

EKONORACK®

by **KB RACKING®**



INSTALLATION MANUAL

Ekonorack 2.0

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Revision NW-12 | Jan 2026

BEFORE YOU BEGIN

Read all instructions carefully and completely.

IMPORTANT

Always observe all governing codes and ordinances.

For Reference Only – Images and diagrams used in this manual are for reference only. Your project will have specific documents and dimensions (provided separately).

Secure & Dry Storage – Store parts in a secure, dry location during installation. Wet storage stains are prevented by sufficient ventilation and protection from moisture.

Roof Flooding – Ensure proper rooftop drainage. Constant submersion of PV supports in water may damage parts. Consult with a KB Racking® Project Manager if this is the case.

Check Parts – Ensure the correct type and quantities of parts have been delivered.

Damaged Parts – If you have received damaged parts, immediately notify your KB Racking® Project Manager.

Fire Rating – Racking system is to be mounted over a fire-resistant roof covering rated for the application.

Grounding – Racking system may be used to ground and/or mount a PV module complying with UL1703 or UL61730 only when the specific module has been evaluated for grounding and/or mounting in compliance with the included instructions. Refer to page 4.

Modules – Racking system to be used with modules where compatibility from manufacturer has been approved.



CAUTION/ATTENTION

KB Racking® components may have shifted during shipping. Take extra care when moving and unpacking components.

Les composants de KB Racking® peuvent ont déplacé au cours du transport. Prendre des précautions supplémentaires lorsque vous déplacez et déballage les composants.



DANGER

Only qualified professionals should install solar panels, DC cabling, and any anti-lightning safety devices.

Seulment les professionnels qualifié devrait installer les panneaux solaires, les fils CC, et les dispositifs de sécurité contre la foudre.

FOR YOUR SAFETY

While installing the PV system, proper safety equipment should be worn.

KB RACKING® IS NOT RESPONSIBLE FOR ANY DAMAGES INCURRED ONCE SHIPMENT HAS BEEN SIGNED FOR AND RECEIVED.

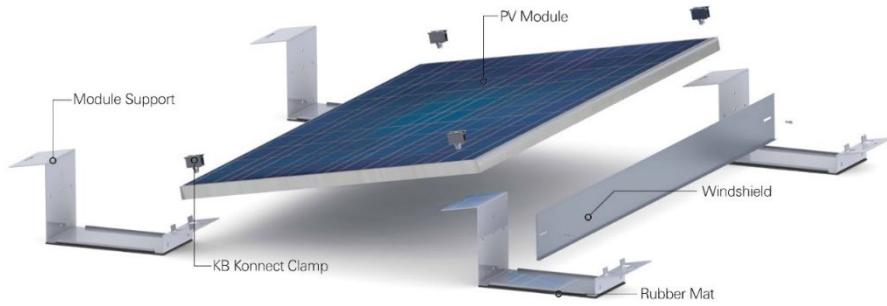
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UL2703 List of Approved Modules

Module Manufacturer	Module Type
Boviet	Boviet 35mm Module Frames: BVMYYYYM-xxx-H-HC-BF-ZZ Where "YYYY" can be 6610 / 6612 / 7610 / 7612 & "ZZ" can be DG or Blank.
Canadian Solar	Canadian Solar 35mm Module Frames: CS7N-xxxMB-AG
JA Solar	JA Solar 30mm, 35mm & 40 mm Module Frames: JAMYYZZZ-xxx/AA Where "YY" can be 54 / 72 / 78; "ZZZ" can be D10 / D30 / S10 / S30 / S31 & "AA" can be MB / MR
Jinko	Jinko 40mm Module Frames: JKMxxxM-72HL4-Y Where "Y" can be v / tv
Longi	Longi 35mm Module Frames: LRY-72ZZZ: Where "Y" can be 4 / 5 & "ZZZ" can be HBD / HPH
Qcells	Qcells 35 mm Module Frames: Q.YYY ZZZ Where "YYY" can be PEAK DUO / TRON & "ZZZ" can be XL-G10.2 / XL-G10.3 / XL-G10.c / XL-G10.d / XL-G10.3 BFG / XL-G10.d BFG / XL-G11.3 / XL-G11.3 BFG / XL-G11S.3 BFG* / XL-G2.3 BFG
Silfab	Silfab 35 mm Module Frames: SIL-xxx-YY Where "YY" can be HC+ / HM / BG / HC / HN
Talesun	Talesun 30 mm Module Frames: TD6IYYM Where "YY" can be 60 / 72
Trina	Trina 35 mm Module Frames: TSM-YYY Where "YYY" can be DEG18MC.20(II) / DEG21C.20
VSUN	VSUN 35 mm Module Frames: VSUNxxx-144YYY Where "YYY" can be BMH-DG / BMH(BB) / M(BB/BW) / MH(BW)
ZnShine	ZnShine 30 & 35 mm Module Frames: ZXMY-AAA-xxx/M Where "Y" can be 6 / 7 & "AAA" can be SH144 / NHLDD144 / SHLDD144 / NH120 / NH144 / SH108

System Overview



Standard Components

Add-on Components

<input type="checkbox"/> Exx-01B	EkonoRack 2.0 – xx Deg. Support
<input type="checkbox"/> Exx-01B-INN	EkonoRack 2.0 – xx Deg. Inverted Support (<i>Optional</i>)
<input type="checkbox"/> Exx-0xB	EkonoRack 2.0 – xx Deg. Windshield
<input type="checkbox"/> C02-35E	KB Konnect Clamp
<input type="checkbox"/> KB00-AL-01-xx	KB Konnect End Clamp, xx mm (30, 35, 40)
<input type="checkbox"/> C01-xxE	End Block, xx mm (Used for Alternative End Clamp Thicknesses)
<input type="checkbox"/> 9111-M616-SS0	Hex Bolt, M6x16, Serrated Flange

Ballast Tray Kit

<input type="checkbox"/> E00-03B	EkonoRack 2.0 - Ballast Tray
<input type="checkbox"/> 9110-M825-SS0	Hex Bolt, M8x25

High Capacity Mounts (HCM) Kit

<input type="checkbox"/> HCMxx-01B	High Capacity Mount, xx Deg. Bottom Support
<input type="checkbox"/> HCMxx-02B	High Capacity Mount, xx Deg. Top Support

High Uplift Solution Support (HUS) Kit

<input type="checkbox"/> HUSxx-01B	High Uplift Solution, xx Deg. Support
<input type="checkbox"/> HUSxx-01B-INN	High Uplift Solution, xx Deg. Inverted Support

Corner Bar / Edge Bar Reinforcement Kit

<input type="checkbox"/> E00-03E-xx	Edge Bar, xx mm
<input type="checkbox"/> E00-04E-xx	Corner Bar, xx mm
<input type="checkbox"/> E00-05E-xx	Balancing Bar, xx mm
<input type="checkbox"/> AC00-01B-AL	Accessory Bracket, Aluminum
<input type="checkbox"/> 9211-M60-SS0	Hex Nut, M6, Serrated Flange
<input type="checkbox"/> 9110-M625-SS0	Hex Bolt, M6x25

Anchor Kit

<input type="checkbox"/> E00-06B-SS	Anchoring Arm
<input type="checkbox"/> 9110-M825-SS0	Hex Bolt, M8x25
<input type="checkbox"/> 9211-M80-SS0	Hex Nut, M8 Serrated Flange

Tools and Equipment Required for Installation

<input type="checkbox"/> Safety Gloves	<input type="checkbox"/> 5mm Allen Bit	<input type="checkbox"/> Torque Wrench
<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> 10mm Socket / Wrench	<input type="checkbox"/> Power Drill
<input type="checkbox"/> Spacer Sticks*	<input type="checkbox"/> 13mm Socket / Wrench	

*Use pre-cut wooden spacers to consistently space panel supports (not supplied).

KB Racking® Wire Management – Optional System

<input type="checkbox"/> WM00-01R-30	WM Rail	<input type="checkbox"/> 9111-M625-SS0	Hex Bolt, M6x25, Serrated Flange
<input type="checkbox"/> WM00-09B-60	WM Cover	<input type="checkbox"/> 9211-M60-SS0	Hex Nut, M6, Serrated Flange
<input type="checkbox"/> WM00-03B	WM Rail Grip	<input type="checkbox"/> 93111-M610-SSBSL	Serrated Washer, M6 x 10mm



PLEASE READ THE FOLLOWING



If roof/building edge has a fall distance of 10ft (3m) or greater,

Appropriate safety measures must be taken (i.e. harnesses) for installation of panels closer than 6.5ft (2m) to roof edges or skylights.

Distance from gas lines and electrical equipment

Solar panels should be a minimum of 3ft (0.9m) away, unless otherwise stated. Failure to comply could result in an inspection failure requiring the system to be dismantled.

Distance from rooftop hatches and/or doorways

Solar panels should be a minimum of 5ft (1.5m) away, unless otherwise stated.

Distance between arrays

Unless otherwise stated, solar arrays should be spaced a minimum of 4ft (1.2m) from each other, E/W, with a minimum 1ft (0.3m) gap ever 15 to 16 modules to allow emergency crews easy access between arrays.

NOTE: Please note that KB Racking® Inc. requires all arrays to be no closer than 3ft (0.9m), unless otherwise stated, from a building's roof edge to validate wind load calculations and ensure the system is safely ballasted.

