mounts and push the rear mounts forward until the panel is snug in between the H Brackets.



IR-05MBDB Assembly & Install - 0° Raised Flat Conf.

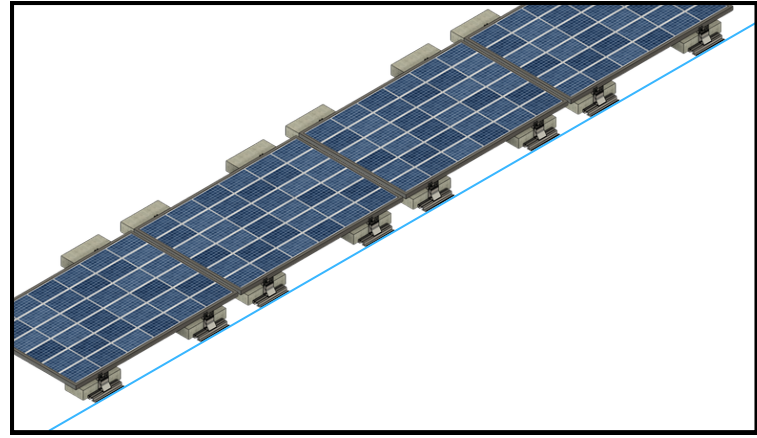
3. Mount The First Solar Panel

Mount the panel in place using 4x IR-F2 Flange Clamp Bonding Brackets. First, remove the nuts from the end of each IR-F2, slide it onto the flange of the solar panel with the pointed barbs touching the inside of the flange and fasten the nut back onto the end of the IR-F2 bolt. Lift up the solar panel, slide the IR-F2 along the flange and drop the bolt into the open slot of the H Module Mounting Brackets. Use a ½" (13mm) wrench to tighten the nuts on each IR-F2.



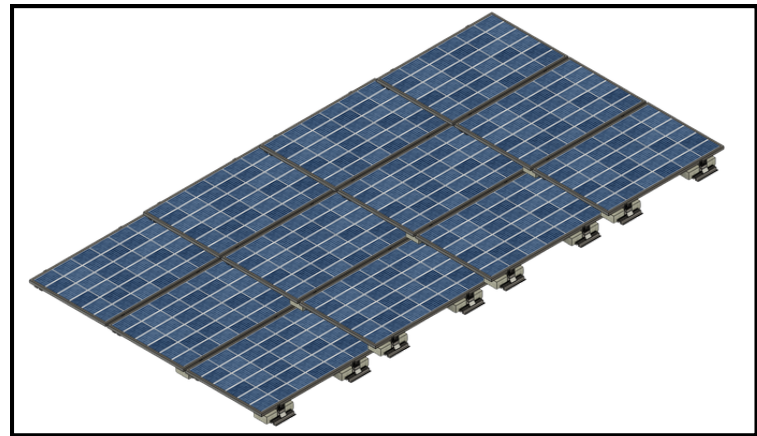
4. Finish The First Row

Use the same process to mount the rest of the panels in the row, checking the alignment of the system and making adjustments after each panel is placed.



5. Complete The System

Repeat this process along each row until the system is complete. Once the first row, only 2x IR-05MBDB mounts will be required for each solar panel.

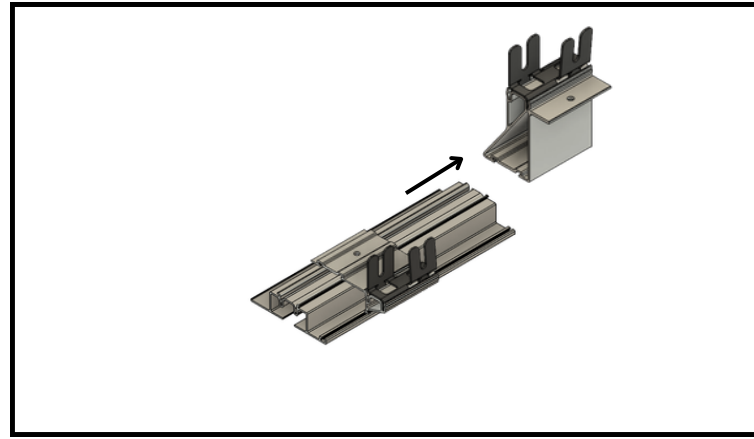


IR-05MBDB Assembly & Install - 5° North/South Conf.

Direct Bonded Install Assembly

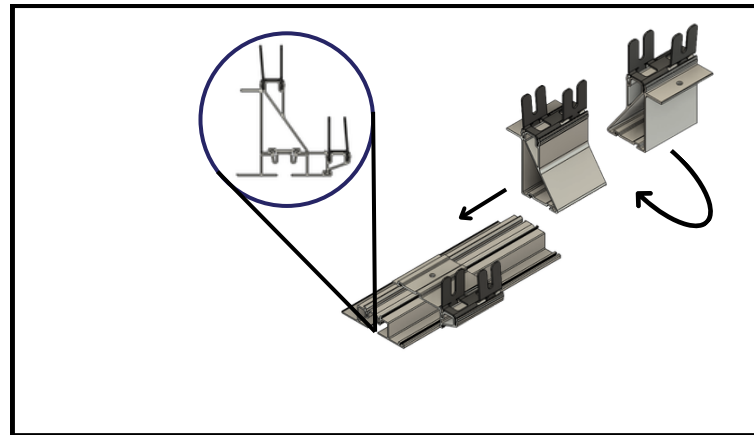
1. Remove The Brackets

Slide the Riser Bracket off of the Base Mount.



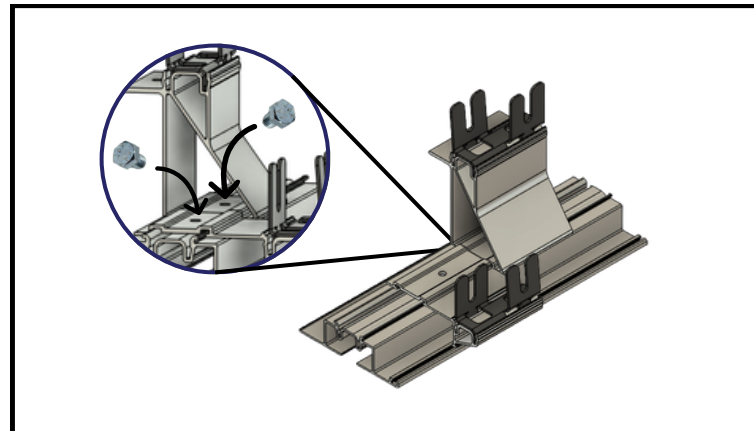
2. Rotate The Riser Bracket

Rotate the Riser Bracket 180° and slide it back onto the Base Mount.



