

AEROCOMPACT®

COMPACTFLAT SN2

PV Hazard Control
System

UL 3741

PV HAZARD

CONTROL

INSTALLATION

ADDENDUM



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Intertek
CONFORMS TO
UL STANDARD 3741

INTRODUCTION

AEROCOMPACT COMPACTFLAT SN2 AND SN2 Q PLUS flat roof mounting systems are assembled in various orientations for mounting solar panels.

This document identifies the requirements to meet UL 3741 PV Hazard Control Standard for AEROCOMPACT COMPACTFLAT SN2 and SN2 Q PLUS. Close adherence to this document and the installation manual are essential to meet UL 3741 requirements.

APPLICABLE DOCUMENTS

- UL 3741 Addendum
- Assembly instructions

ASSEMBLY INSTRUCTIONS

Assembly instructions describe the assembly procedure and must be strictly observed. Read assembly instructions carefully before starting the assembly. The personnel must have carefully read and understood instructions before starting any work. The basic prerequisite for safe working is compliance with all the safety notes and handling instructions given in the assembly instructions. Furthermore, the local accident prevention regulations and general safety regulations for the product's area of application apply.

WARNING: FOLLOW ALL INSTRUCTIONS
TO REDUCE THE RISK OF HARM.

INSTALLER QUALIFICATIONS

Installation may only be carried out by a specialist company and must be carried out strictly in accordance with the specifications in the installation instructions, the project report and the planning documents. A specialized company is one that is familiar with the installation and maintenance of photovoltaic systems as part of its normal business operations. National and site-specific building codes, standards and environmental protection must be strictly adhered to. Trainee personnel may only perform work under the instruction and supervision of skilled personnel who are authorized to train personnel.

SAFETY

- The installation professional shall ensure that the necessary safety measures and the relevant provisions of labor law and occupational health and safety law are observed during the assembly of products from AEROCOMPACT Inc.
- Areas below the roof on which work is being carried out must be protected from any falling objects. Where this fails, the affected areas shall be closed to the public and to unauthorized personnel.
- Only use suitable, intact and tested ladders. Set up and secure ladders according to instructions. Separate rules apply to mechanical climbing aids (elevators, cherry pickers, etc.).
- Skylights, skylights, large vents, etc. usually cannot withstand the weight or impact of a person. Such objects must be secured in a similar way as the edge of the roof.
- Personal protective equipment is used to protect persons from impairment of safety and health at work. Personnel must wear personal protective equipment during assembly.

COMPACTFLAT SN2 PV HAZARD CONTROL SYSTEM EQUIPMENT

The following equipment is included in the COMPACTFLAT SN2 PV Hazard Control System: **COMPACTFLAT SN2 and SN2 Q PLUS (UL 2703 Listed)**

AEROCOMPACT EQUIPMENT EVALUATED IN THIS APPLICATION

- AEROCOMPACT Cable Pipes: 706551, 706554, 706557
- AEROCOMPACT Rail Connection Plate: 739054
- AEROCOMPACT Sliding Nut: 701503

WIRE MANAGEMENT

- *HellermannTyton Solar Edge Clip and Cable Tie Assemblies: 156-02224, 156-02225, 156-02226, 156-02227, 156-02228, 156-02229, 156-02230, 156-02231, 156-02971, 156-02451 (UL 62275 Listed)
- *HellermannTyton Cable Ties: 111-01560, 111-01561, 111-01563, 111-01564, 111-00468 (UL 62275 Listed)
- *Panduit Cable Ties: BT2S-M300, PLT2S-M300 (UL 62275 Listed)
- *PV Wire (UL 4703 Listed)
- *PV Connectors (UL 6703 Listed) shall be compatible and approved for the application

*Indicates Optional Equipment

The COMPACTFLAT SN2 grounding method conforms to ANSI/UL 2703, and is approved for use with photovoltaic modules listed under ANSI/UL 1703 and/or ANSI/UL 61730, whichever applies, and complies with the National Electrical Code, ANSI/NFPA 70.

WIRE MANAGEMENT CONTINUED

- *Listed Conduit (all sizes apply)
 - Electrical Metallic Tubing (EMT) (UL 797 Listed)
 - Flexible Metal Conduit (UL 1 Listed)
 - Intermediate Metal Conduit (IMC) (UL 1242 Listed)
 - Liquid-Tight Flexible Metal Conduit (UL 360 Listed)
 - Liquid-Tight Flexible Nonmetallic Conduit (UL 1660 Listed)
 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings (UL 651 Listed)
 - Strut-Type Channel Raceways and Fittings (UL 5B Listed)
 - Rigid Metal Conduit (RMC) (UL 6 Listed)
 - Conduit, Tubing, and Cable Hardware (UL 2239 Listed)
- *Listed Hardware for the Support of Conduit, Tubing, and Cable (UL 2239 Listed)
- *Listed Positioning Devices (UL 1565 listed)
- *Listed Fittings (UL 514B Listed) and Grounding Components (UL 467 Listed)
- *Ray Tray Solar V2 Wire Management System (UL 870 Listed)