Preparing for Installation

- 1 Clean roof surface and remove all dirt and debris.

IMPORTANT

Inspect roof for damage prior to installation and record any existing damage with a digital camera.

- 2 Ensure proper drainage on the roof. Water accumulations may lower the load reserve of the rooftop and decrease lifespan.
- 3 Ensure the correct type and quantities of parts have been delivered.



PLEASE READ THE FOLLOWING



TO SPEED UP INSTALLATION PROCESS

Install the system on a per array basis, partially ballasting the EkonoRack supports. Prior to installing the module supports all ballast trays should be pre-assembled to the support. Leave enough ballast space to secure the windshields. Once windshields are fully installed, add the remaining ballast to the supports. This process will save you from re-arranging ballast blocks to create space while installing windshields.

NOTE

Never leave an array under-ballasted without windshields. If leaving an unfinished array overnight, or for an extended length of time, the system **MUST** be fully ballasted.

Installing Module Supports

- 1 Place your first support for an array. Refer to your project specific *Layout Diagram* for dimensions (see example, Figure 3).

IMPORTANT

Wear safety gloves when handling parts. Newly fabricated parts may have sharp edges.

- 2 Use your project specific *Spacing Diagram* to obtain the distance between two module supports in the N/S and E/W directions. Complete the first row of the array (see example, Figure 4).
- 3 Begin the next row of the array. Use chalk lines or pre-cut wooden spacer sticks to consistently align supports (Figure 1).
- 4 Place supports for the entire array before installing ballasts (Figure 2). Inverted supports may be used at the north edge of an array. Refer to your project specific *Layout Diagram* for placement locations if being used.

IMPORTANT

Ballast paver blocks used to prevent module supports from shifting MUST be replaced with the correct paver combinations before panels are installed.



Fig. 1 – Use of Spacer Sticks to Aid Placement



Fig. 2 - Supports Placed Prior to Ballasting

How to Use Your Layout Diagram

- 1 Note the following items on your project specific *Layout Diagram*:

NORTH ARROW	DIMENSIONS	LEGEND
ARRAY NUMBERS	ROOF STRUCTURES	

- 2 From the layout, use the N/S and E/W dimensions at a corner of your roof as the **ORIGIN** (i.e. the beginning) of your installation.

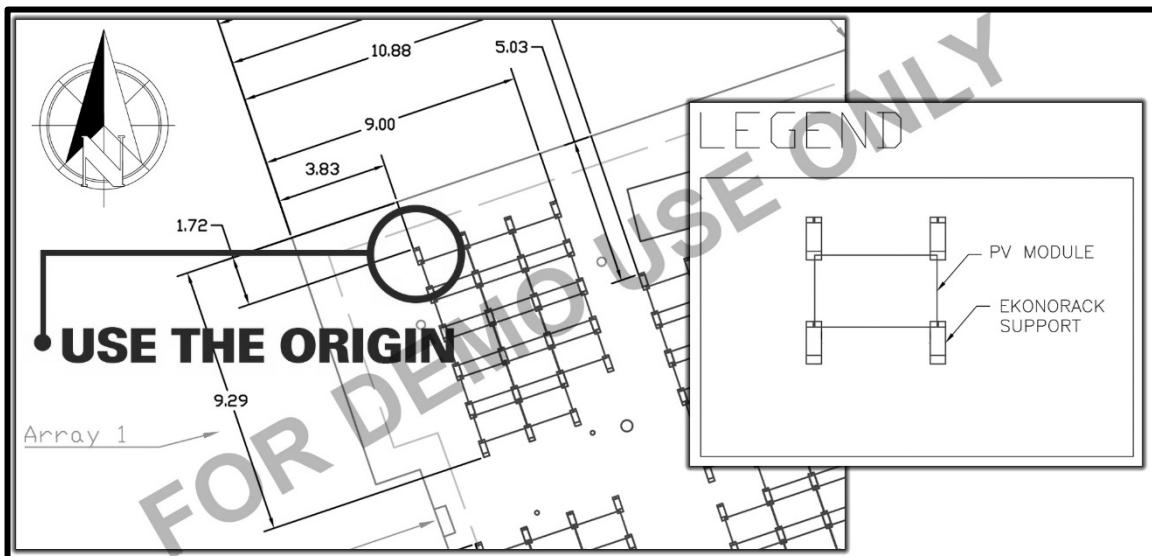


Fig. 3 - Sample Layout Diagram

NOTE

If your project requires corner bars and/or edge bars, please refer to Appendix E for Installation Instructions prior to next step.

How to Use Your Spacing Diagram

1

Your *Spacing Diagram* will indicate the following important dimensions:

N/S SUPPORT SPACING (N/S distance between supports)

E/W SUPPORT SPACING (E/W distance between supports)

ROW SPACING (N/S distance between support rows)

Record these numbers and do not confuse them.

2

OPTIONAL - Create spacer sticks for each *support spacing* dimension.

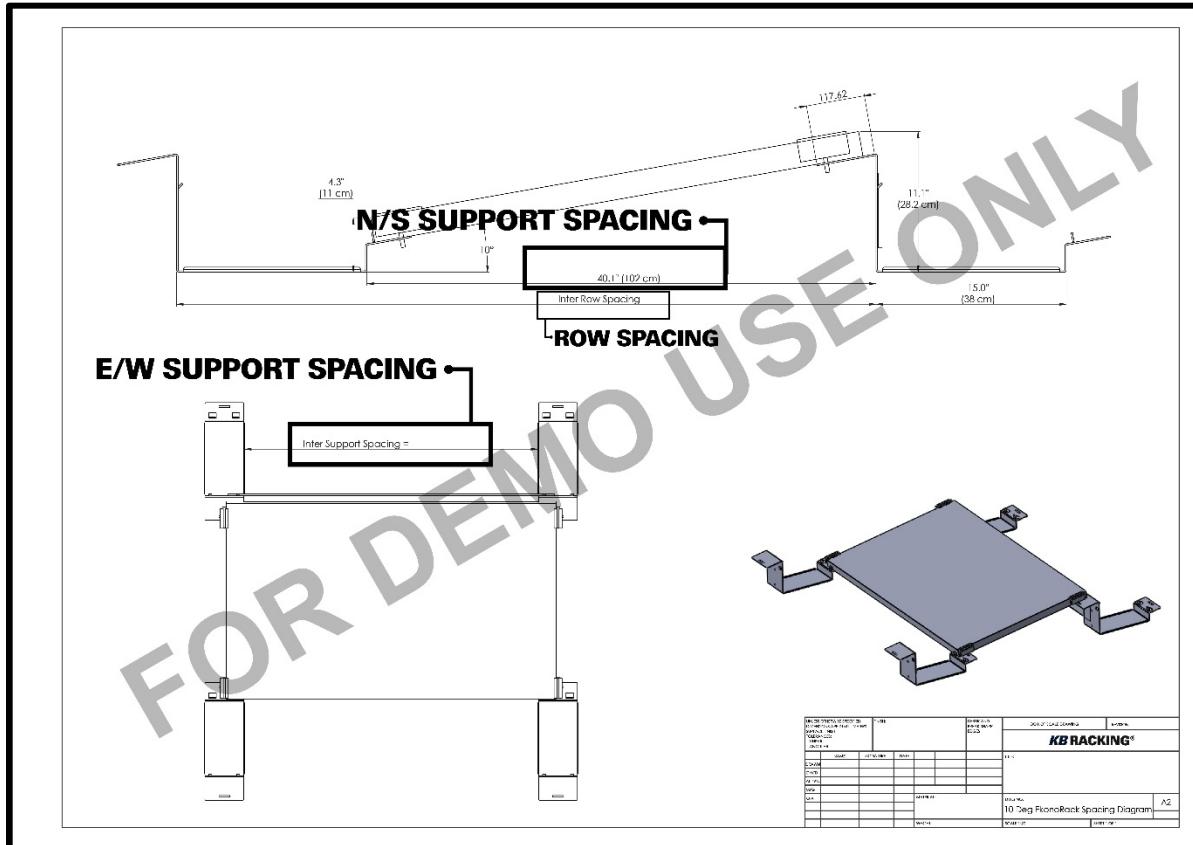


Fig. 4 - Sample Spacing Diagram

Installing Ballasts Blocks

IMPORTANT

Place ballast blocks on module supports before installing panels to prevent panels from lifting.

- 1 Use your project specific *Paver Layout* to place paver block combinations onto all module supports (see example, Figure 6).

IMPORTANT

Where possible, position pavers atop flanges of the module support base-plates.

- 2 Use your project specific *Paver Shading Diagram* to ensure paver combinations do not exceed the shadow line for your project location (see example, Figure 7).

IMPORTANT

Paver blocks MUST have their center of gravity resting on the module support base, as shown below.