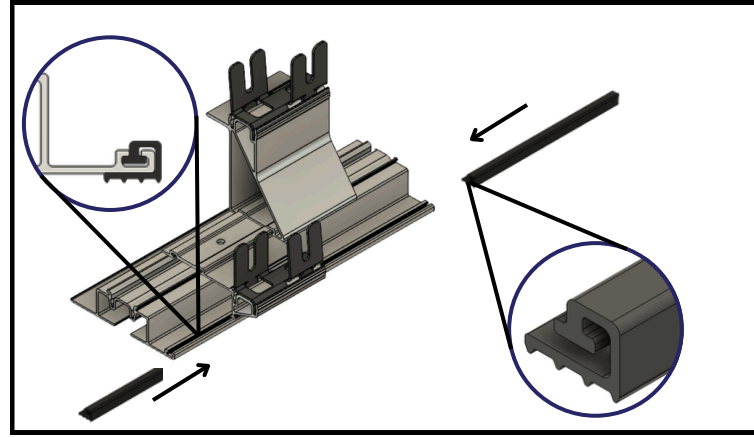
3. Lock Both Brackets In Place

Center Both brackets in the middle of the Base Mount and use 2x "A" Bolts to lock them in place.



4. Install The Short And Long Rubber Grip Strips

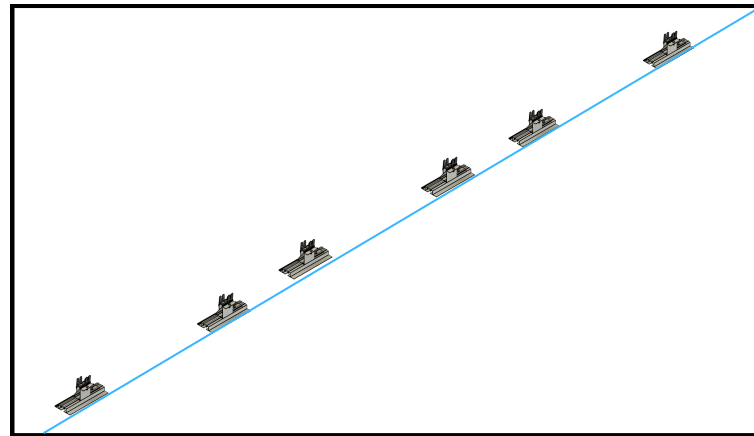
Install the Short and Long Rubber Grip Strips on both sides of the Lower Offset Bracket, sliding the "T" shaped edge into the corresponding slot.



Install

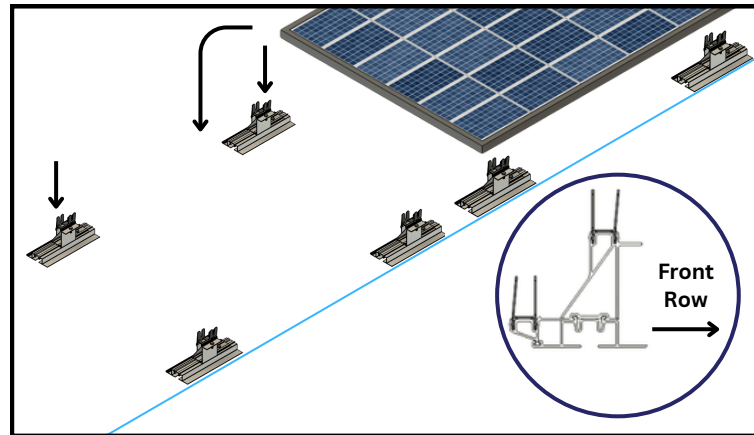
1. Place The First Row Of Mounts

Install the first row of mounts using the measurements on page 13 to determine spacing between them. You can use the roof lines or a chalk line to line them up.



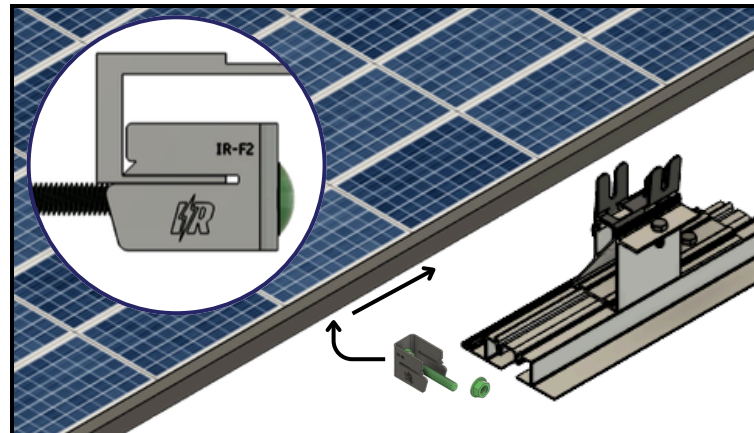
2. Placing The First Solar Panel

Start the second row with just two IR-05MBDB mounts (Lower Offset Brackets facing away from the front row), placed directly behind the first two mounts of the first row, spaced back roughly the width of your chosen solar panel. Place your panel in between these pairs of mounts. DO NOT adhesively bond these mounts yet.



3. Mount The First Solar Panel

Mount the panel in place using 4x IR-F2 Flange Clamp Bonding Brackets. First, remove the nuts from the end of each IR-F2, slide it onto the flange of the solar panel with the pointed barbs touching the inside of the flange and fasten the nut back onto the end of the IR-F2 bolt. Lift up the solar panel, slide the IR-F2 along the flange and drop the bolt into the open slot of the H Module Mounting Brackets. Use a ½" (13mm) wrench to tighten the nuts on each IR-F2.



IR-05MBDB Assembly & Install - 5° North/South Conf.

4. Finish The First Row

Use the same process to mount the rest of the panels in the row, checking the alignment of the system and making adjustments after each panel is placed.

5. Prep The Roof Surface

Before adhesively bonding any mounts to the roof, be sure to clean the bonding surfaces with rubbing alcohol.

