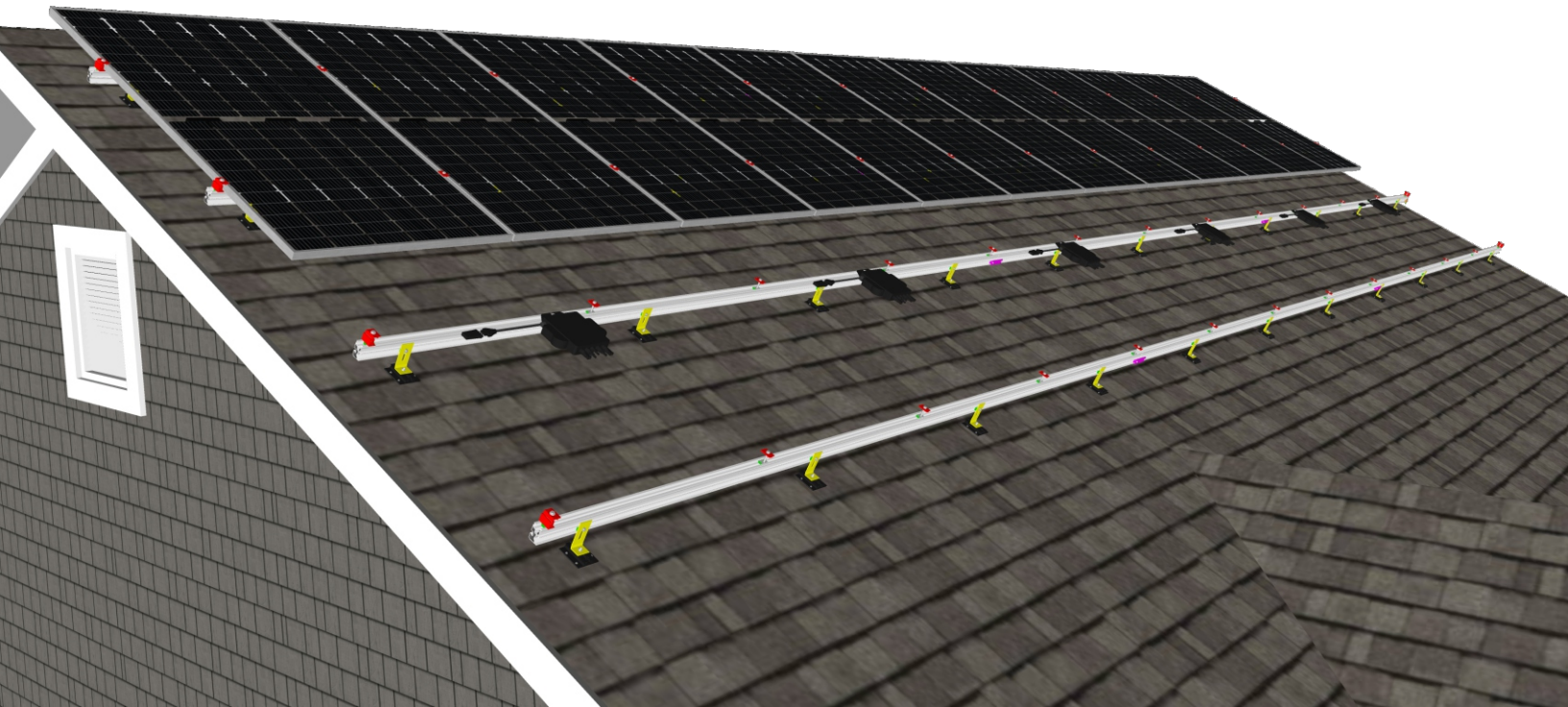


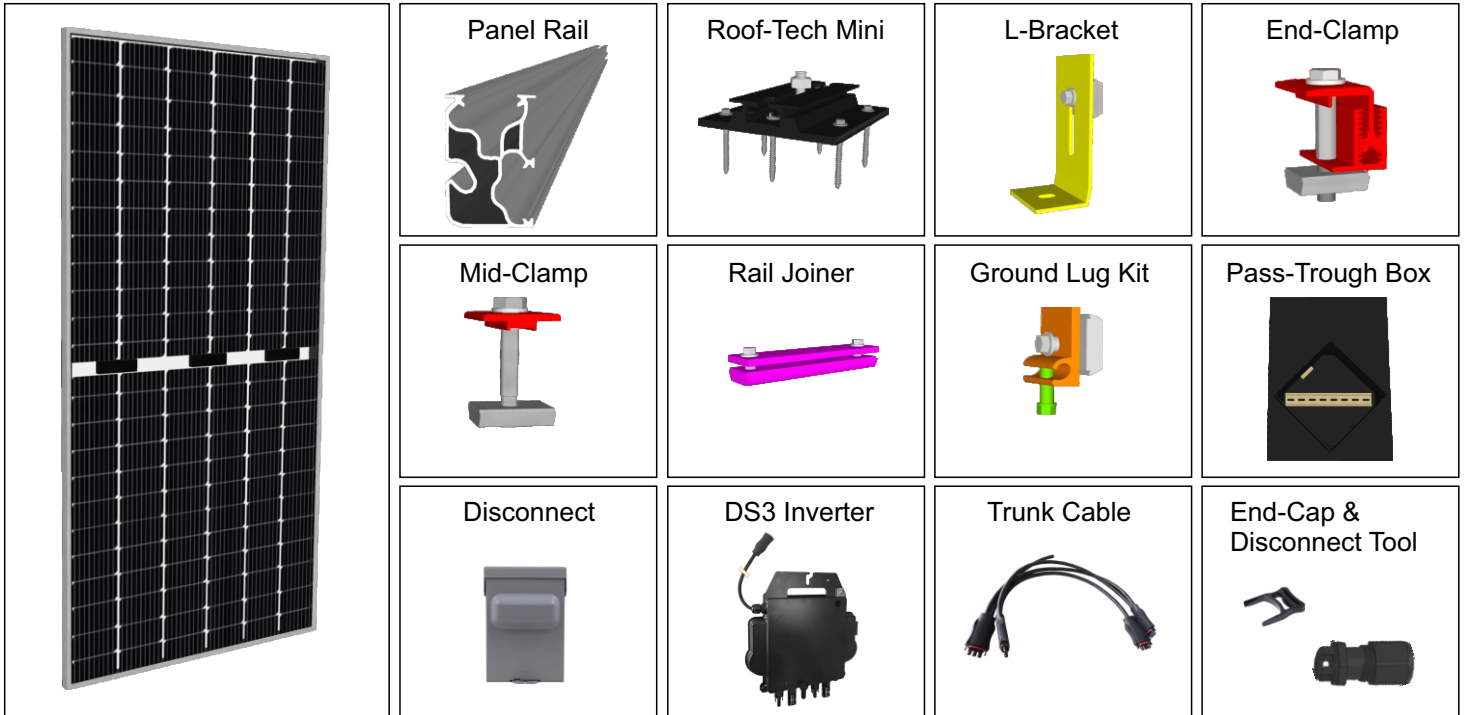
INSTALLATION MANUAL

APSystems Micro Inverter Kits