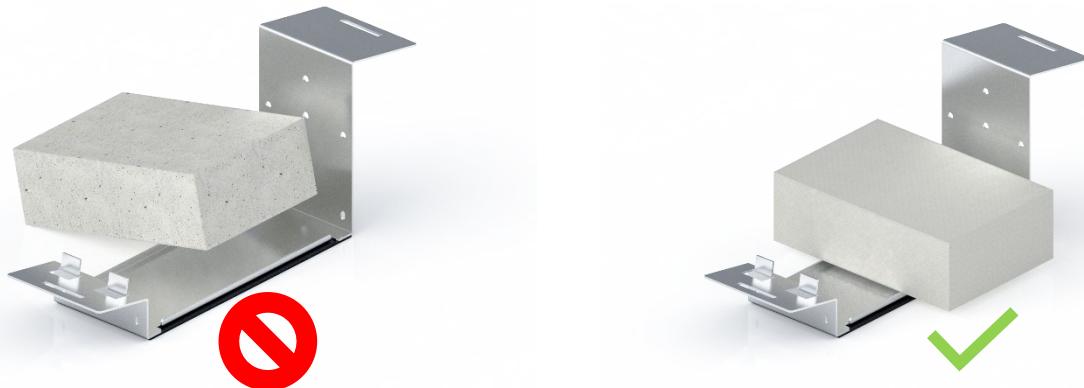


Fig. 5 - Place ballasts with majority of their weight on the support

How to Use Your Paver Documents

- 1 Ensure you have the *Paver Layout* and *Paver Shading Diagram* documents.

The *Paver Layout* shows the combinations of ballast blocks required for each support to ballast each panel.

The *Paver Shading Diagram* shows sample arrangements of pavers to prevent shadows being cast onto the panels.

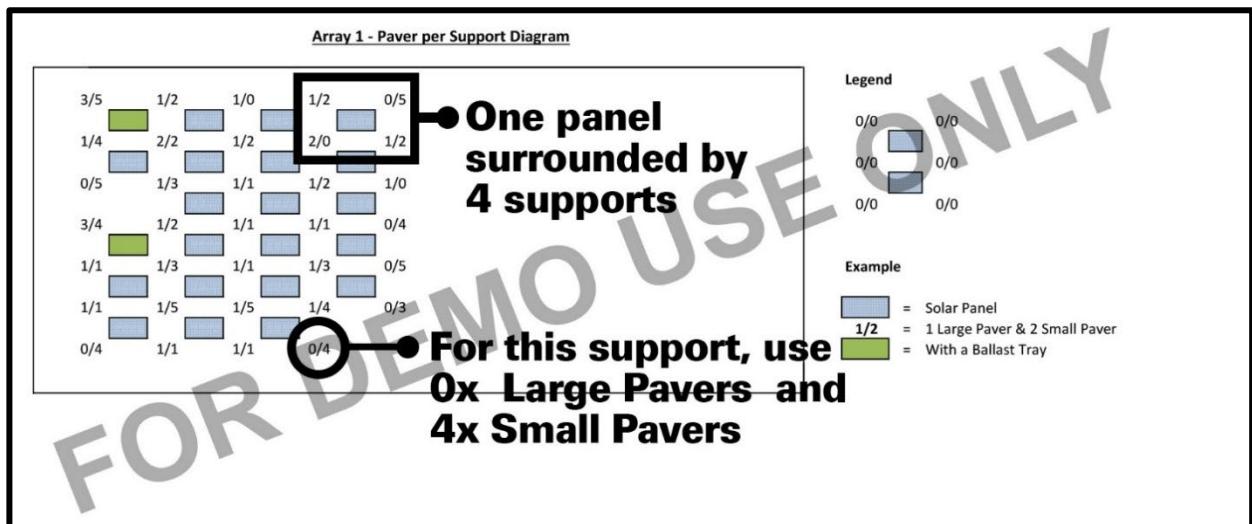


Fig. 6 - Sample Paver Layout

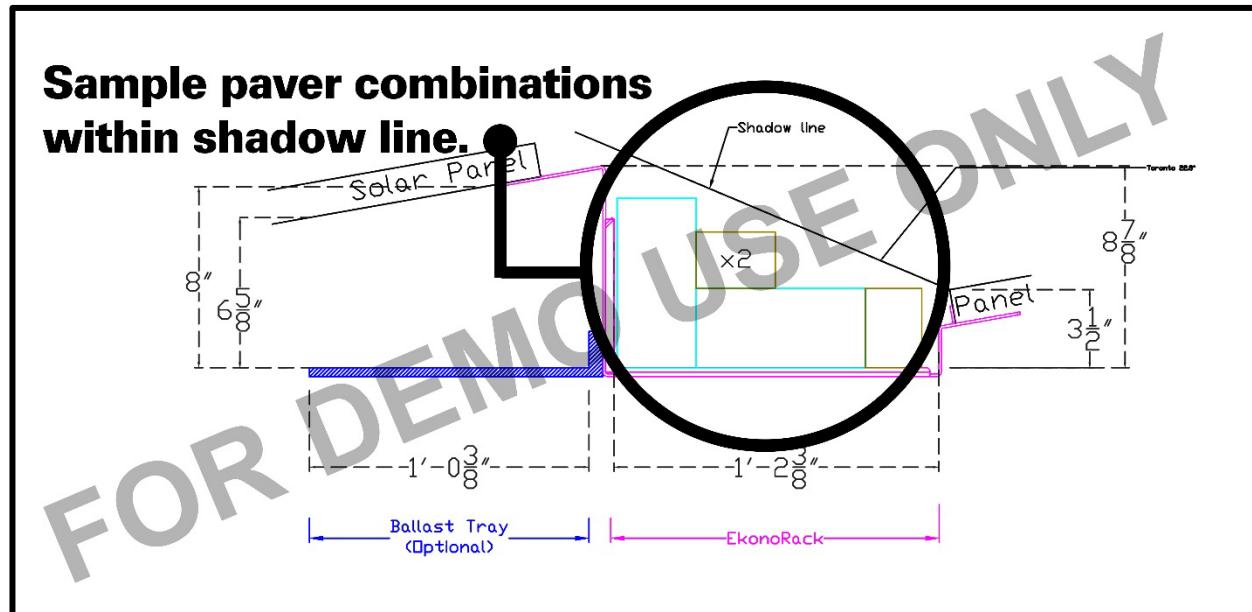


Fig. 7 - Sample Paver Shading Diagram

NOTE

If your project requires ballast trays, please refer to Appendix A for Installation Instructions.

Installing Solar Panels

- 1 Begin at an array edge. Place a solar panel onto the module support (Exx-01B).

IMPORTANT

KB Racking® will provide either KB konnect clamps (C02-35E) with end clamp blocks (C01-xxE) or KB konnect end clamps (KB00-AL-01-xx) without end blocks.

KB Konnect end clamps are designed for 30, 35, or 40mm module thicknesses.

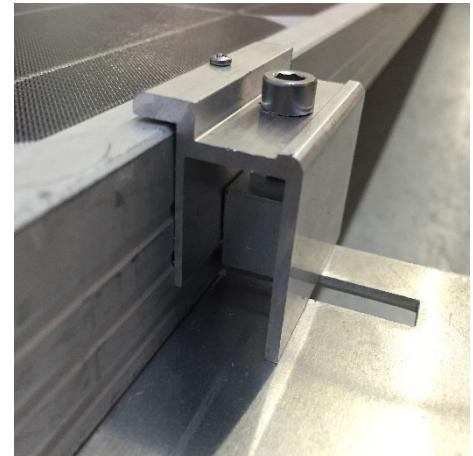


Fig. 8 – KB Konnect End Clamp

- 2 Along the array edge, click end clamps into top and bottom mounting slots of module supports:
 - a) For KB konnect clamps (C02-35E), insert end clamp blocks (C01-xxE) to balance clamp in place.
 - b) For KB connect end clamps (KB00-AL-01-xx), click clamp in place aligned with panel.



Fig. 9 - Click-in KB Konnect Clamps



Fig. 10 - Insert End Block for End Clamps

IMPORTANT

Each solar panel requires FOUR (4) clamps.

3 Place the next solar panel in the row. Click KB Konnect clamps (C02-35E) into mounting slots on the modules supports.

IMPORTANT

End clamp blocks provided by KB Racking® are designed to match your solar module thickness. This ensures the clamp sits flat. If end clamps do not sit flat, you have the incorrect block. Notify your builder immediately.

4 Secure the first panel in the row. Tighten the end clamps and middle clamps with a standard drill or torque wrench.

Torque to 8.3Nm (6.1ft-lb).



Fig. 11 - Use Standard Drill



Fig. 12 - Use Torque Wrench

IMPORTANT

To prevent damage to solar panel and clamp, do not exceed recommended torque setting above.

Do not use hammer drills, impact drivers, or long allen keys.

IMPORTANT

When securing clamps, ensure EkonoRack support is firmly secured (by ballast or human weight).

Failure to do so may result in damage to the support and/or clamp.

5 Continue placing panels for your first row. Tighten the middle clamps as panels are installed.

6 At the end of the row, secure the panel with the associated end clamp (KB konnect end clamp or end block), similar to Step 2.

7 Begin the next row. Repeat steps 1-7 until all panels are installed.

IMPORTANT

Strong winds can lift panels. Once installed, solar panels should not be left unsupervised without windshields (Exx-0xB) installed.

IMPORTANT

KB Konnect clips are designed for single use only.

If clips are removed for maintenance purposes, please re-install using new KB Konnect clip. Rest of clamp (Body and Bolt) are multiple use.

Installing Cable Systems

- 1 Secure all panels in place before cabling.
- 2 Place string cables between circular notches of the top end of module support (Exx-01B). Secure with cable/zip ties (not supplied).
Cable trays are required for wire management of the system (additional component, not provided).