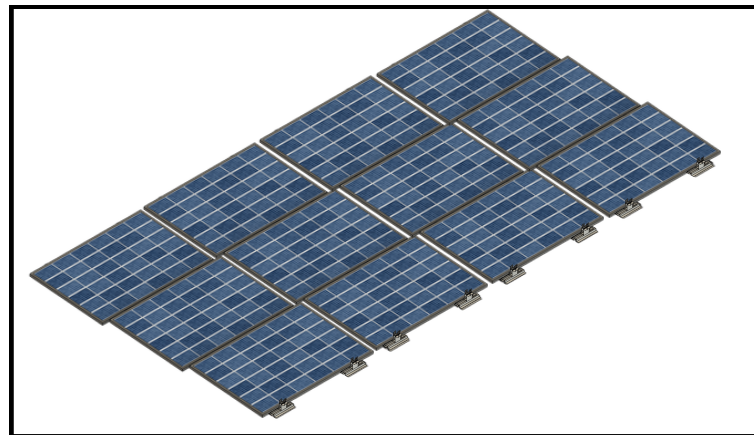
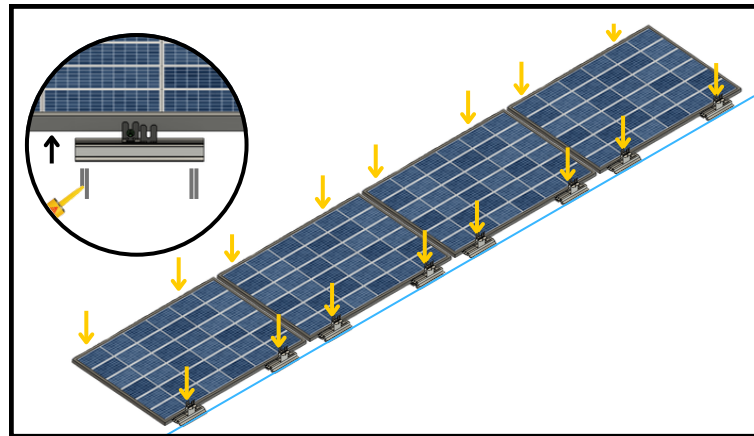
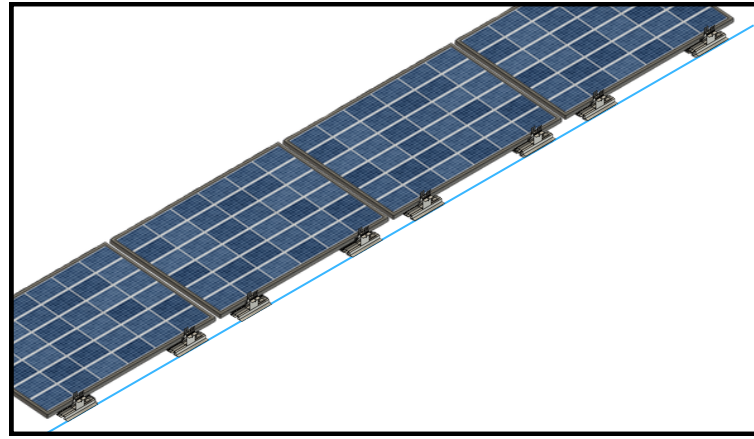
6. Adhesively Bond The Mounts In Place

Mark the position of each mount, lift them up and apply two 4 inch beads of SikaFlex 1A Polyurethane Adhesive underneath each end of the mounts. You should have two beads side by side under each end for a total of four 4 inch beads of adhesive. Then, press the mounts into the adhesive. It is best to have a second person hold up the panel and mounts while the adhesive is applied.

*Be sure to check the alignment of the panels and mounts, making adjustments before adhesively bonding the next pair of mounts.

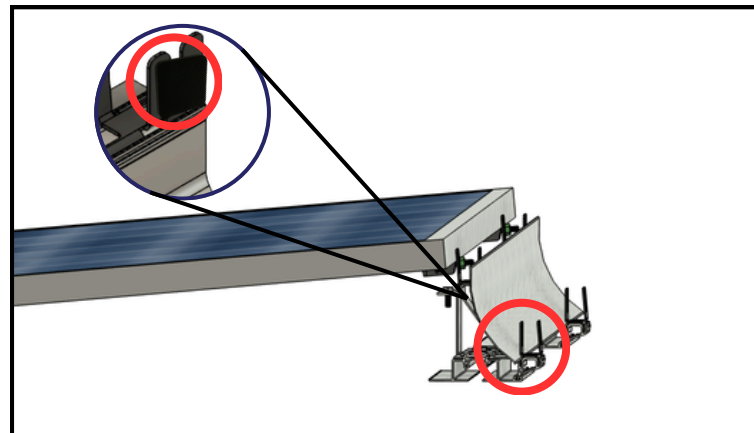
7. Complete The System

Repeat this process along each row until the system is complete. Once the first row, only 2x IR-05MBDB mounts will be required for each solar panel.



Wind Spoiler Install (Optional)

Place 1x Double Stick Square on each H Bracket where the Wind Spoiler rests. Then install 1x Wind Spoiler behind each solar panel, resting it on top of the Lower Offset Bracket and pressing the top of it into the Double Stick Squares.

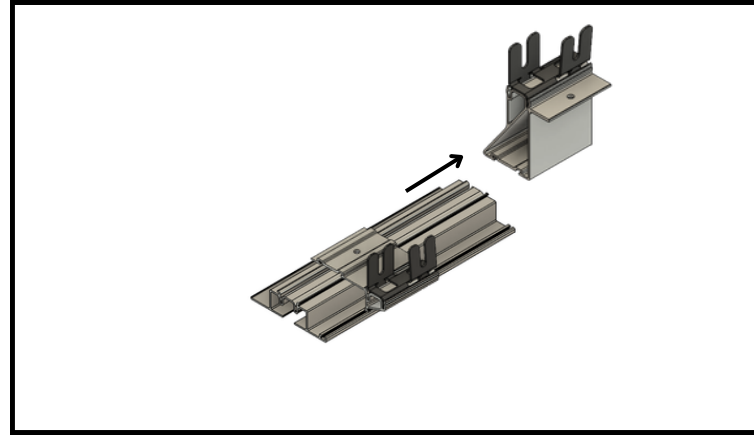


IR-05MBDB Assembly & Install - 5° North/South Conf.

Ballasted Install Assembly

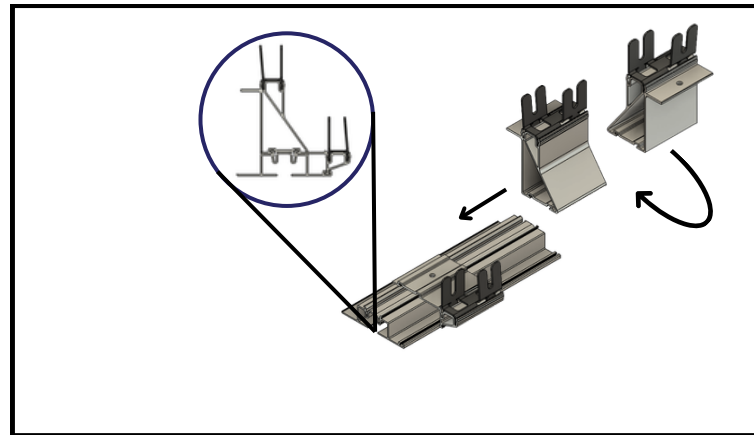
1.Remove The Brackets

Slide the Riser Bracket off of the Base Mount.