*Indicates Optional Equipment

UL LISTED EQUIPMENT INCLUDED IN COMPACTFLAT SN2 UL 3741

Canadian Solar Inverters

CSI-75K-T480GL03-U | CSI-80K-T480GL03-U
 CSI-90K-T480GL03-U | CSI-100K-T480GL03-U
 CSI-25KTL-GS-FLB | CSI-30KTL-GS-FLB
 CSI-36KTL-GS-FLB | CSI-40KTL-GS-FLB
 CSI-50KTL-GS-FLB | CSI-50KTL-GS-B
 CSI-60KTL-GS-B | CSI-66KTL-GS-B

Chint Inverters

SCA25KTL-DO/US-208 | SCA25KTL-DO-R/US-480
 SCA36KTL-DO/US-480 | SCA50KTL-DO/US-480
 SCA60KTL-DO/US-480

SMA Inverters

STP 33-US-41 | STP 50-US-41 | STP 62-US-41
 STP 20-US-50 | STP 25-US-50 | STP 30-US-50

Solis Inverters

1P3.6K-4G-US PLUS | 1P5K-4G-US PLUS
 1P6K-4G-US PLUS | 1P7.6K-4G-US PLUS
 1P10K-4G-US PLUS | Solis- followed by 25K, 30K, 36K
 or 40K; followed by -US-SW, -US-F-SW or -US-LSW
 Solis- followed by 50K, 60K or 66K; followed by -US-F-
 SW or -US-F-LSW | S5-GC75K-US | S5-GC80K-US
 S5-GC90K-US | S5-GC100K-US | S6-GC30K-LV-US
 S6-GC25K-US | S6-GC33K-US | S6-GC36K-US
 S6-GC40K-US | S6-GC50K-US | S6-GC60K-US

Fronius Inverters

Symo Advanced 10.0-3 208-240/Lite
 Symo Advanced 12.0-3 208-240/Lite
 Symo Advanced 15.0-3 480/Lite
 Symo Advanced 20.0-3 480/Lite
 Symo Advanced 22.7-3 480/Lite
 Symo Advanced 24.0-3 480/Lite

GoodWe Inverters

GW50K-SMT-US | GW60K-SMT-US
 GW5000A-MS | GW6000A-MS | GW7000A-MS
 GW7600A-MS | GW8600A-MS | GW9600A-MS

Sungrow Inverters

SG36CX-US | SG60CX-US

Solectria Inverters

PVI 25TL-208 | PVI 25TL-480-R
 PVI 50TL-480 | PVI 60TL-480
 PVI 36TL-480-V2

Solar Modules (UL 1703 Listed):

Type 1 and Type 2 modules listed in
 AEROCOMPACT's Master List of
 Photovoltaic Modules.

- Note: The following modules are not approved for this application:
 - Q Cells Q.PEAK DUO BLK ML-G9+
 - Sunpower SPR-E20-435-COM

Note: Requirements for PV arrays addressed in UL 3741 are intended for compliance with the National Electrical Code (NEC), NFPA 70, 2017 and later editions and their requirements for controlling electrical shock hazards inside the array boundary as addressed in NEC section 690.12(B)(2), Rapid Shutdown of PV Systems on Buildings and with the Canadian Electrical Code (CE Code) C22.1. The inverters listed within this PVHCS additionally comply with the 30V in 30 seconds requirements outside the PV array as required in 690.12 (B)(1).