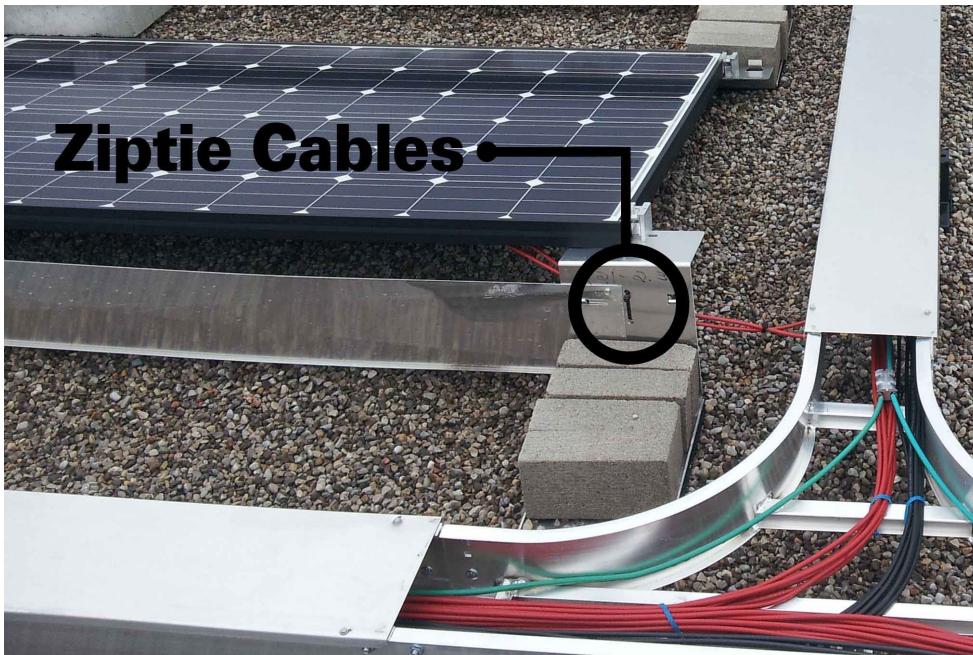


Fig. 13 - Zipties Used to Hold Cables

Wire Management

KB Racking® offers an optional wire management solution designed specifically for easy installation with our EkonoRack 2.0 system. **See Appendix D for installation instructions.**



Installing Windshields

NOTE: Anchor attachments must be installed prior to windshield. Refer to Appendix F for instructions.

1 Align windshield (Exx-0xB) onto back of module support. Windshield slots must align with inner press-fit nuts.

2 Secure windshields with M6 bolts to the support, as shown below.
Torque to: 11.8 Nm (8.7 Ft-lb)

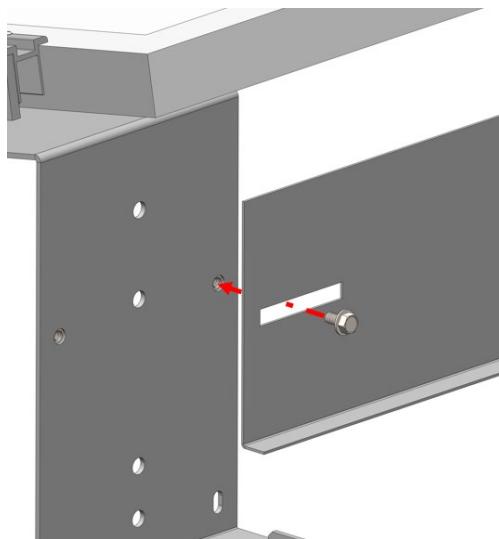


Fig. 14 – Align and Torque Bolt

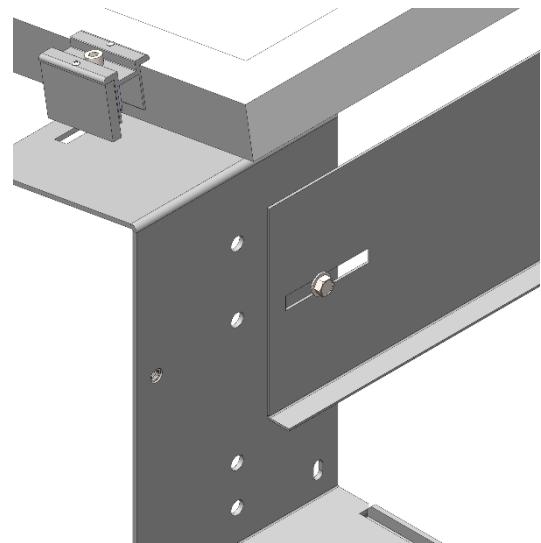


Fig. 15 – Assembled Windshield Bolt

IMPORTANT

Windshields must sit flush against EkonoRack supports. Ensure windshield flap is facing away from support when installing.

Installing ETL Certified Grounding Lugs

Tyco Grounding Lug

- 1 Screw threaded post of grounding lugs (not provided) into any module support or solar panel. Tighten the hex washer nut.
Torque to: 2.82Nm (2.1ft-lb).
- 2 Insert #6 AWG – RW75 uninsulated copped ground wire into wire slot. Tighten hex nut. **Torque to: 5.08Nm (3.75ft-lb).**

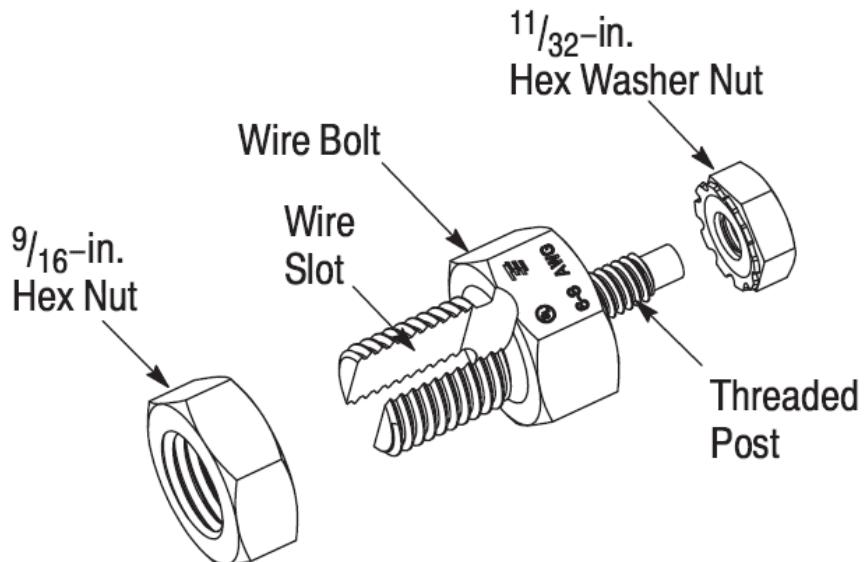


Fig. 16 - Grounding Lug Schematic (Tyco model, 2058729-1, shown as an example)

IMPORTANT

For the purpose of electrical bonding, only one grounding lug is required per array. DO NOT exceed 20x25 panels in the E/WxN/S directions, respectively. Panels may be installed in landscape or portrait orientation.

Maximum Series Fuse Rating: 30 Amps

Ilasco Grounding Lug

- 1** Fasten grounding lugs (not provided) onto any module support or solar panel. Tighten the bolt.
Torque to: 5Nm (3.69ft-lb).

- 2** Insert #6 AWG – RW75 uninsulated copped ground wire into wire slot. Tighten the bolt.
Torque to: 5.08Nm (3.75ft-lb).



Fig. 17 - Grounding Lug Schematic (Ilasco model, SGB-4, shown as an example)

IMPORTANT

For the purpose of electrical bonding, only one grounding lug is required per array. DO NOT exceed 20x25 panels in the E/WxN/S directions, respectively. Panels may be installed in landscape or portrait orientation.

Maximum Series Fuse Rating: 30 Amps



PLEASE READ THE FOLLOWING



Installer is responsible for and shall provide an appropriate method of direct-to-earth grounding in accordance with the latest edition of the Canadian Electrical Code Part 1, CSA 22.1 Safety Standard for Electrical Installations or the National Building Code, including NEC 250: Grounding and Bonding, and NEC 690: Solar Photovoltaic Systems.

Please refer to your local Building and Electrical Codes.



PLEASE READ THE FOLLOWING



Keep Copper away from Aluminum components in a fashion that maintains a minimum of $\frac{1}{4}$ " separation.



PLEASE READ THE FOLLOWING



The bonding path for grounding is a result of the interconnection of all components in the array.

During scheduled maintenance, the removal of modules, windshields or other components must be carefully and methodically considered. The bonding path will not be disrupted by module removal. The module with the support connected to the grounding lug must be removed last.

At all times, the array must be interconnected to the grounding lug (as well as during maintenance).

Note:

The module clamps contain protruding screws that pierce the panel frame to provide an electrical bonding connection between the panel and support. The grounding continues through the adjacent racking to where the system is connected to a grounding wire through grounding lugs.

Therefore, only one EkonoRack support needs to be grounded per Array.