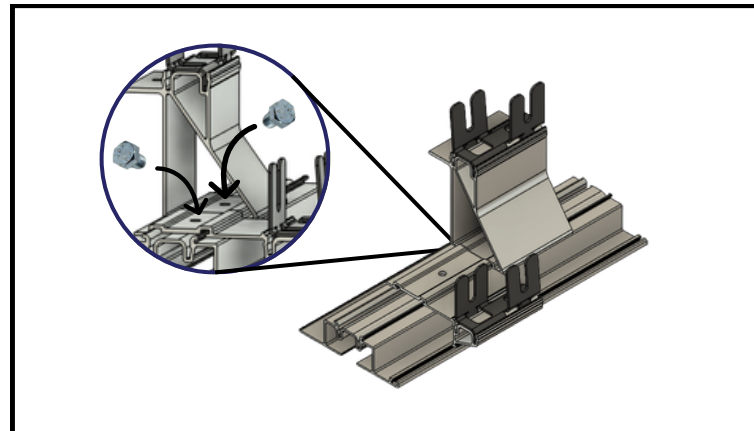
2.Rotate The Riser Bracket

Rotate the Riser Bracket 180° and slide it back onto the Base Mount.



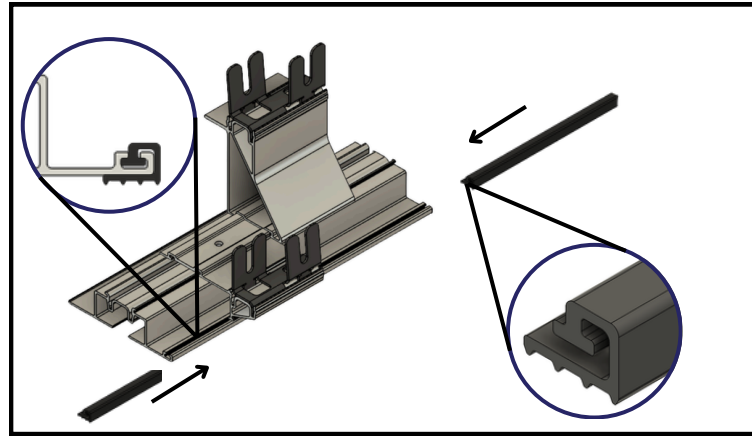
3.Lock Both Brackets In Place

Center Both brackets in the middle of the Base Mount and use 2x “A” Bolts to lock them in place.



4. Install The Short And Long Rubber Grip Strips

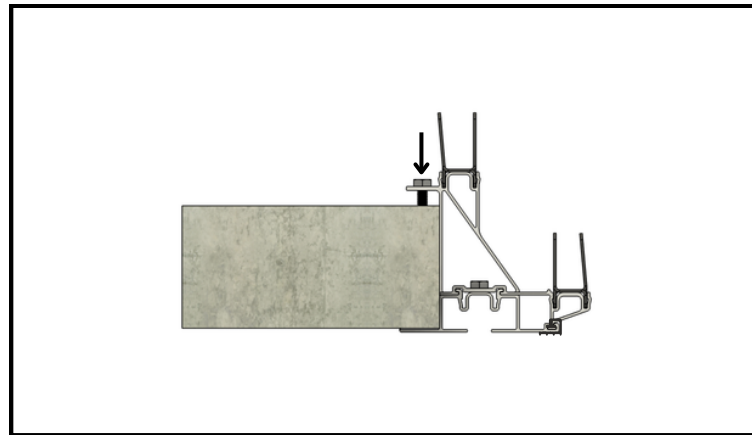
Install the Short and Long Rubber Grip Strips on both sides of the Lower Offset Bracket, sliding the “T” shaped edge into the corresponding slot.



5. Place The CMU Block

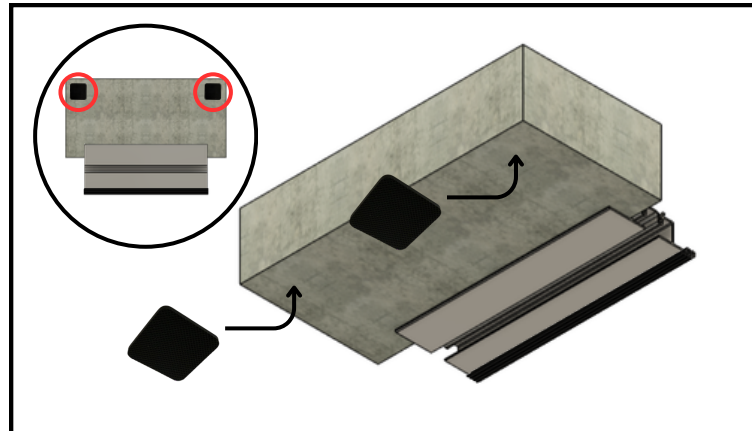
Place the CMU block onto the rear lip of the Base Mount, underneath the overhanging edge of the Riser Bracket and use 1x “B” Bolt to lock it in place.

**Do NOT over tighten bolt on CMU block*



6. Install The Rubber Anti-Slip Pads

Peel the backing off of the Rubber Anti-Slip Pads and install them on the bottom surface of the Base Mount, opposite of the Rubber Grip Strip.



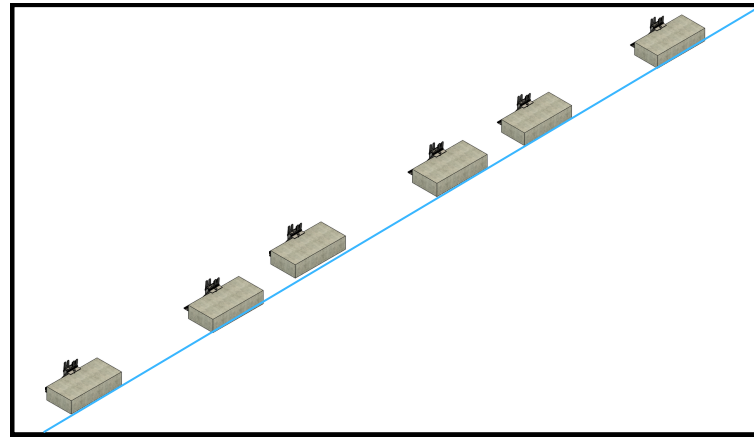
IR-05MBDB Assembly & Install - 5° North/South Conf.