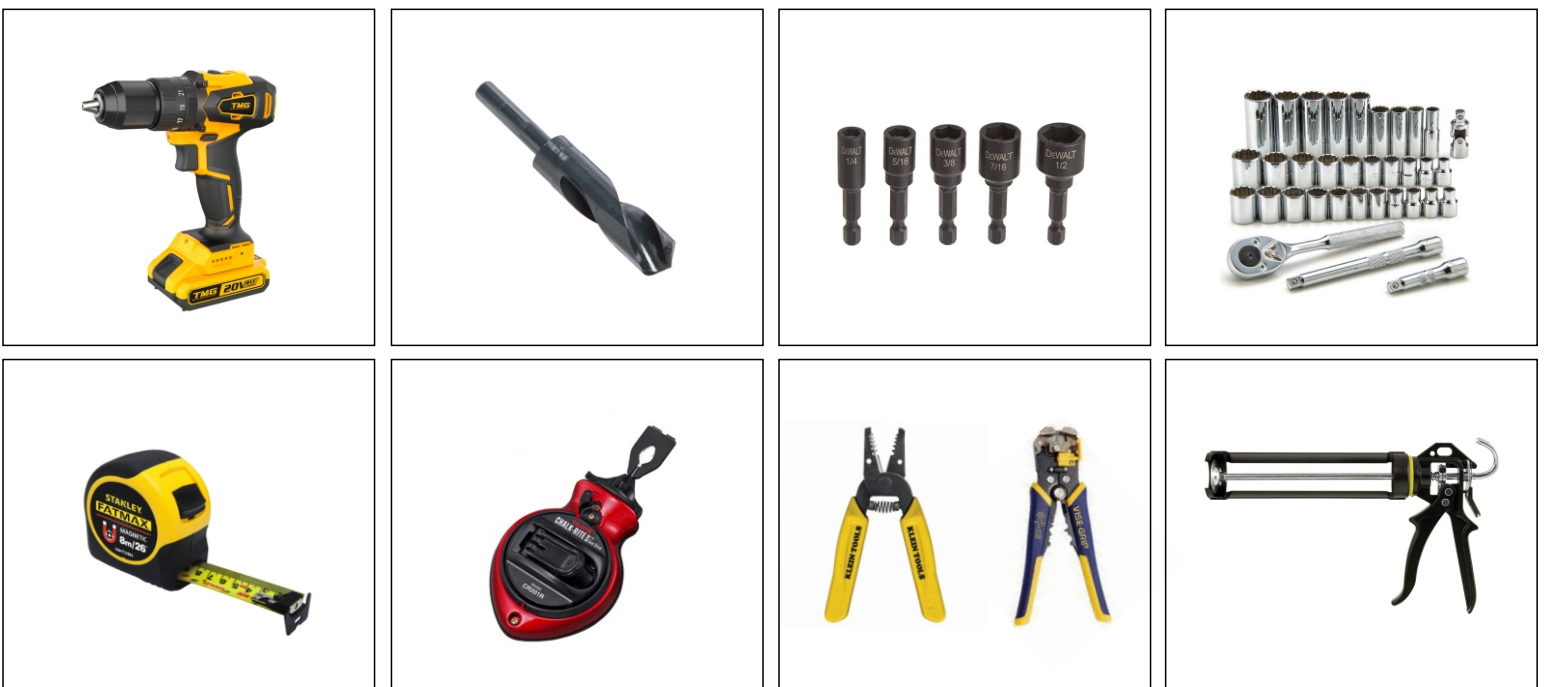


COMPONENTS & TOOLS

Main System Kit Components



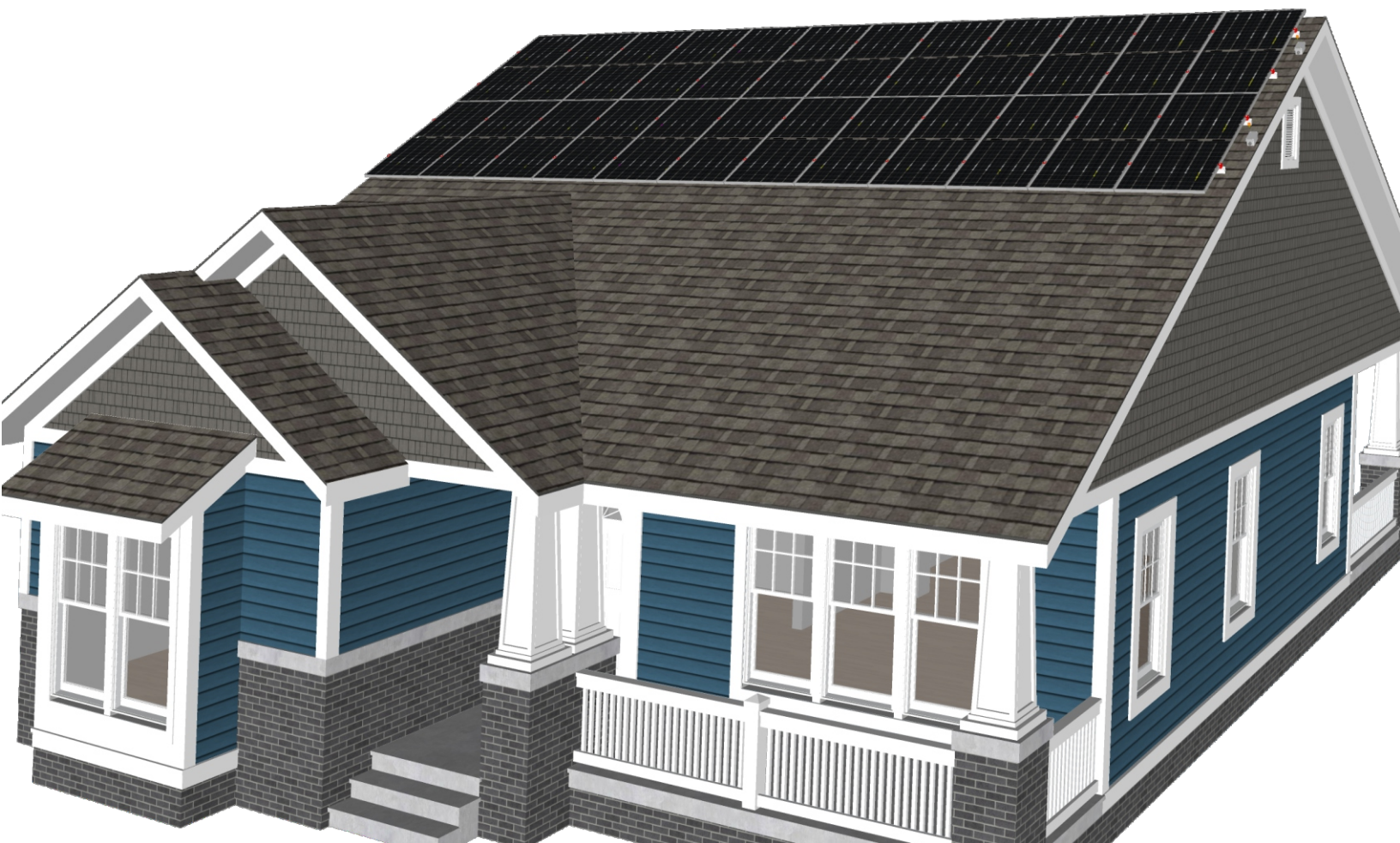
Suggested Tools



INSTALLATION PROCEDURES

24 Panel Micro Inverter Install Manual on Shingle Roof

This is a general guide to installing any of our APSystem DS3 Micro Inverter Kits