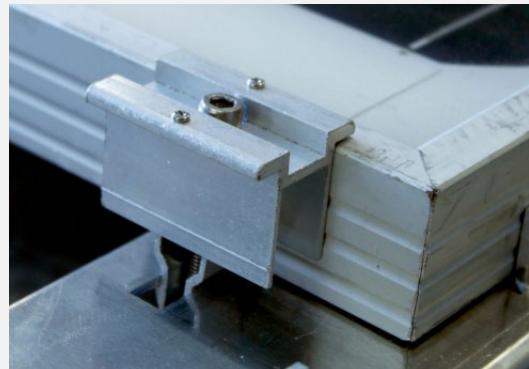


Fig. 18 – Module Clamp

Basic Wiring Diagram

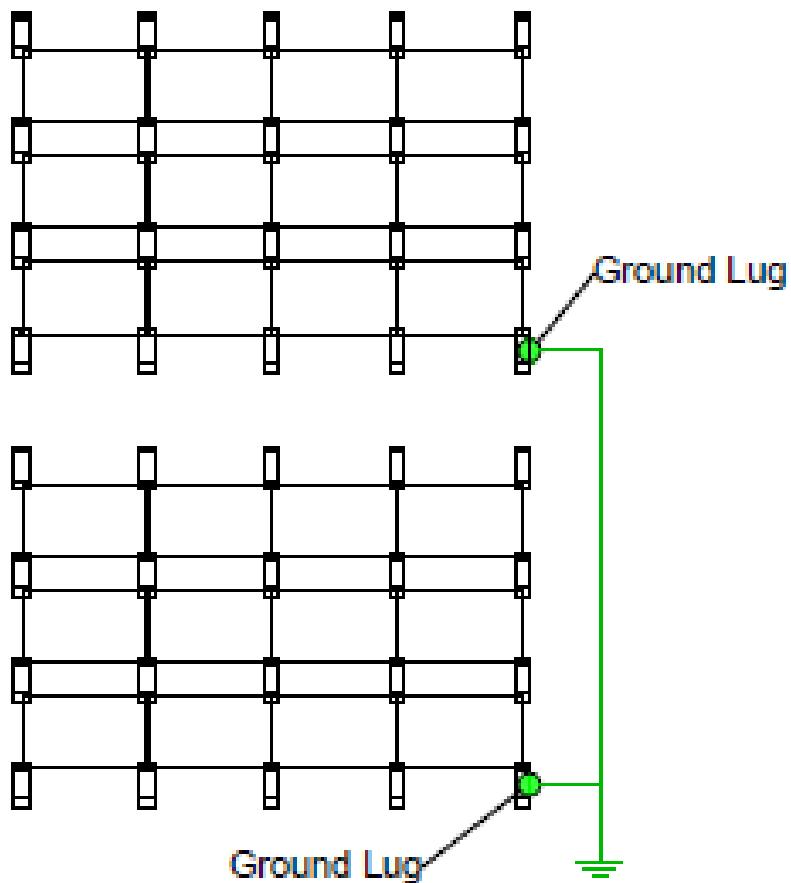


Fig. 19 - Basic Wiring Diagram, Use as Example Only

Grounding and Bonding Diagram

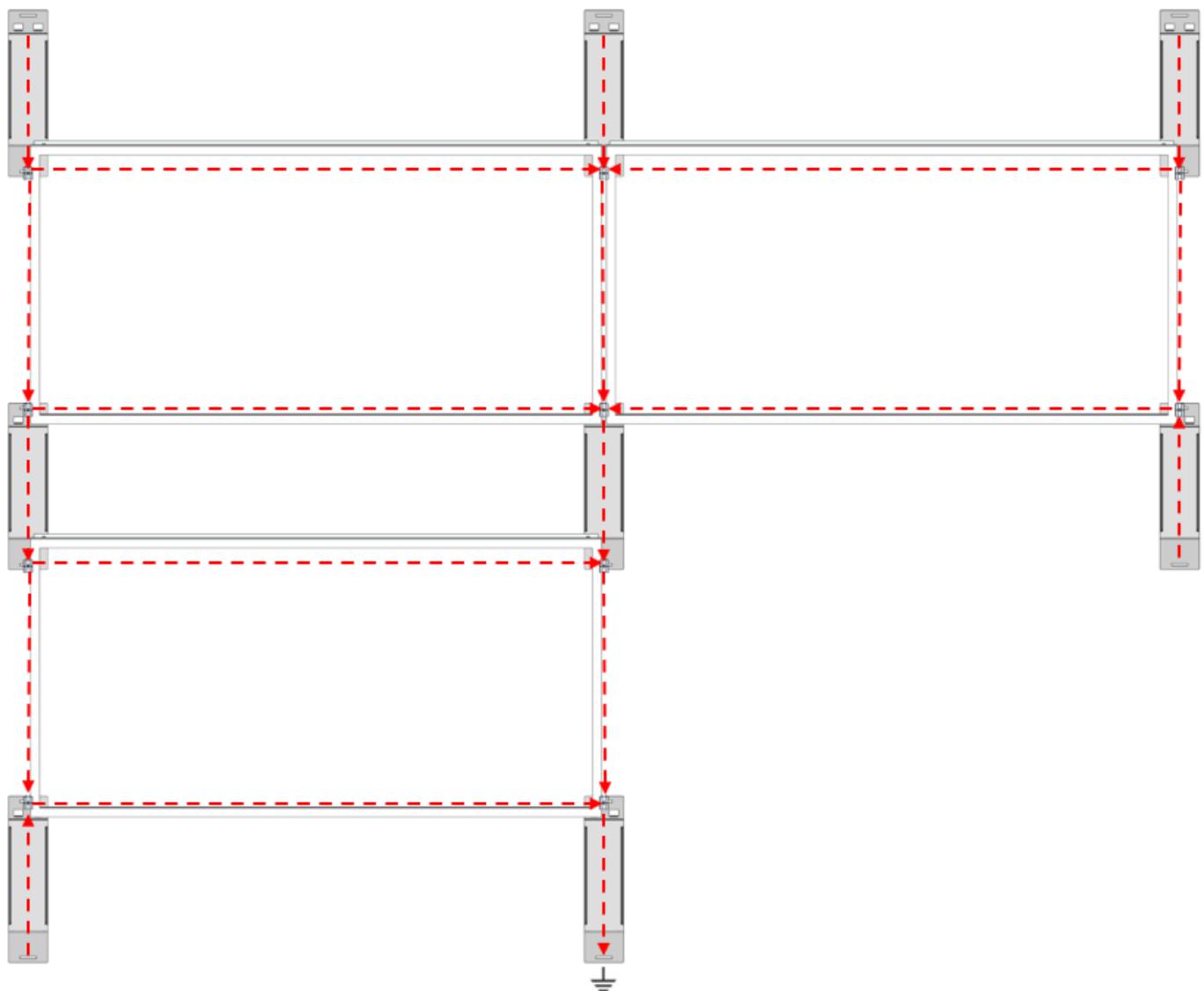
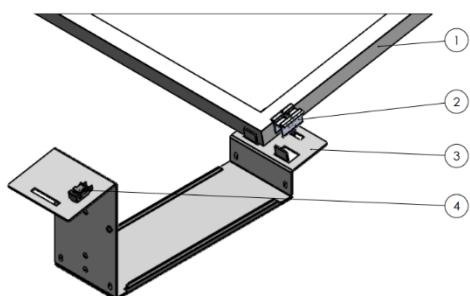


Fig. 20 – Minimum Grounding and Bonding Path



ITEM NO	DESCRIPTION
1	Panel
2	KB Konnect Clamp
3	EkonoRack 2.0 Support
4	Grounding Clip/Lug

Fig. 21 – Electrical Grounding Path

Completing the Installation

1

For each array, ensure the following items are correctly installed and torqued:

- i. KB Konnect clamps
- ii. Grounding lugs
- iii. Windshields



Product Maintenance Information

To maximize life span and ensure peak performance, KB Racking® recommends routine maintenance checks. The following checks should be completed every 6 months to maintain the system's integrity. KB Racking® highly recommends conducting a maintenance check after a severe weather and/or extreme events such as hurricanes or earthquakes.

- Remove debris from rooftop that can damage panels or stop solar absorption.
- Clean solar panels and remove bird waste.
- Check clamps and hardware to ensure intended connections are secured.
- Check components for damage (warping, bent).
- Check for damaged components. Damaged components shall be replaced immediately in accordance with these instructions.

A P P E N D I X A

APPENDIX A | Installing Ballast Trays

- 1 Use your project specific *Paver Layout* to identify which supports require Ballast Trays to be installed.

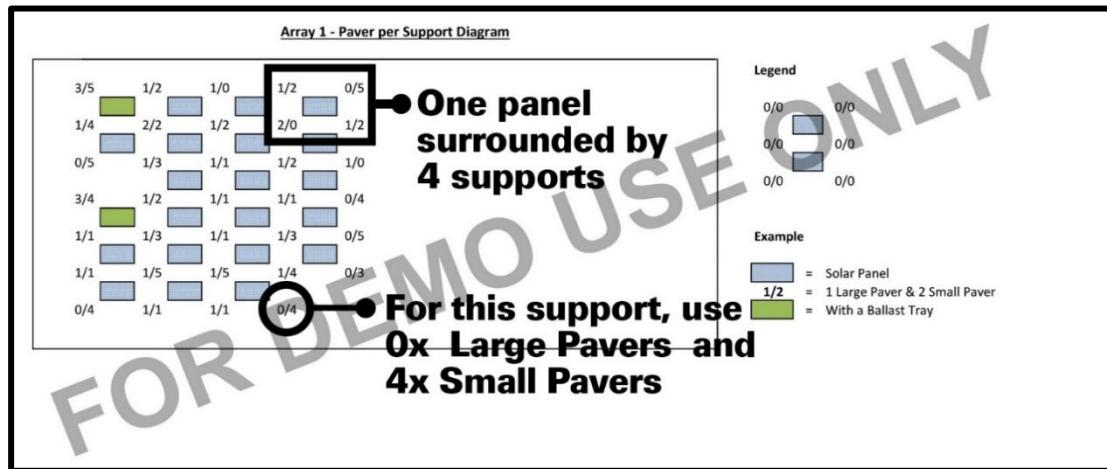


Fig. A1 - Sample Paver Layout

- 2 Align mounting hole on Ballast tray with the center hole on the backside of the EkonoRack support, as shown below.