Install

1. Place The First Row Of Mounts

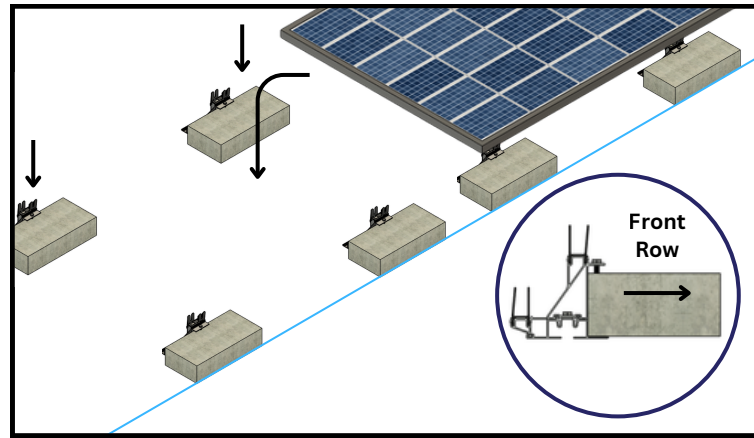
Install the first row of mounts using the measurements on page 13 to determine spacing between them. You can use the roof lines or a chalk line to line them up.

*TPO roofs require full size roofing material slip sheets under each mount



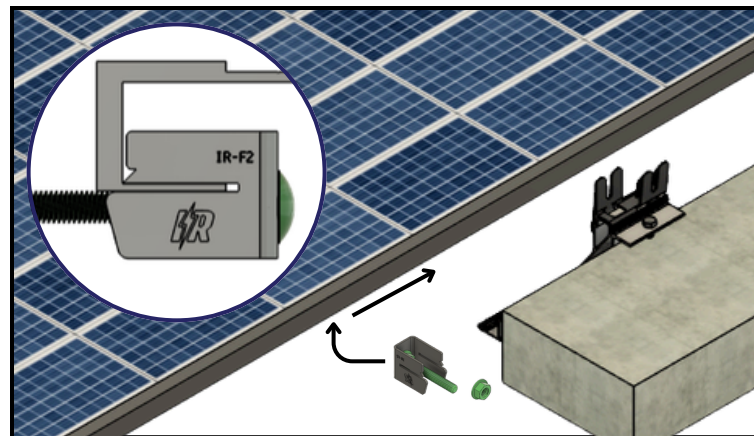
2. Placing The First Solar Panel

Start the second row with just two IR-05MBDB mounts (Lower Offset Brackets facing away from the front row), placed directly behind the first two mounts of the first row, spaced back roughly the width of your chosen solar panel. Place your panel in between the four mounts and push the rear mounts forward until the panel is snug in between the H Brackets.



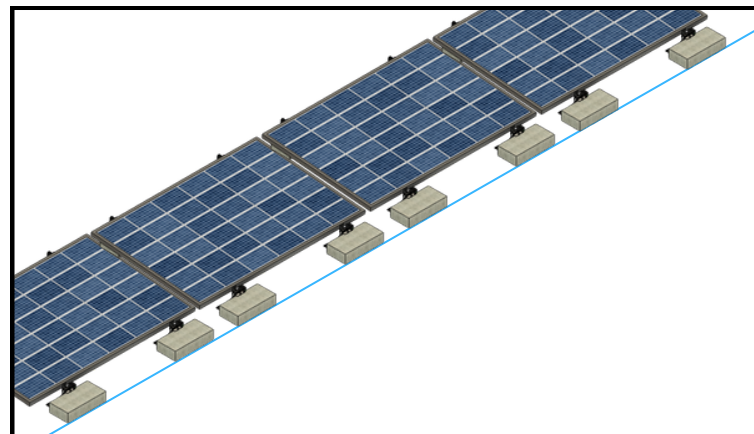
3. Mount The First Solar Panel

Mount the panel in place using 4x IR-F2 Flange Clamp Bonding Brackets. First, remove the nuts from the end of each IR-F2, slide it onto the flange of the solar panel with the pointed barbs touching the inside of the flange and fasten the nut back onto the end of the IR-F2 bolt. Lift up the solar panel, slide the IR-F2 along the flange and drop the bolt into the open slot of the H Module Mounting Brackets. Use a ½" (13mm) wrench to tighten the nuts on each IR-F2.



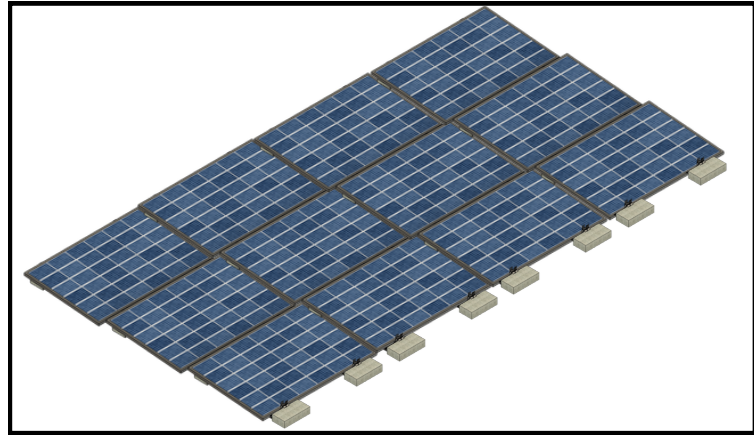
4. Finish The First Row

Use the same process to mount the rest of the panels in the row, checking the alignment of the system and making adjustments after each panel is placed.



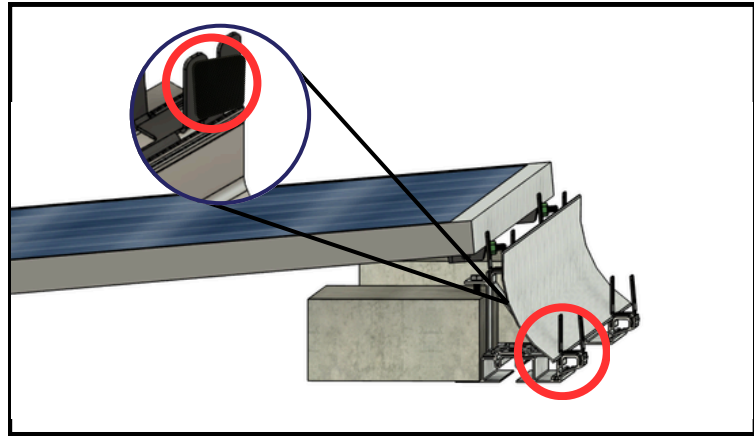
5. Complete The System

Repeat this process along each row until the system is complete. Once the first row, only 2x IR-05MBDB mounts will be required for each solar panel.



Wind Spoiler Install (Optional)

Place 1x Double Stick Square on each Riser Bracket just under the H Brackets. Then install 1x Wind Spoiler behind each solar panel, resting it on top of the Lower Offset Bracket and pressing the top of it into the Double Stick Squares.