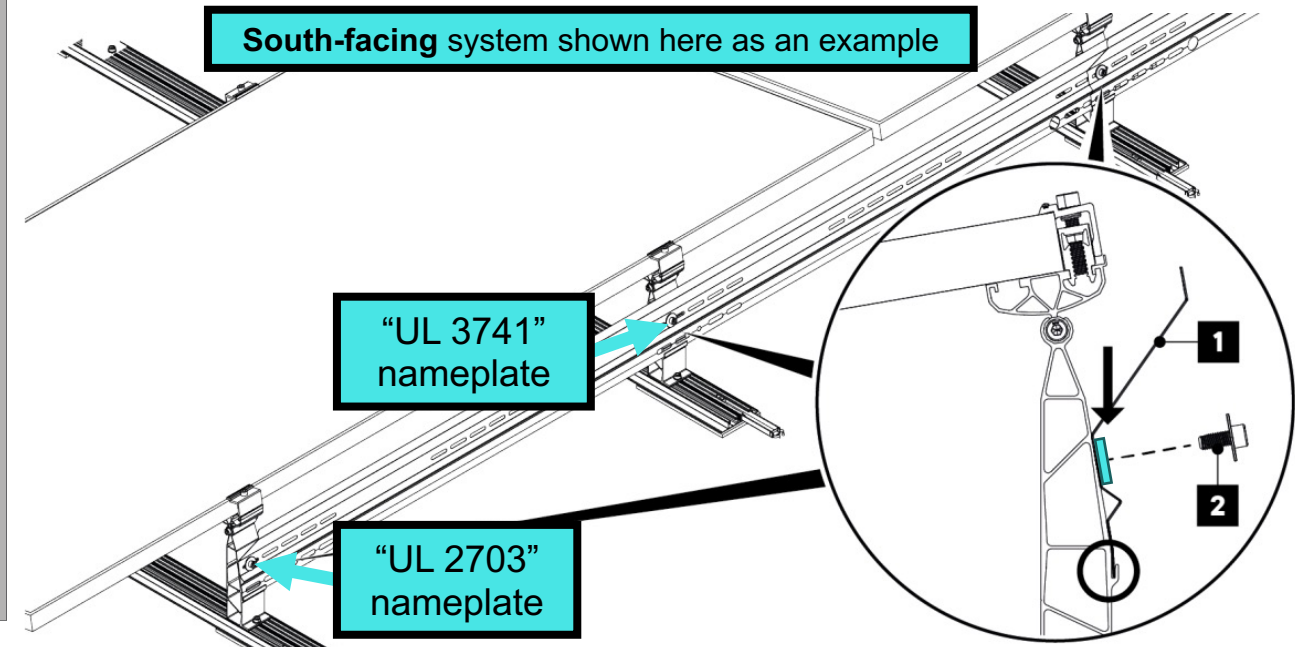
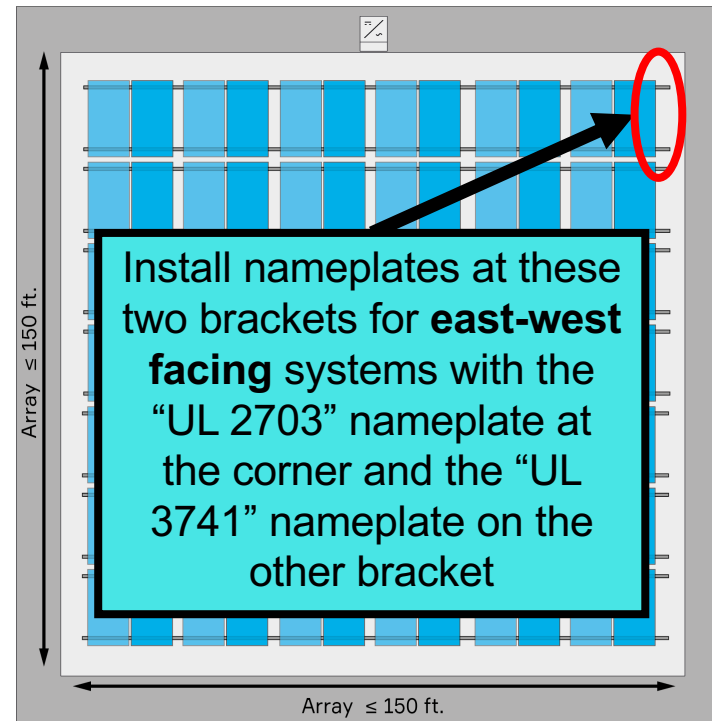
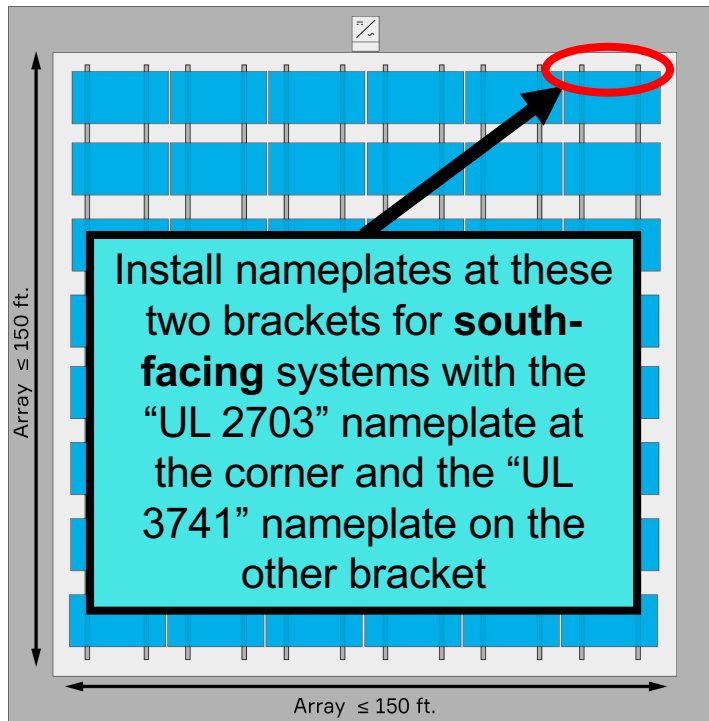
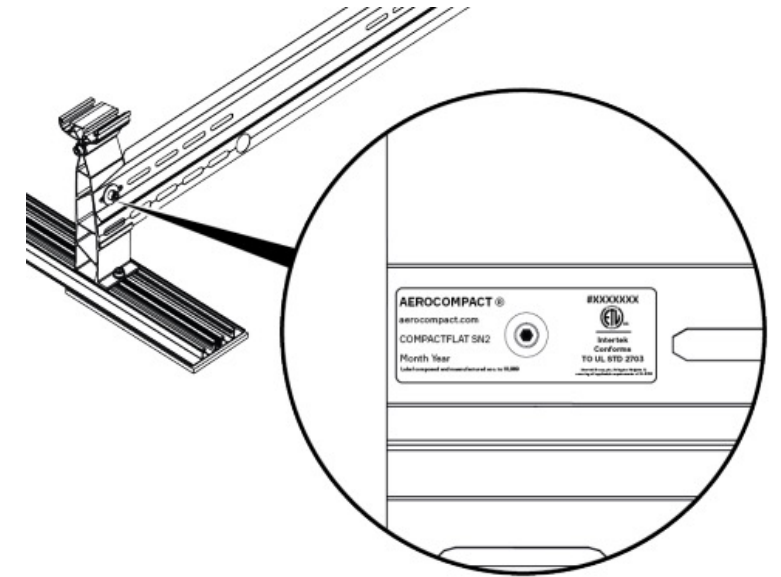
MARKINGS