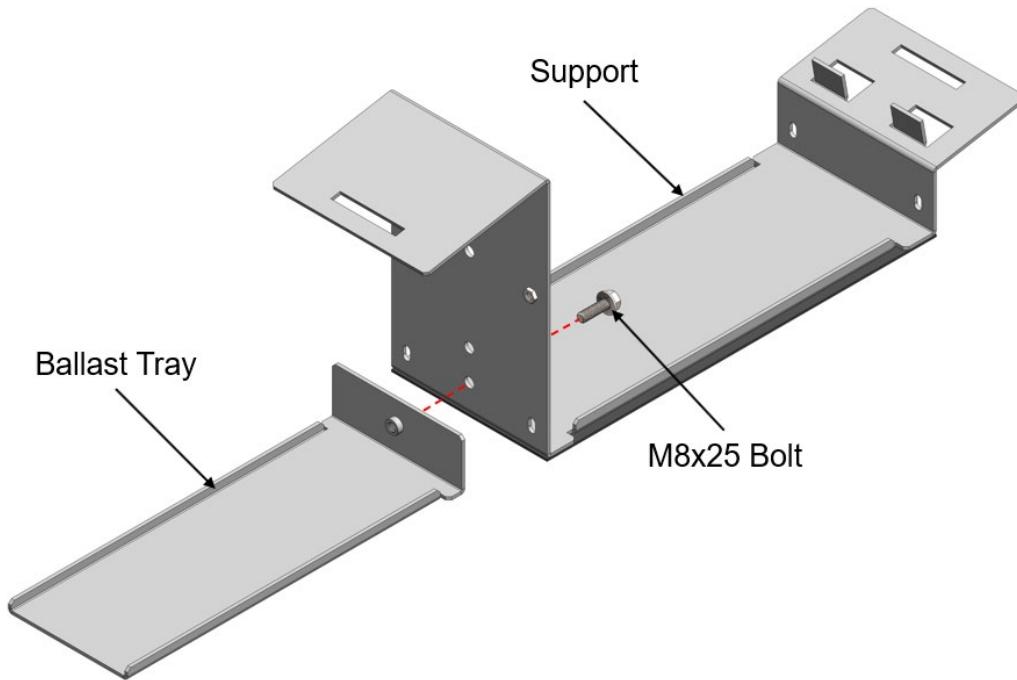


Fig. A2 – Ballast Tray Installation

- 3 Secure Ballast Tray to EkonoRack support with supplied M8 x 25mm hex bolt. **Torque to: 11.8 Nm (8.7 ft-lb)**

A P P E N D I X B

APPENDIX B | Installing High Capacity Mount Supports (HCM)

IMPORTANT

HCM Supports are installed after the four corner supports have been installed. The HCM Support is installed before the windshield.

For module locations that require HCM's and HUS's, remove the HCM Top Support where HUS Supports are installed.

- 1 Center the top support (HCMxx-02B) on the high side of the panel. Fit top support into place from high edge of panel until it is fully in contact with the module. This may require you to slightly push up on the panel.

NOTE: The Top Support should sit firmly on the roof surface.

- 2 Click the KB konnect end clamp (see Fig. B1) into the top support slot. Install with either KB konnect end clamp or KB konnect clamp and end block.

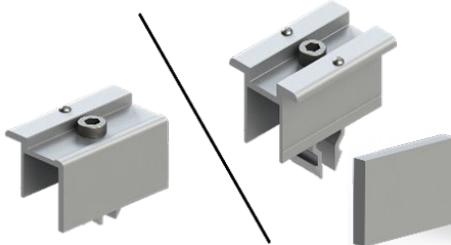


Fig. B1 – KB Konnect End Clamp, KB Konnect Clamp with End Block

- 3 Secure the support to the panel by tightening the clamp bolt. Torque to **8.3Nm (6.1ft-lb)**.

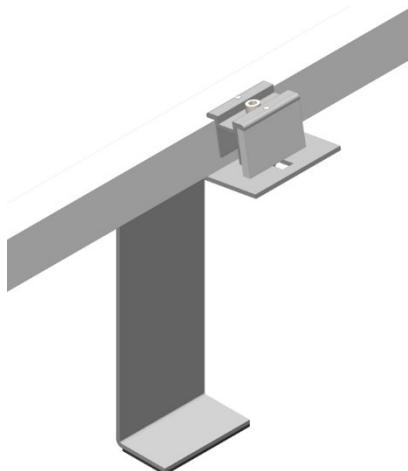


Fig. B2 – Assembled HCM Top Support

APPENDIX B | Installing High Capacity Mount Supports (HCM)

4 Center the bottom support (HCMxx-01B) on the low edge of the panel. Slide bottom support under the panel and secure to the panel flange by pulling the support towards you. Verify that center and outer flanges (see Fig. B3) of the support grip the panel flange tightly.

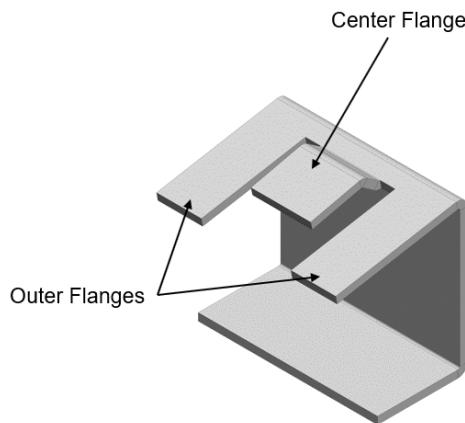


Fig. B3 – HCM Bottom Support

5 Verify that the HCM Bottom Support is in place:

Check to feel that the panel flange is in between the outer flanges of the bottom support. It will not be visible under the panel, but you will be able to feel that it is correctly in place, as seen in Fig. B4.

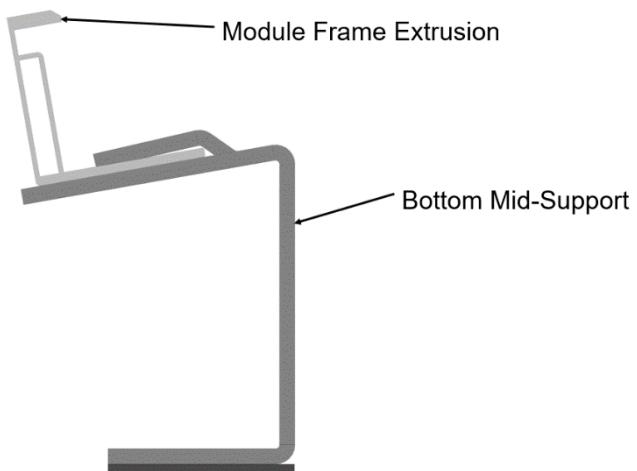


Fig. B4 – HCM Bottom Support Secured to Panel Flange

APPENDIX B | Installing High Capacity Mount Supports (HCM)

6 Verify that the outer flanges of the support stick out at least 1/8" past the panel frame. This may vary with each panel.

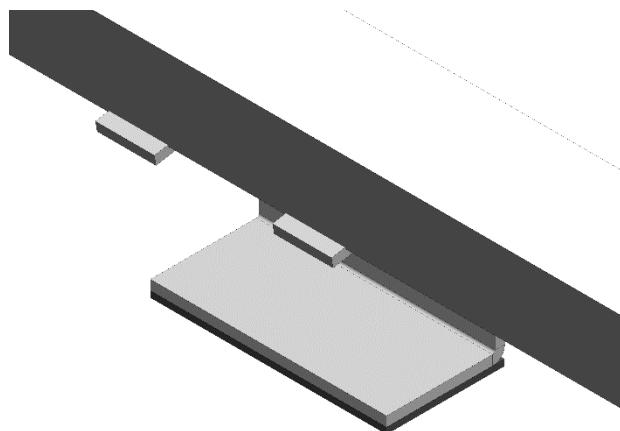


Fig. B5 – HCM Bottom Support Attached to Panel Flange

7 If the support is correctly gripping the flange, you should notice a small gap between the roof surface and the bottom of the support, however, this may vary between modules. If you do not notice a gap, please verify that it is secured in place as indicated above.

A P P E N D I X C

APPENDIX C | Installing High Uplift Solution Supports (HUS)

IMPORTANT

HUS supports are only to be installed on the northside of panels.

For module locations that require HCM's and HUS's, remove the HCM top support where HUS supports are installed.

- 1 Center the HUS support (HUSxx-01B) on the northside of the panel between two supports (Exx-01B). Move the support into place until it is in contact with the module (see Fig. C1). There may be a small gap between the support and panel—this is not a cause for concern. If using Inverted supports (HUSxx-01B-INN) repeat the same process.