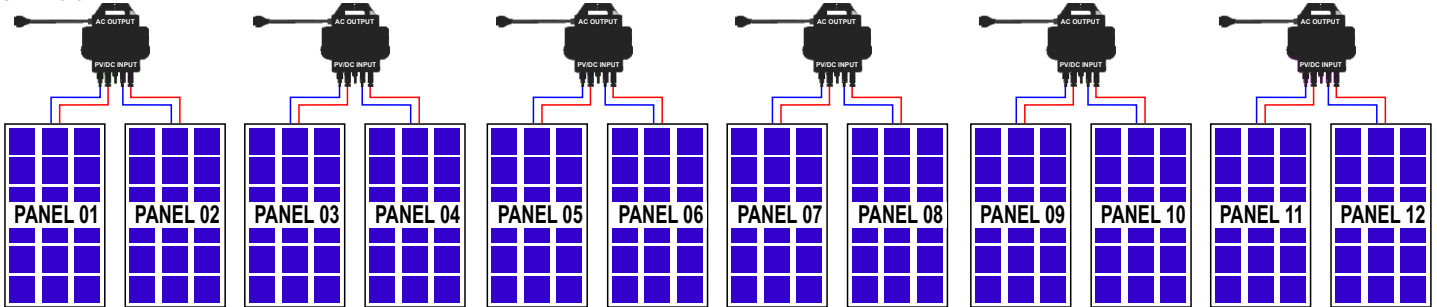


PV PANEL WIRE DIAGRAM

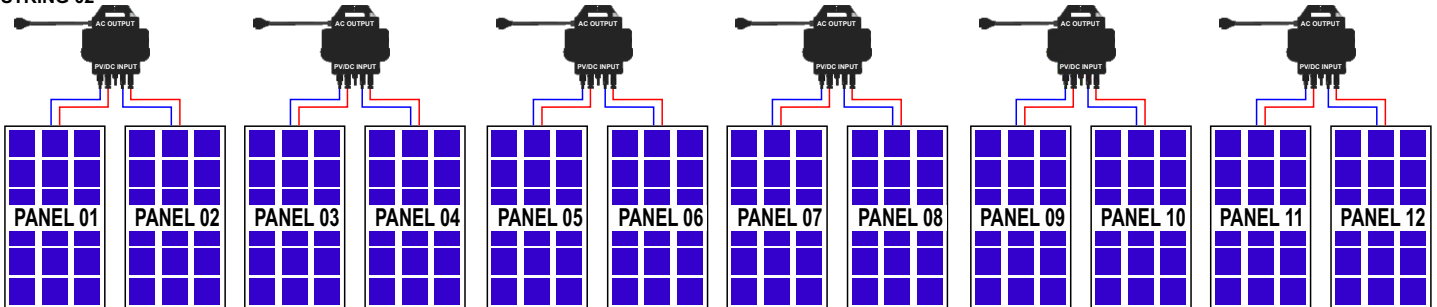
Dual Solar Panel Inverters

Plug both the positive and negative from solar panel 1 & 2 into the dual micro inverter as seen below. Making sure you here a click when plugging in the MC4 connectors, which lock the connectors together.