Markings are found on the AEROCOMPACT nameplates. There are two nameplates. One nameplate shows conformance to UL standard 2703, and the other nameplate shows conformance to UL standard 3741. The nameplates are provided with the racking. Contact your salesperson if additional nameplates are needed.

For south-facing systems, install the nameplates at the northern-most brackets of the east-most module. Install the nameplate showing conformance to UL standard 2703 at the east-most of the two brackets. Install the nameplate showing conformance to UL standard 3741 at the adjacent bracket to the west.

For east-west facing systems, install the nameplates at the east-most brackets of the northern-most module. Install the nameplate showing conformance to UL standard 2703 at the north-most of the two brackets. Install the nameplate showing conformance to UL standard 3741 at the adjacent bracket to the south.

Install each nameplate using one M8x20 screw at the existing hole in the bracket. Install nameplates such that markings are visible. Tighten screws to 15Nm (11ft-lbs / 132in-lbs).



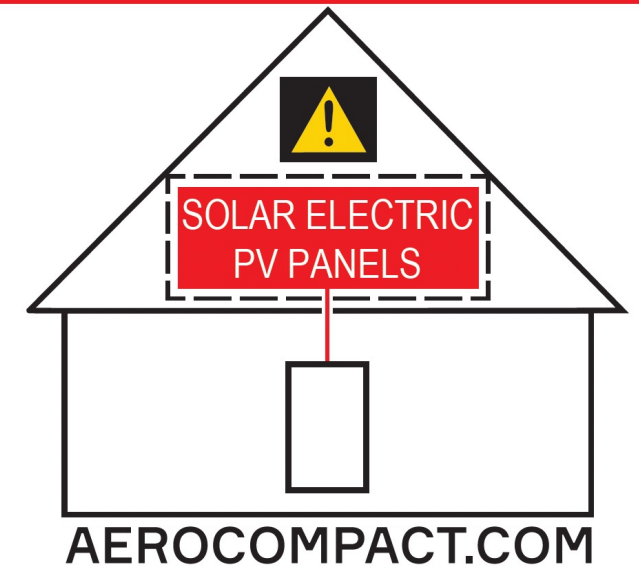
MARKINGS CONTINUED

Verify all rapid shut down switches are marked with a label indicating the function of the rapid shut down switch. The label should communicate to fire fighters that conductors within the array will remain at system voltage and that conductors leaving the array will be at or below 30 volts within 30 seconds of shutdown initiation.

Attach one label at or near each rapid shut down switch. Labels are provided with the racking by AEROCOMPACT. Please contact your salesperson if you need additional labels.

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS LEAVING THE ARRAY. DC CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT. THE INVERTER WILL LIMIT VOLTAGE LEAVING THE ARRAY TO 30 VOLTS WITHIN 30 SECONDS OF RAPID SHUTDOWN INITIATION.



WIRE MANAGEMENT INSTRUCTIONS

- All module wiring must be securely attached to the inside lip of the module such that that wiring never extends beyond the boundary of the module frame itself.
- All module connectors must be securely attached to the inside lip of the module frame, within 6 inches of the connector such that that wiring never extends beyond the boundary of the module frame itself.
- All jumpers (or extension wiring) running under the modules must be securely attached to the module frame such that that wiring never extends beyond the boundary of the module frame itself.
- Any conductor that extends beyond the boundary of a module frame must be protected and contained in an approved conduit, cable pipe, or cable tray listed under “Wire Management” on page 3 of this document; this does not apply to the $\frac{3}{4}$ inch (20mm) gap between adjacent modules in a row.