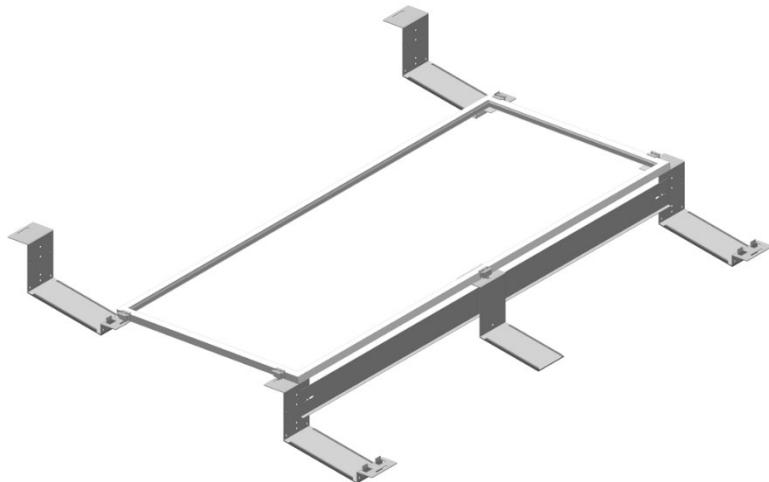


Fig. C1 – EkonoRack with High Uplift Solution Support

- 2 Click the KB konnect end clamp (see Fig. C2) into the top support slot. Install with either KB konnect end clamp or KB konnect clamp and end block.

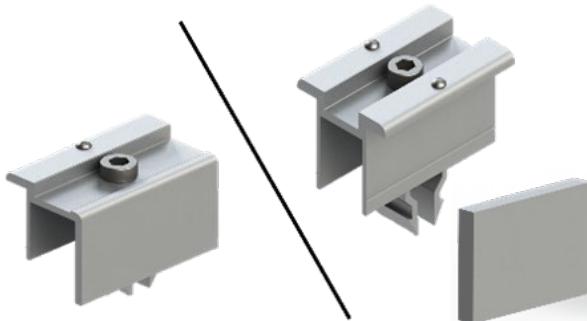


Fig. C2 – KB Konnect End Clamp, KB Konnect Clamp with End Block

APPENDIX C | Installing High Uplift Solution Support (HUS)

- 3 Secure the KB Konnect end clamp to the module (see Fig. C3). The clamp may be tightened with either a standard drill or a torque wrench to the recommended torque setting - **8.3 Nm/6.1 ft-lb**.

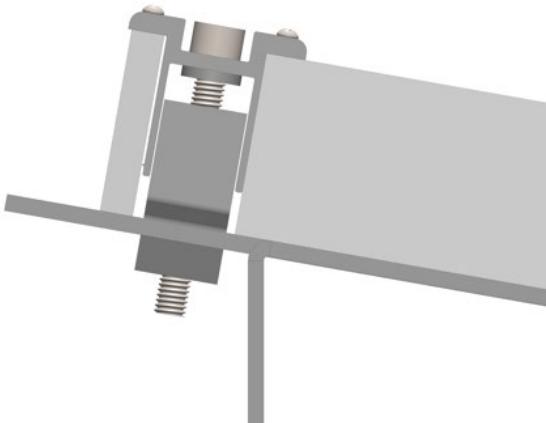


Fig. C3 – Module Fastened to HUS Support with KB konnect clamp and end block

- 4 Place the Ballast stones on the HUS support once the support is secured to the panel. Ballast stones are to be placed on the ballast tray in the same fashion as the EkonoRack supports.

A P P E N D I X D

APPENDIX D | Installing KB Racking® Wire Management

- 1 Align WM Rails per your electrical layout (electrical layout not provided by KB Racking®).

IMPORTANT

Rails should be placed under windshields, within array field. If placed outside the array, the outside edge of rails must be within 1m of an array edge.

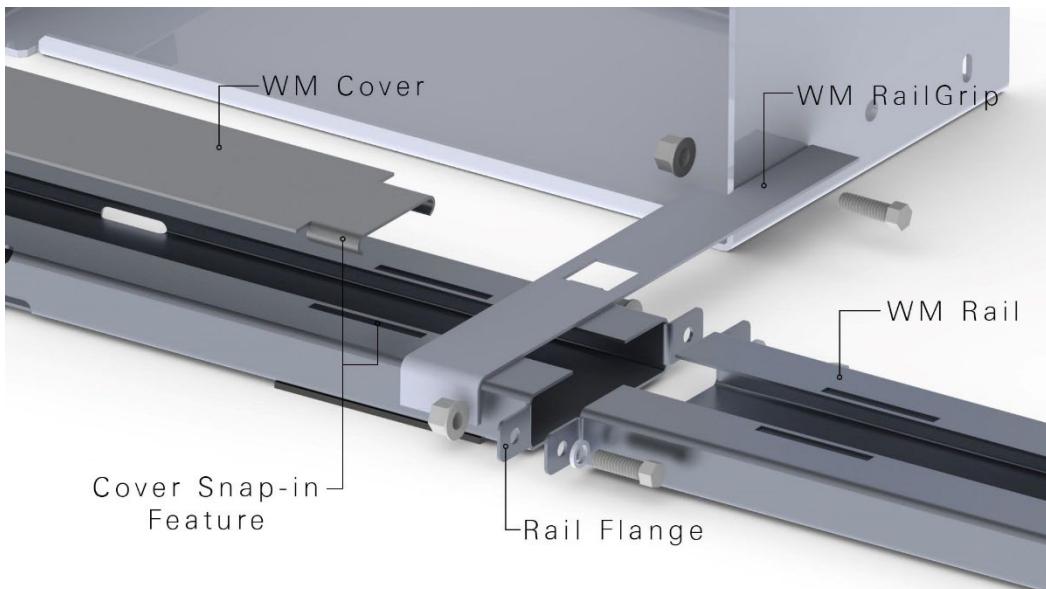


Fig. D1 – KB Racking® Wire Management Assembly

- 2 Rails connect at flanges with M6 bolts. Assemble bolt with washer through flanges, then M6 nut. Snug-tighten with 10mm socket and wrench.
- 3 Place cables within tray. At exit/entry points for cables, cut Trim-Lok strip to length and adhere to WM Rail edges. This will protect cables from damage.
- 4 Rail covers can be snapped into WM rail snap-in features. A full length of WM rail will require five covers.
- 5 Optional RailGrip attachments can be installed to secure rail to EkonoRack supports. Place RailGrip over rail as shown. Align other end with EkonoRack support hole. Secure with snug-tight M6 bolt/nut combination.

A P P E N D I X E

APPENDIX E | Installing Edge / Corner Reinforcement Bars

1

Use your project specific *Reinforcement Installation* to lay out corner/edge bars and accessory brackets at required locations (see example, Figure E3).

IMPORTANT

Corner bars (E00-04E-xx) require three accessory brackets (AC00-01B-AL). Edge bars (E00-04E-xx) require four accessory brackets (AC00-01B-AL). Each accessory bracket connects the corner/edge bar to a different module support in the N/S direction.

IMPORTANT

Install accessory brackets (L-Brackets) ONLY on the tall side of supports.

2

Insert corner/edge bars between the mat and the bottom of module support. Sharp edges of corner/edge bars should not touch the roof.

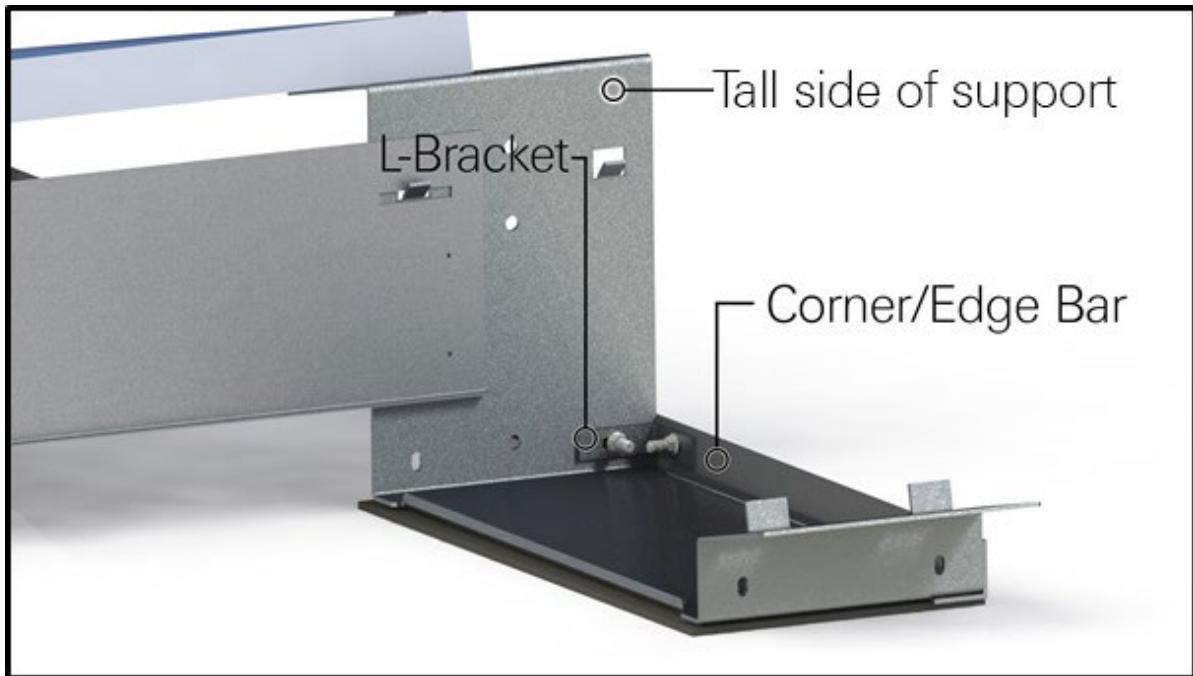


Fig. E1 – Edge/Corner Bar Installation with Accessory Bracket

IMPORTANT

Corner/edge bars can be installed on either side of a module support and can share a single support. Ensure your accessory brackets are fastened to the same side as the corner/edge bar.