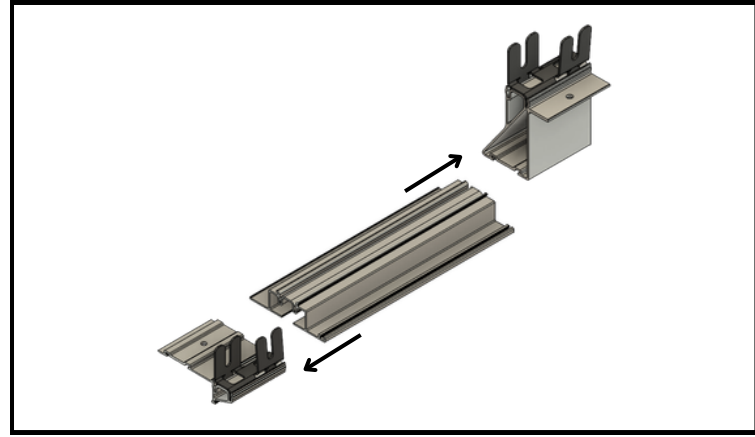
East/West 'W' Configuration Assembly & Install

Direct Bonded Install

IR-05MBDB - Assembly

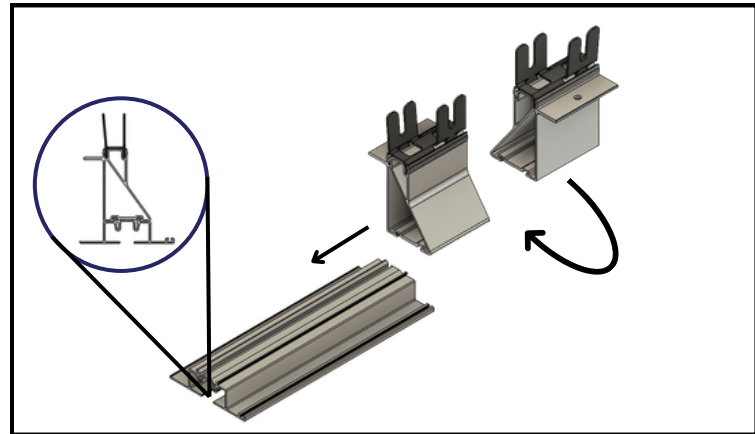
1. Remove The Brackets

Slide the Riser Bracket and Lower Offset Bracket off of the Base Mount.



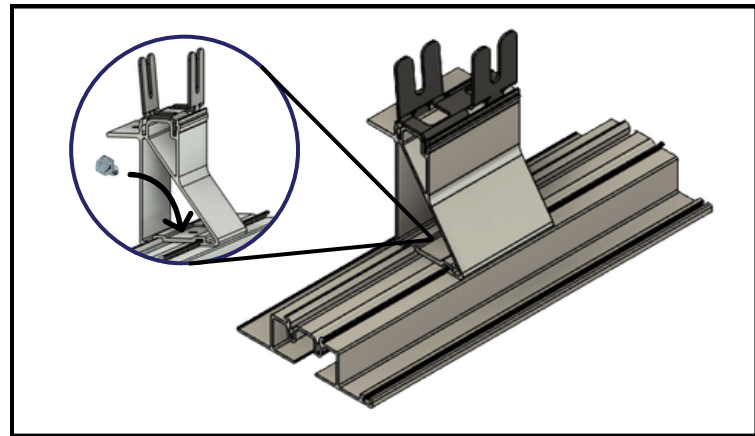
2. Rotate The Riser Bracket

Rotate the Riser Bracket 180° and slide it back onto the Base Mount.



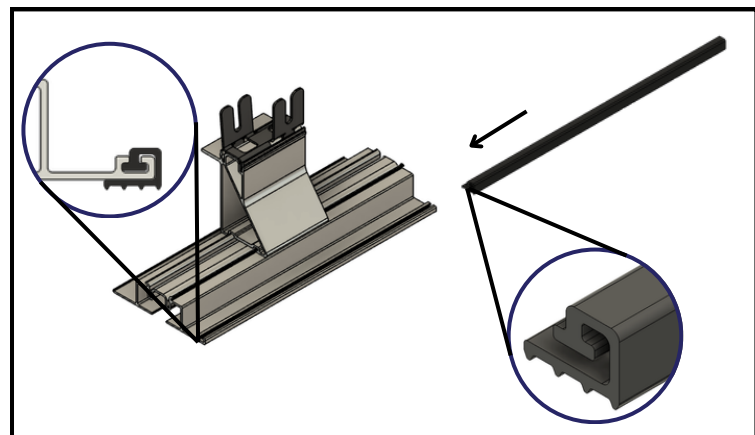
3. Lock The Riser Bracket In Place

Center the Riser Bracket on the Base Mount and use 1x "A" Bolt to lock it in place.



4. Install The Rubber Grip Strips

Install the Full Length Rubber Grip Strip on the front edge of the Base Mount, sliding the "T" shaped edge into the corresponding slot.

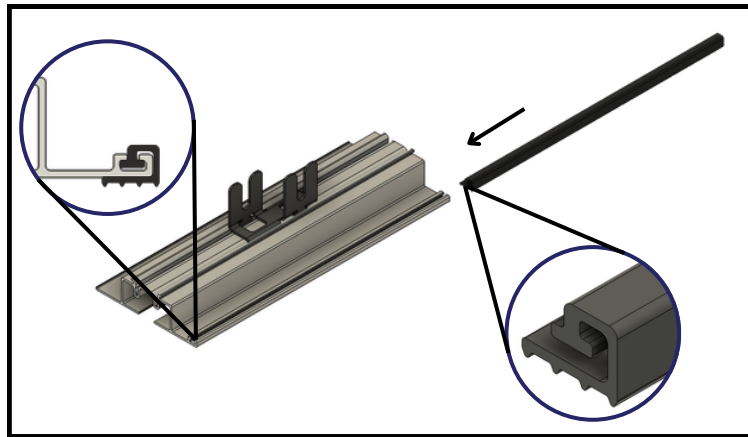


East/West 'W' Configuration Assembly & Install

IR-00MBDB - Assembly

1. Install The Rubber Grip Strips

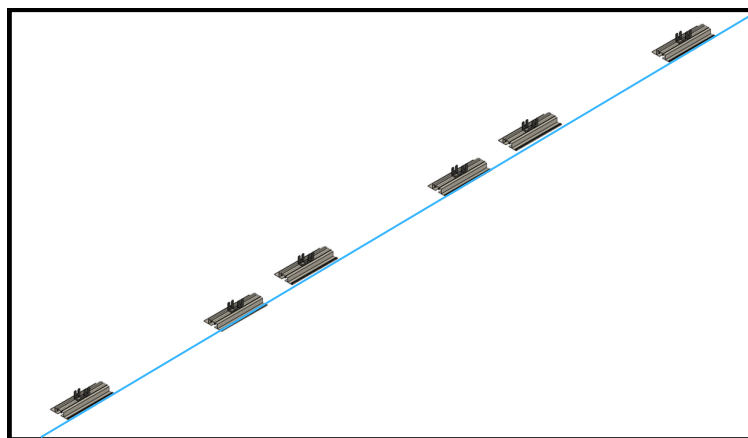
Install the Full Length Rubber Grip Strip on the front edge of the Base Mount, sliding the "T" shaped edge into the corresponding slot.