ROW-TO-ROW WIRE MANAGEMENT

Protect wires in the row-to-row space using conduit.
Secure conduit to rails using 1" UL listed conduit straps* and AEROCOMPACT bolt 701579** and sliding nut 701503**.

Approved Row-to-Row Wire Management Options:

Option 1: AEROCOMPACT Cable Pipe (see page 3 for part numbers)

Option 2: 1" Rigid PVC conduit (UL 651 Listed)*

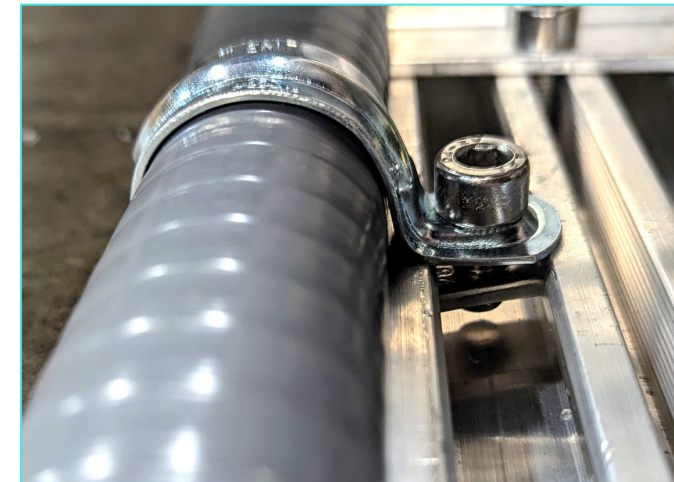
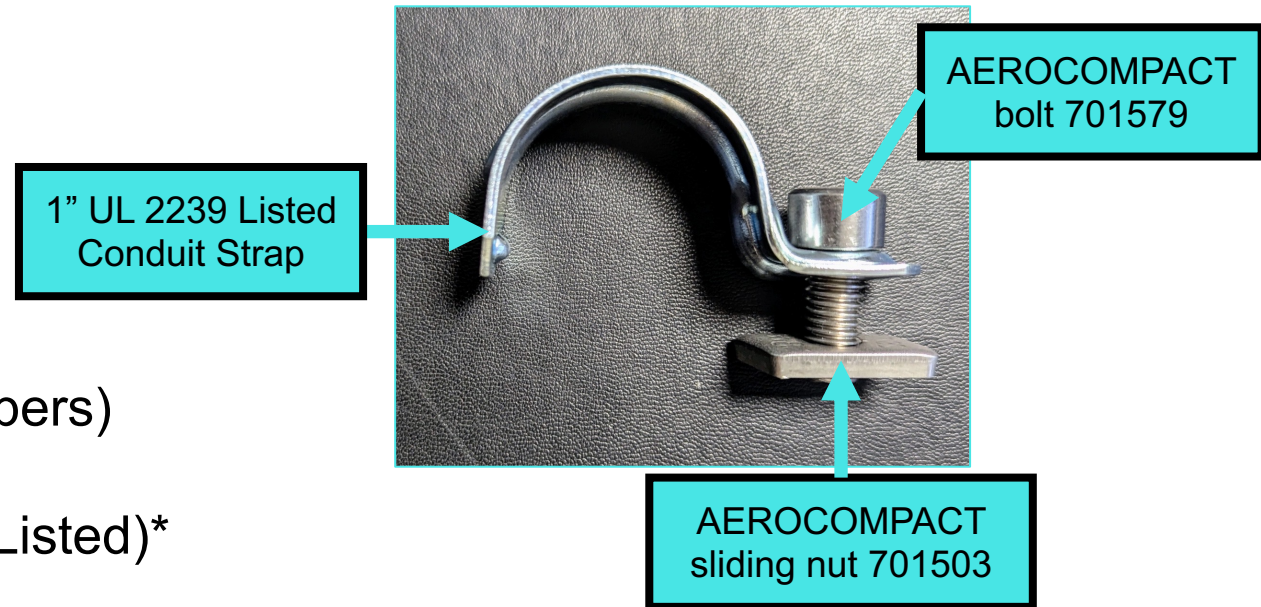
Option 3: 1" Liquid-Tight Flexible Non-Metallic conduit (UL 1660 Listed)*