STRING 01

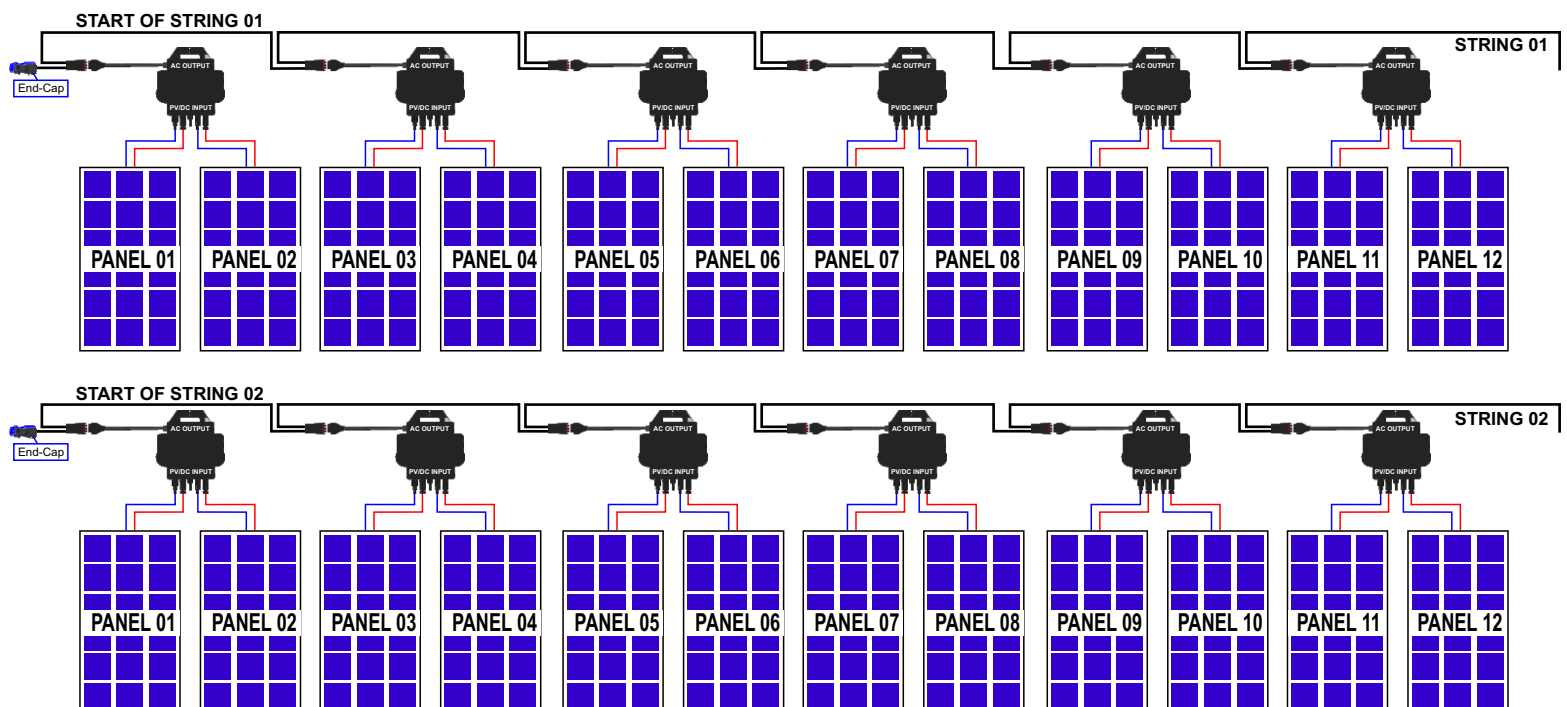


STRING 02



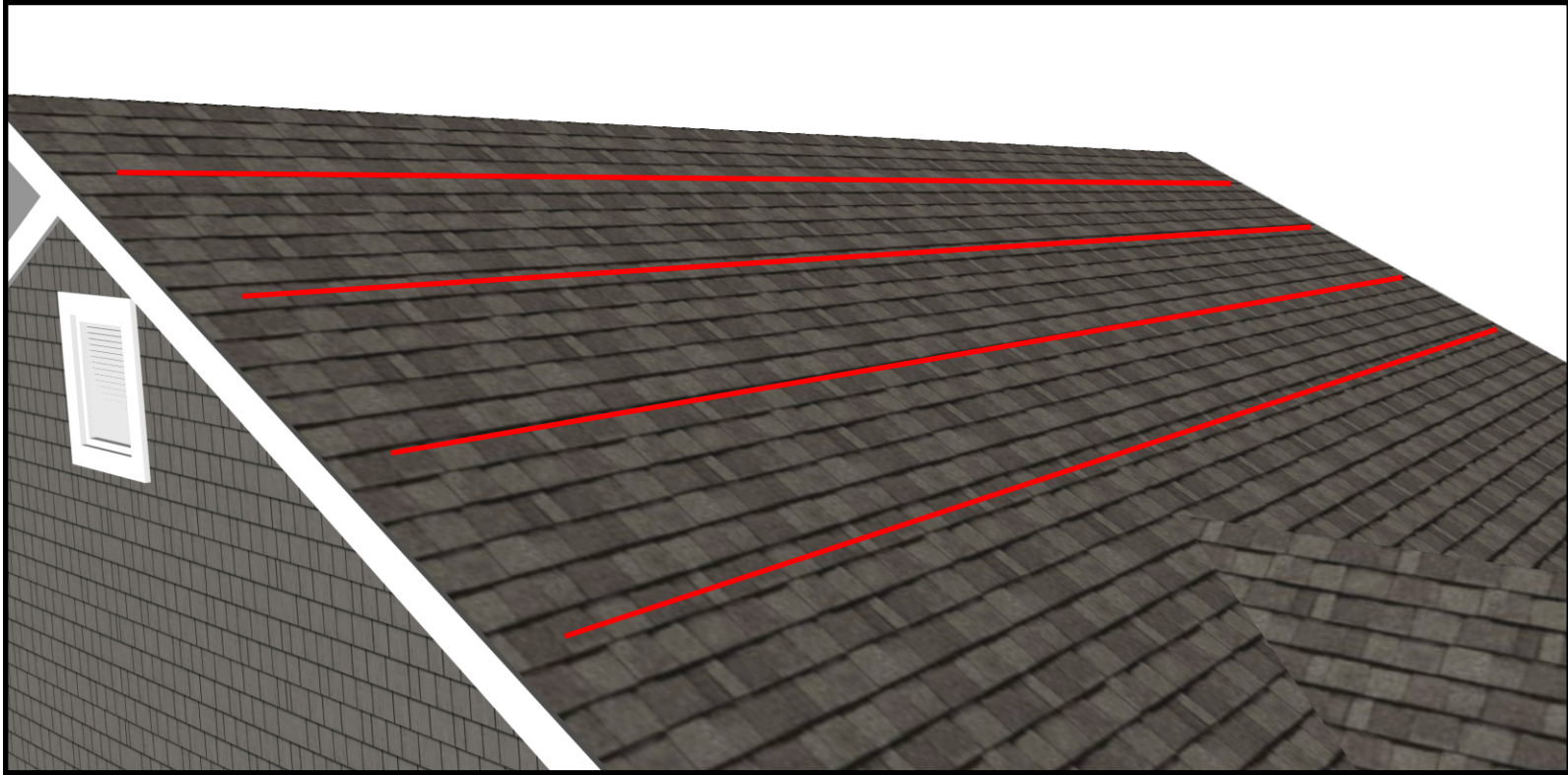
Trunk Cables

Plug into the inverters using the DS3 trunk cables that come with the kit. The trunk cables connect the inverters into a parallel string. Please review the inverter models and specs to understand the maximum number of inverters in a string. There should be an End Cap at the end of each trunk cable as shown below to the left. This kit shows 6 inverters per string which feed into our pass-through box.