Install

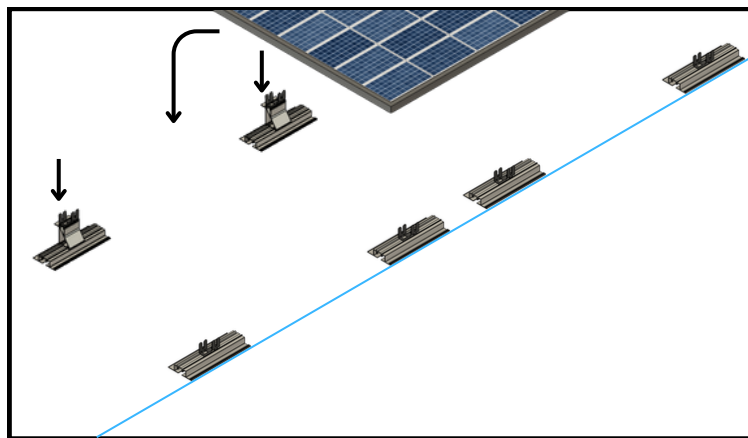
1. Place The First Row Of Mounts

Install the first row of mounts (2x IR-00MBDB mounts per solar panel in the row) using the measurements on page 13 to determine spacing between them. You can use the roof lines or a chalk line to line them up.



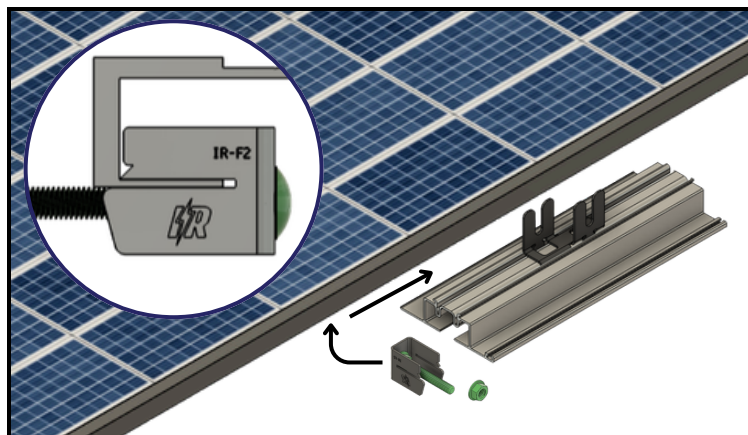
2. Placing The First Solar Panel

Start the second row with just two mounts, placed directly behind the first two mounts of the first row, spaced back roughly the width of your chosen solar panel. Place your panel in between these pairs of mounts. DO NOT adhesively bond these mounts yet.



3. Mount The First Solar Panel

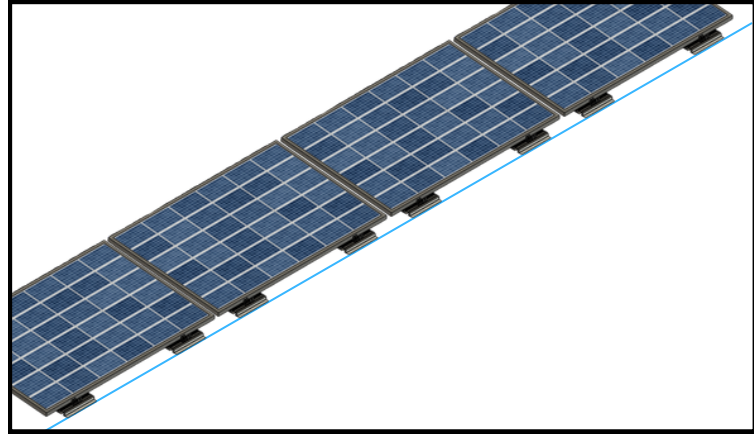
Mount the panel in place using 4x IR-F2 Flange Clamp Bonding Brackets. First, remove the nuts from the end of each IR-F2, slide it onto the flange of the solar panel with the pointed barbs touching the inside of the flange and fasten the nut back onto the end of the IR-F2 bolt. Lift up the solar panel, slide the IR-F2 along the flange and drop the bolt into the open slot of the H Module Mounting Brackets. Use a ½" (13mm) wrench to tighten the nuts on each IR-F2.



East/West 'W' Configuration Assembly & Install

4. Finish The First Row

Use the same process to mount the rest of the panels in the row, checking the alignment of the system and making adjustments after each panel is placed.



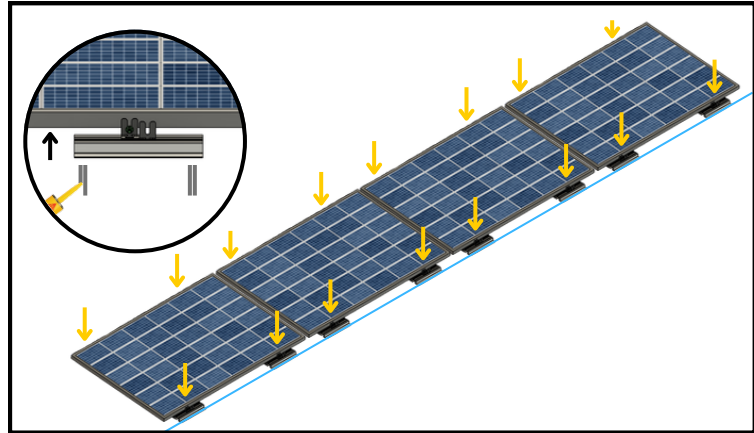
5. Prep The Roof Surface

Before adhesively bonding any mounts to the roof, be sure to clean the bonding surfaces with rubbing alcohol.