Procedure

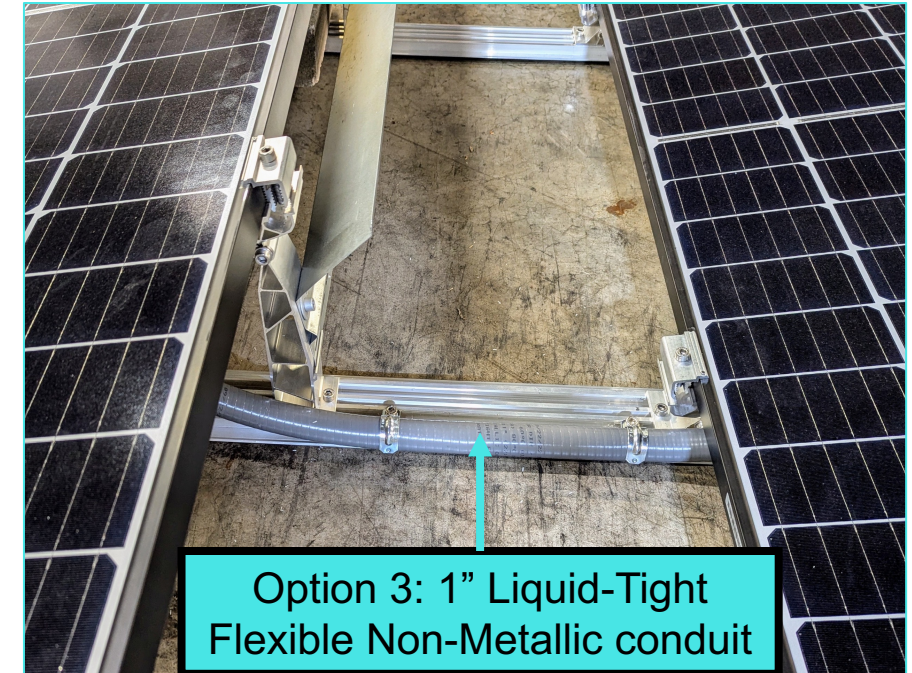
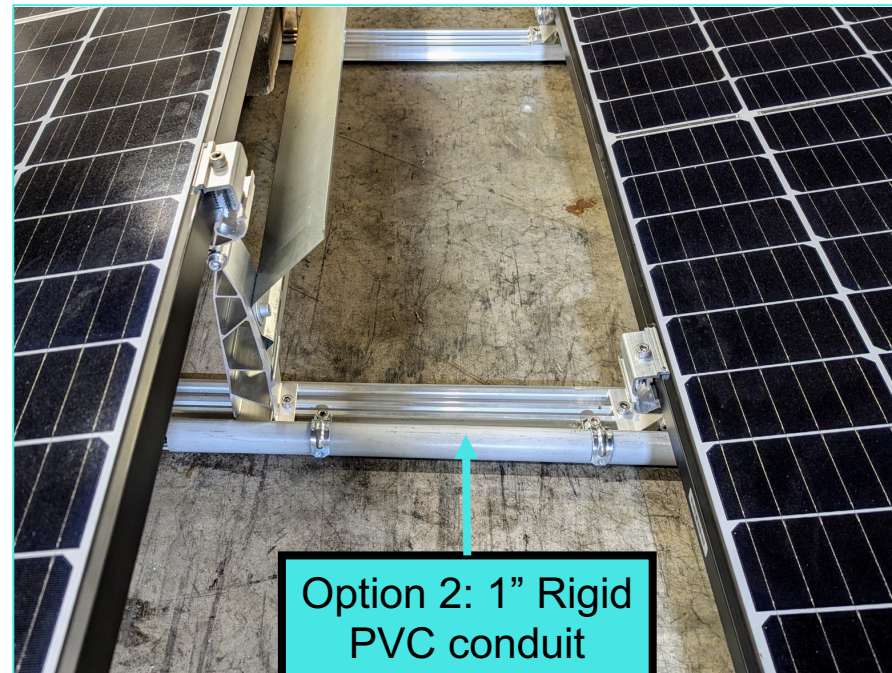
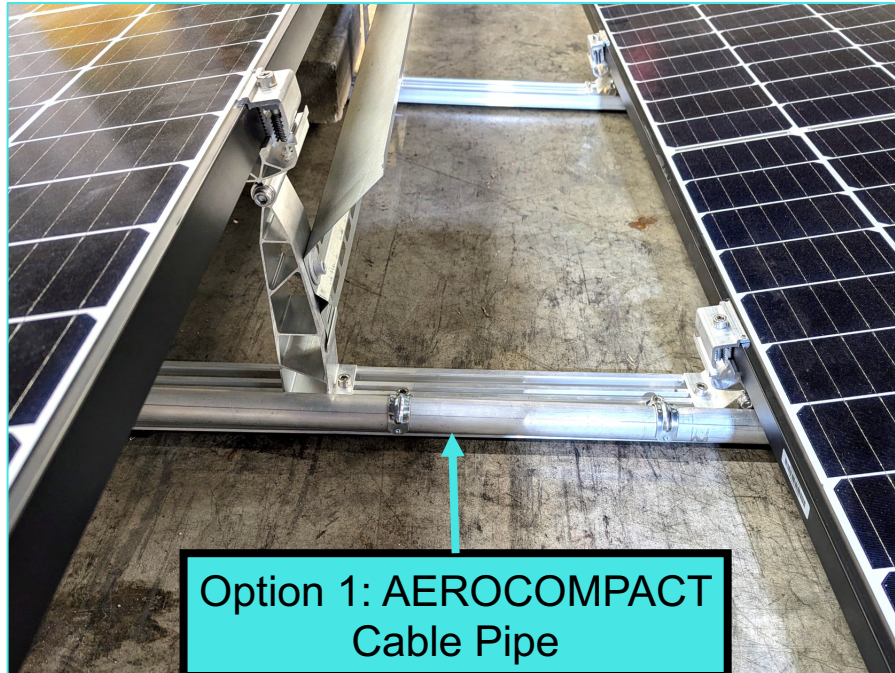
1. Place conduit straps onto conduit with loosely installed bolt and nut.
2. Insert nuts into rail as shown.
3. Tighten hardware to 15Nm (11ft-lbs / 132in-lbs).