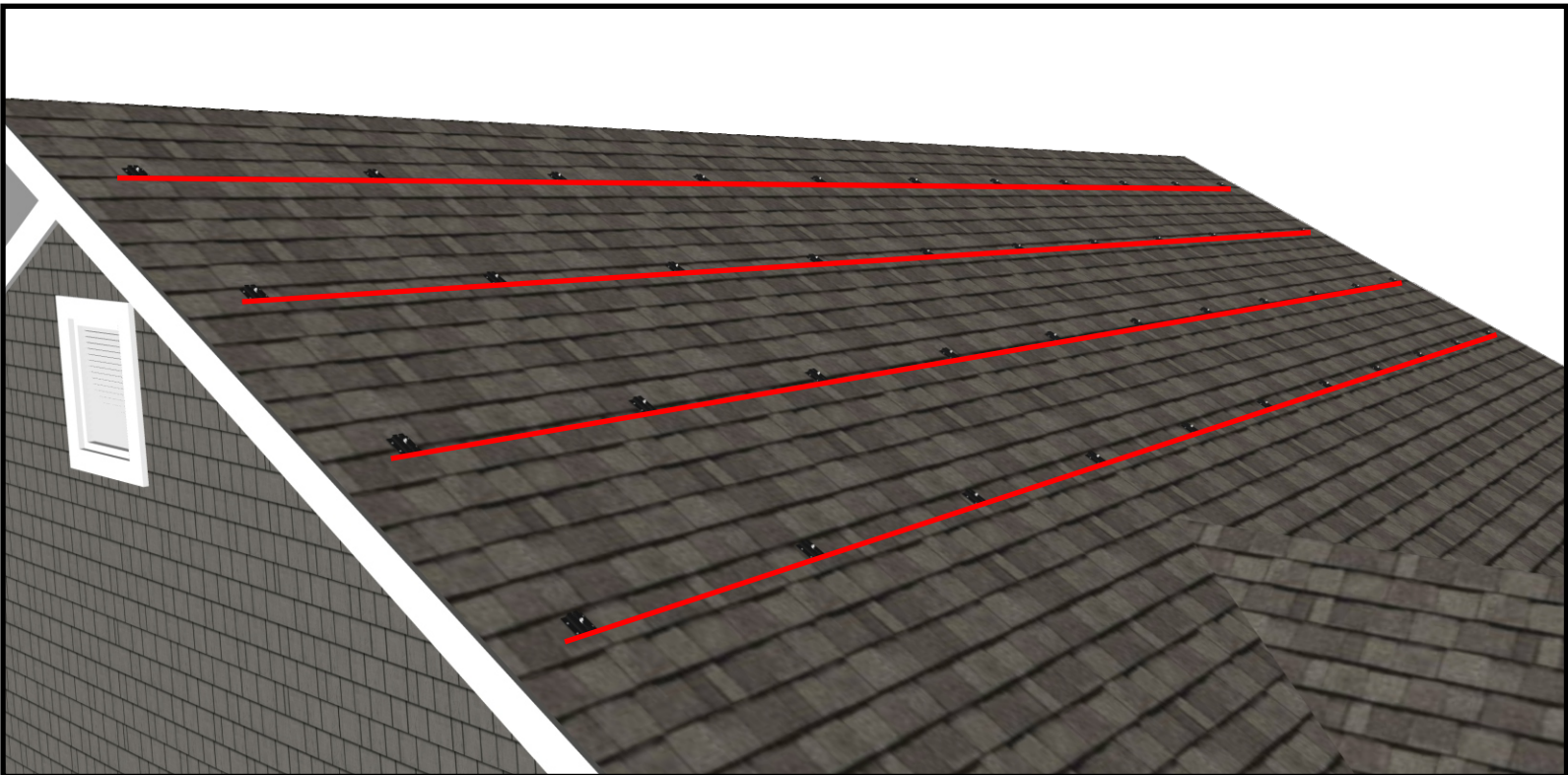


INSTALLATION PROCEDURES

STEP 01 - Chalk straight lines across your roof where you are wanting your rails to be located.