- 3 Slide the corner/edge bar to align mounting holes with accessory bracket slots. Fasten the bars to each accessory bracket using M6 nuts and bolts.

- 4 Torque all M6 nuts and bolts to **11.8 Nm (8.7 Ft-lb)**

- 5 Repeat the steps above to completely install all corner/edge bars.

IMPORTANT

Corner/edge bars attached to EkonoRack supports MUST be accompanied by a Balancing Bar. This allows ballast blocks to be seated parallel to the roof without sliding off.

- 6 Install Balancing Bars where corner/edge bars connect to a support. Balancing Bars are placed on top of the module support, as shown in Figure E2.

IMPORTANT

Where two (2) corner/edge bars share a single module support, balancing bars are NOT required. Balancing bars are used to seat ballasts level.

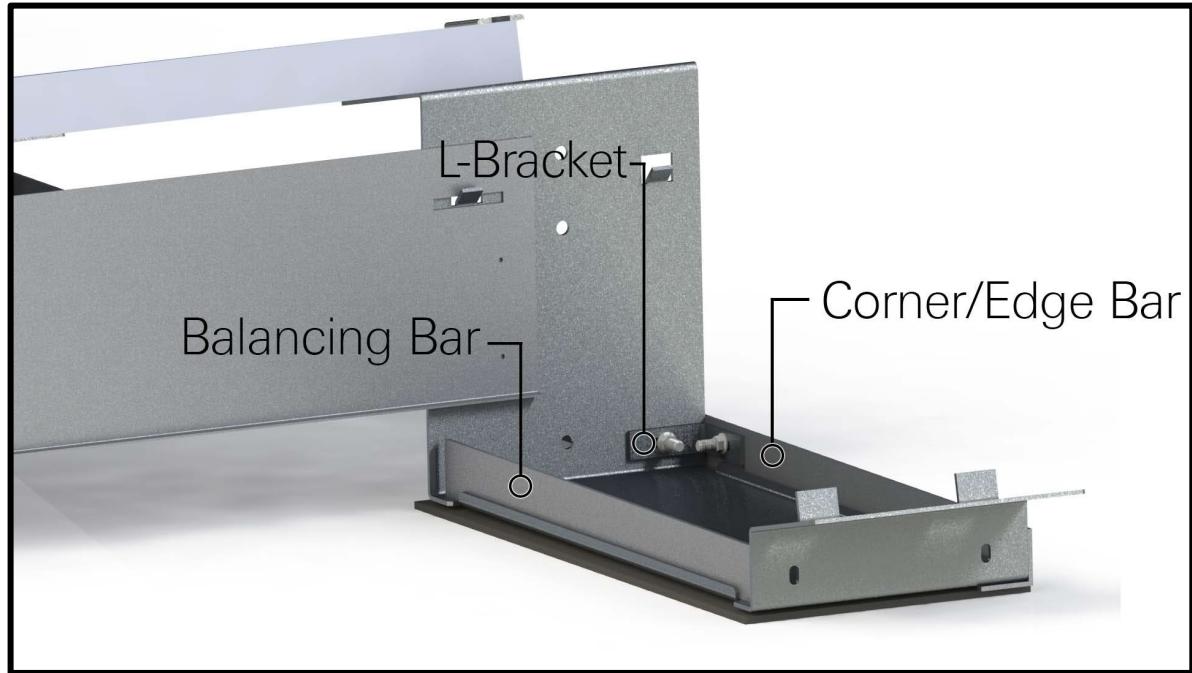


Fig. E2– Balance Bar Placement

How to Use Your Reinforcement Installation Diagram

1

Your project specific *Reinforcement Layout* will tell you where to place corner/edge bars for each array of your project.

Note the following:

ARRAY NUMBER

CORNER BARS (spanning three (3) supports)

EDGE BARS (spanning four (4) supports)

BARS THAT SHARE A SUPPORT

2

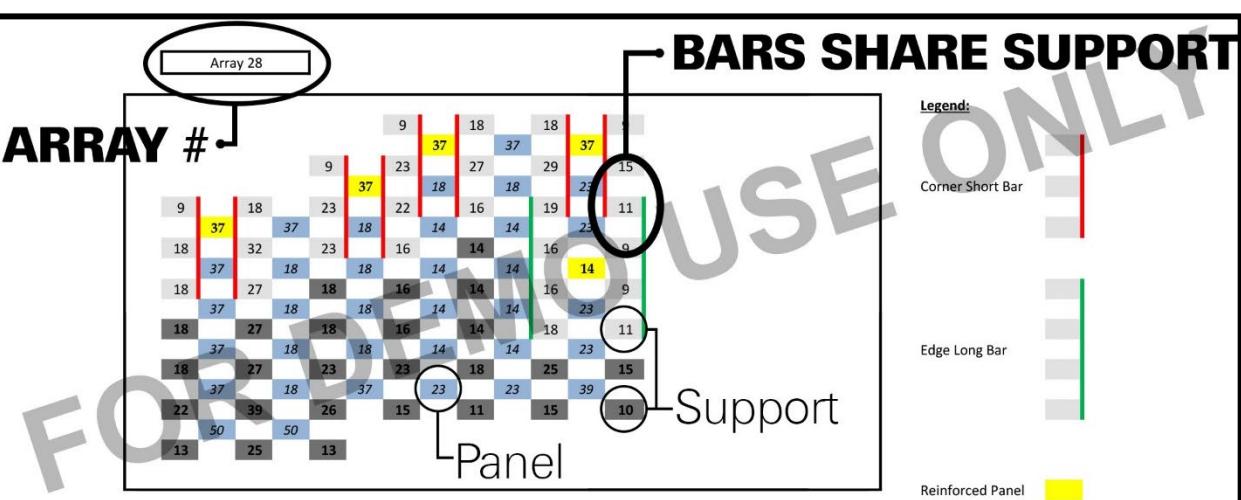


Fig. E3 - Sample Reinforcement Installation Diagram

A P P E N D I X F

APPENDIX F | Installing Anchor Solutions

KB Racking's Anchor Arm Solution is only applicable for the list of anchors below. For alternative Anchor models contact your Project Manager.

Anchor Manufacturer	Anchor Model
OMG	PowerGrip Plus
Roofing	PowerGrip Universal 7
U-Anchor	U-Anchor 2000 Series

NOTE: Anchor Arm (E00-06B-SS) must be installed prior to windshield.

- 1 Refer to project specific *Layout Diagram* for Anchor locations and *Anchor Schematic* for dimensions. Fasten Anchor into roof per manufacturer instructions.
- 2 Refer to *Anchor Schematic* for the correct slot placement. Fasten Anchor Arm to anchor stud with 3/8" nut. Torque to **16.9 Nm (12.5 Ft-lb)**.

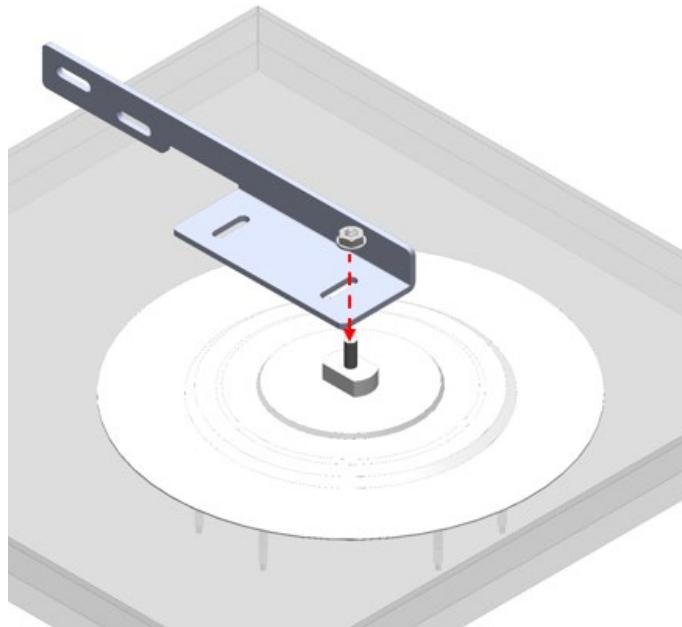


Fig. F1– Anchor Arm to Anchor Assembly

3

Fasten Anchoring Arm to EkonoRack support with M8 hex bolts. Torque to **11.8 Nm (8.7 Ft-lb)**.



Fig. F2–Anchor Arm to EkonoRack Support Attachment