*1" Listed conduit and straps are available at most hardware stores

**Sold separately; please request additional material from your salesperson



ROW-TO-ROW WIRE MANAGEMENT OPTIONS



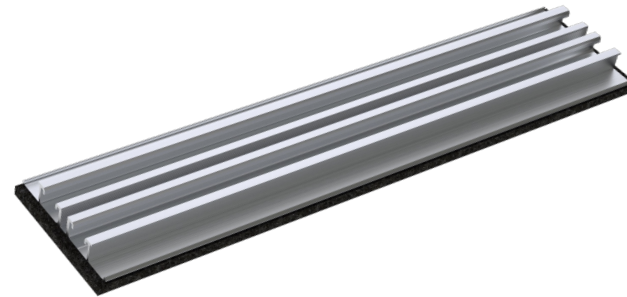
NOTE: Ensure conduit extends under module at least 6 inches on the high side and at least 3 inches on the low side.

HOME RUN WIRE MANAGEMENT

Use any combination of the following for home run wire management. Reference page 3 for approved materials.



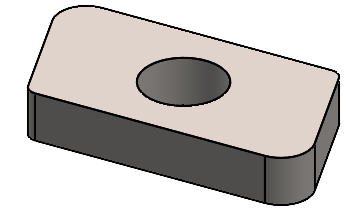
AEROCOMPACT
Rail Connection Plate: 739054 *



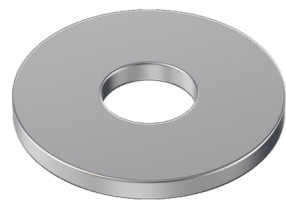
AEROCOMPACT Baserails:
706308-450 | 706308-900
706308-1980 *