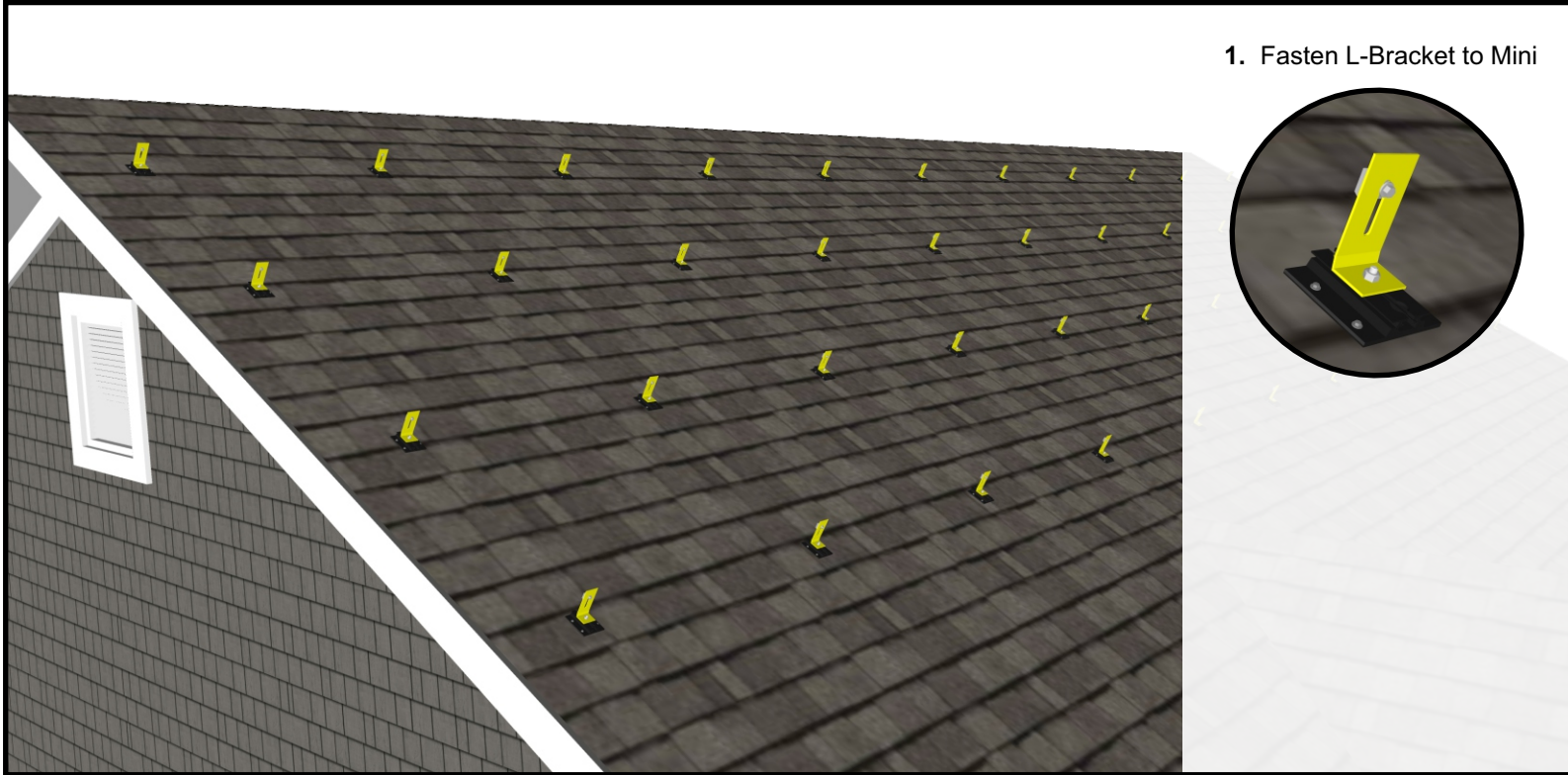


STEP 02 - Install your Roof Tech Mini Mounts every 48" as to hit the center of every truss.
For more information on Roof Tech Mini II installation procedures please see their install manual.