6. Adhesively Bond The Mounts In Place

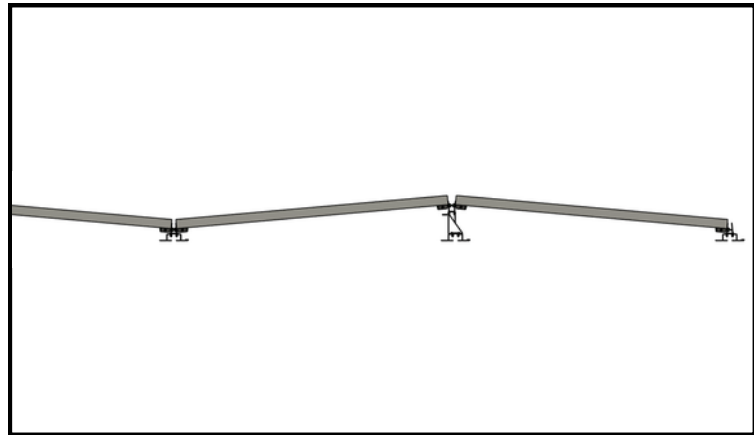
Mark the position of each mount, lift them up and apply two 4 inch beads of SikaFlex 1A Polyurethane Adhesive underneath each end of the mounts. You should have two beads side by side under each end for a total of four 4 inch beads of adhesive. Then, press the mounts into the adhesive. It is best to have a second person hold up the panel and mounts while the adhesive is applied.

*Be sure to check the alignment of the panels and mounts, making adjustments before adhesively bonding the next pair of mounts.



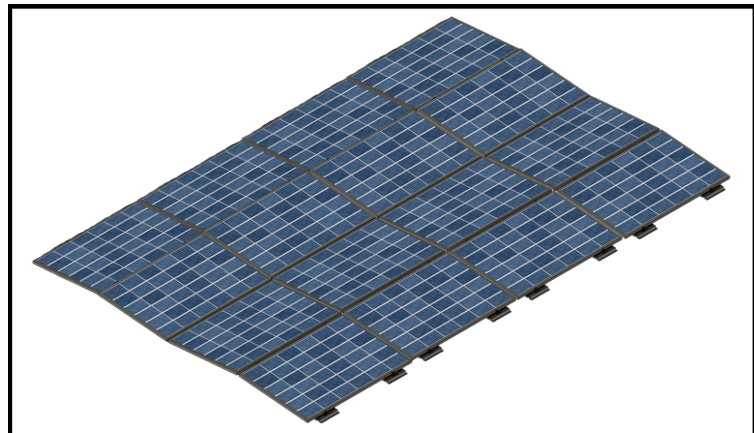
7. Alternate Mounts

The first row must have IR-00MBDB mounts in the front, followed by IR-05MBDB mounts in the back. You will need to repeat this pattern to create the 'W' configuration, preferably ending the last row with more IR-00MBDB mounts to block wind on both ends.



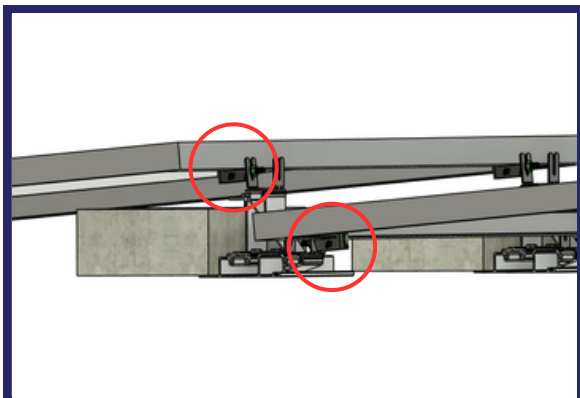
8. Complete The System

Repeat this process along each row until the system is complete.



Electrical Bonding

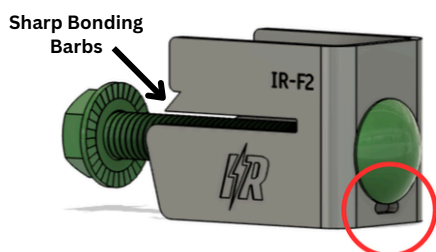
Electrical Bonding Between Panels / IR-F2 Clamps



Solar Module Mounting

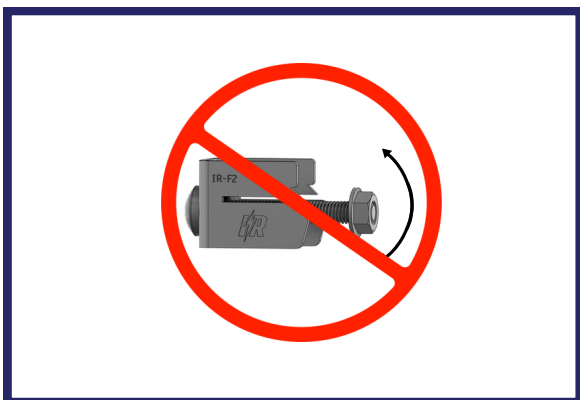
The IR-F2 is designed to clamp the solar module firmly to the racking system, while also electrically bonding the solar panels together. The two sharp piercing barbs are designed to penetrate the anodized aluminum solar panel frame for proper electrical bonding/grounding from solar panel to solar panel.

INTEGRATED ZIP TIE SLOT FOR WIRE MANAGEMENT



Integrated Wire Management

The zip tie slot on the IR-F2 can be used for easy wire management throughout your system.

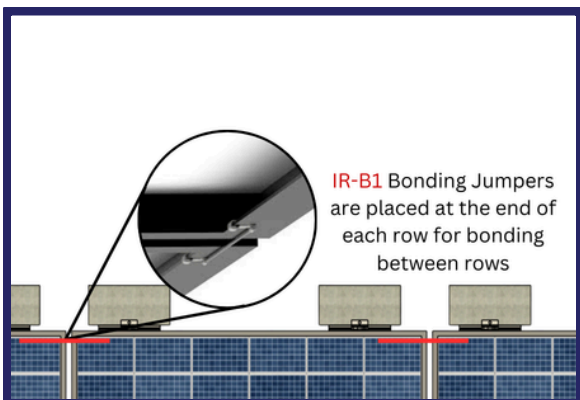


Pre-Inspection of IR-F2 Clamps

Before or during any installation or re-installation of this component, it is important to ensure that all fasteners are clean and free of damage or signs of corrosion. It is also important to make sure that the bolt is tightened properly. If the bolt is able to move in any way, the inner nut must be tightened.

Torque Specs: 10 ft-lbs (120 in-lbs)

Electrical Bonding Between Rows / IR-B1 Jumpers



IR-B1 Bonding Jumpers

For electrical bonding between rows of panels, we offer 8" IR-B1 Bonding Jumpers that are UL 2703 recognized. The bonding jumpers have small internal bonding barbs and they clamp to the bottom inner flange of the solar panels to provide electrical bonding from row to row.



More MultiBallast Info



**See Our Other
Revolutionary Products**



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www.IntegraRack.com