AEROCOMPACT Bolt:
701579 *



AEROCOMPACT
Sliding Nut: 701503 *



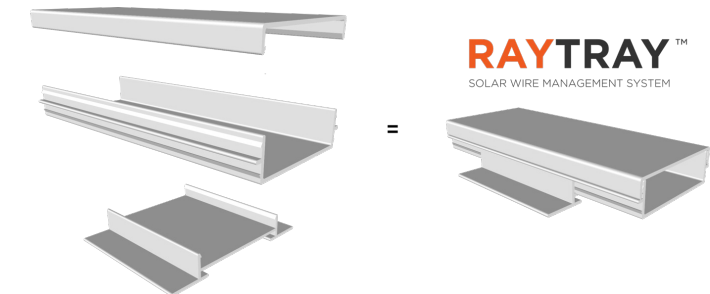
AEROCOMPACT
Washer: 701504 *



Listed Conduit **



Listed Conduit Straps **



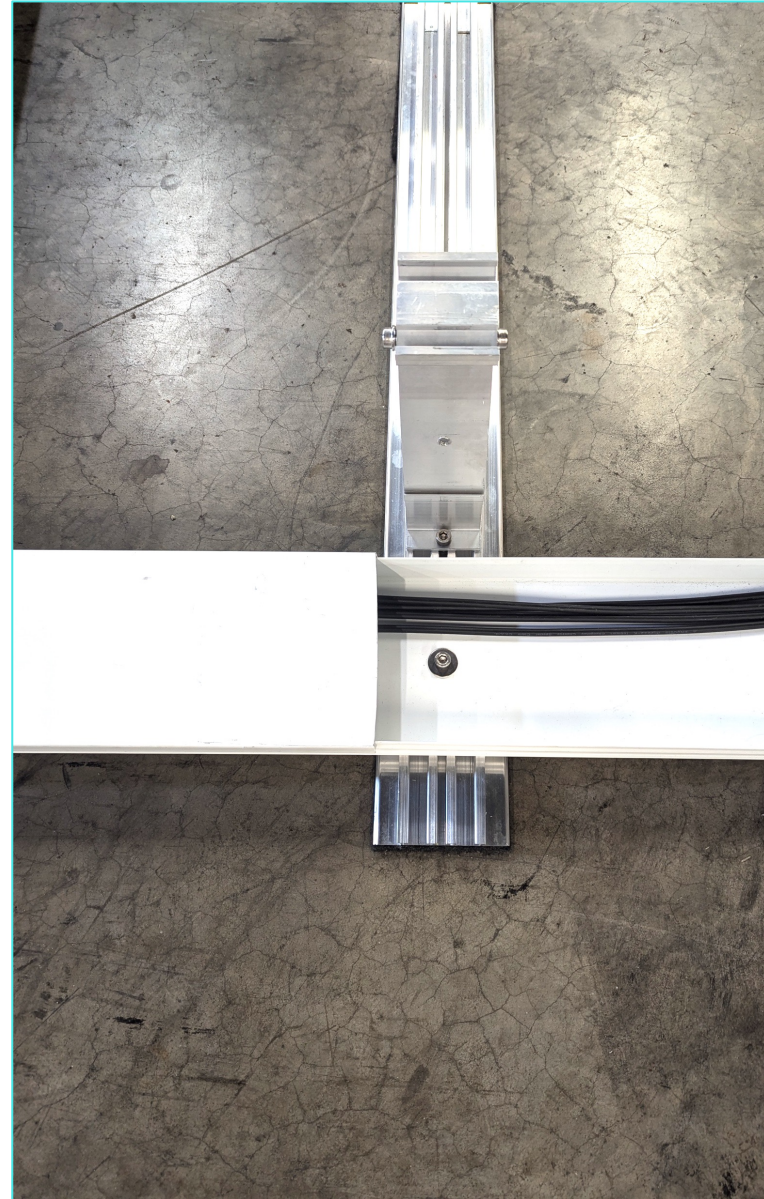
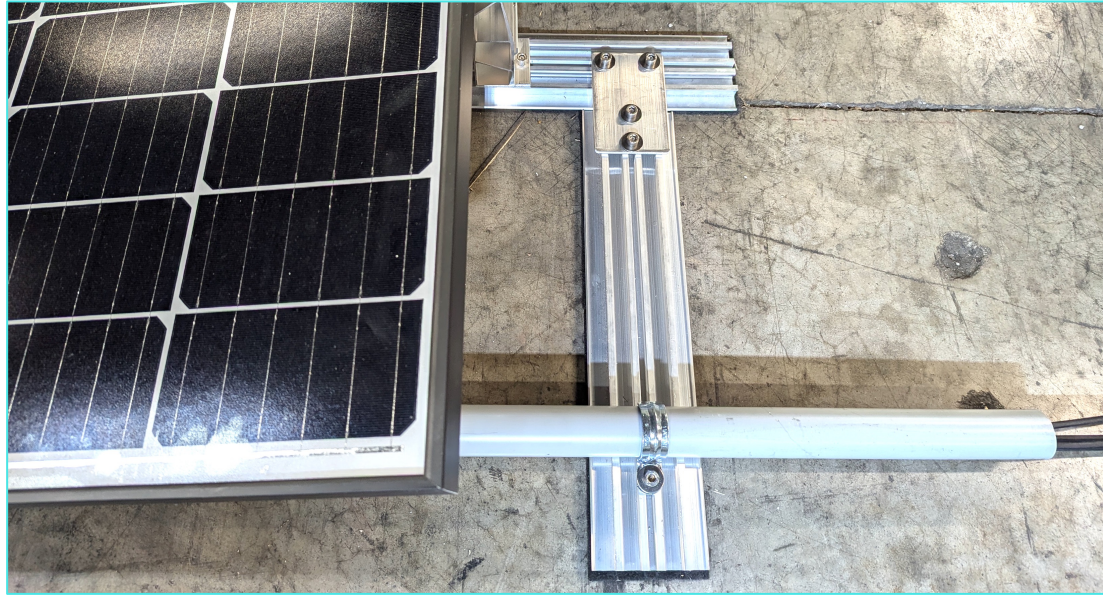
RayTray V2 Solar Wire
Management System ***

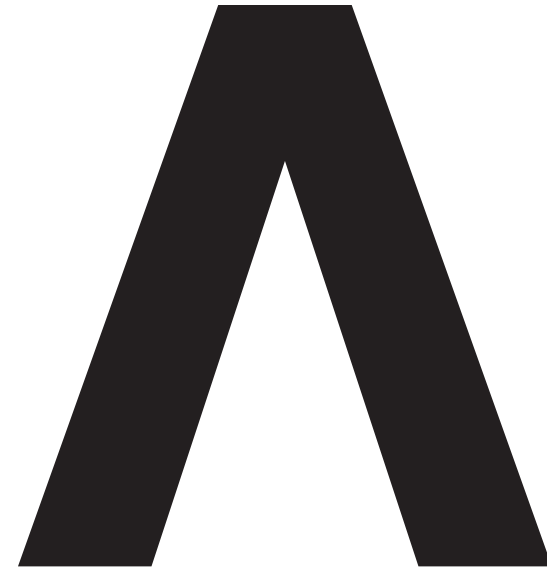
*Sold separately; please request additional material from your salesperson

**Listed conduit and straps are available at most hardware stores

***Purchased through distribution and/or at raytraysolar.com

HOME RUN WIRE MANAGEMENT EXAMPLES





AEROCOMPACT.COM