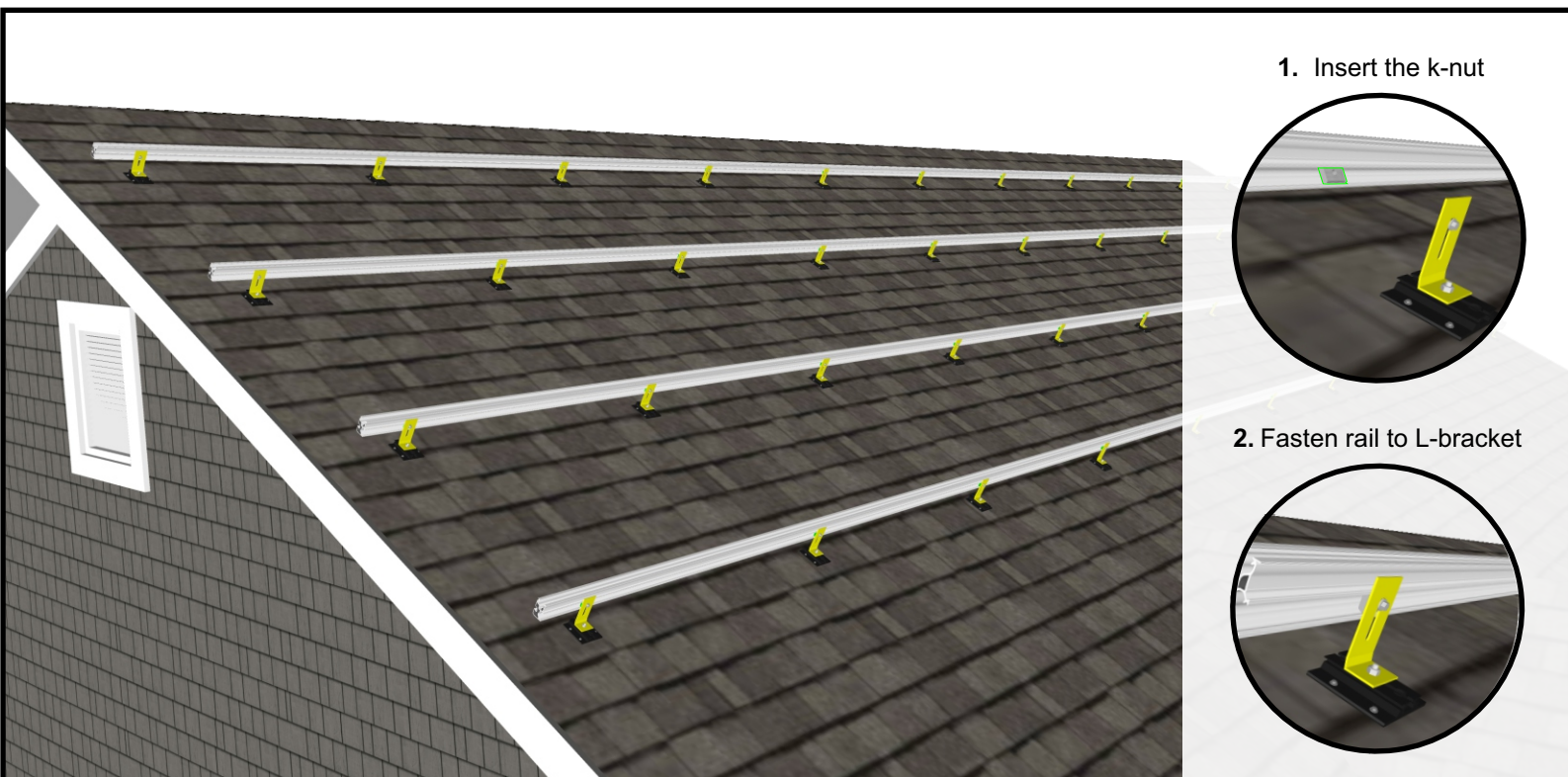


INSTALLATION PROCEDURES

STEP 03 - Fasten your L-brackets to your Roof Tech Mini's or Kinetic Shingle Flashing Kits. (RoffTech Mini's are shown below)

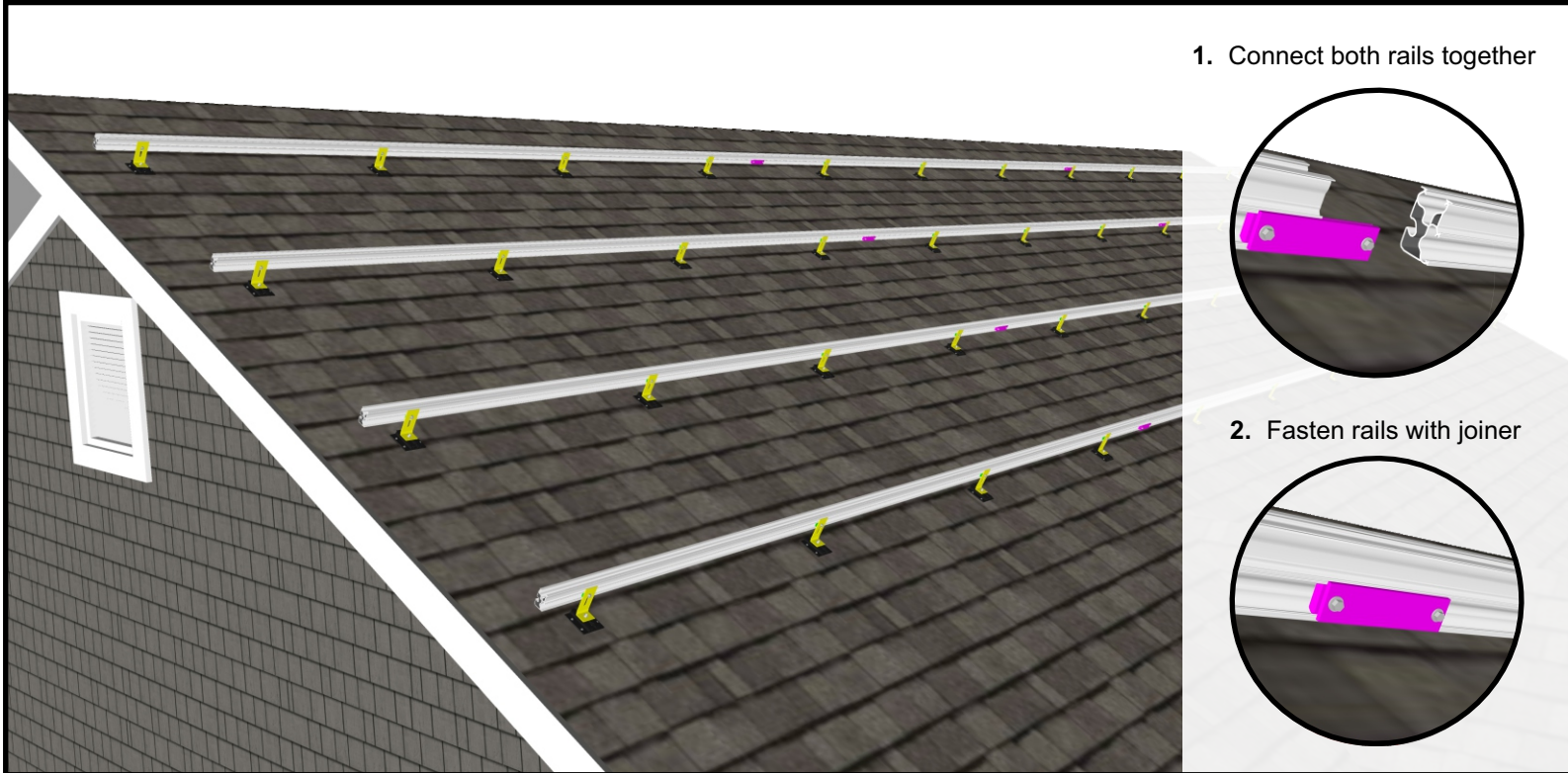


STEP 04 - You rock your kinetic nut into the rail channel behind the L-bracket and fasten it to the rail with the hex head bolt. When laying down the second rail you will follow the next step which is joining the rails together.

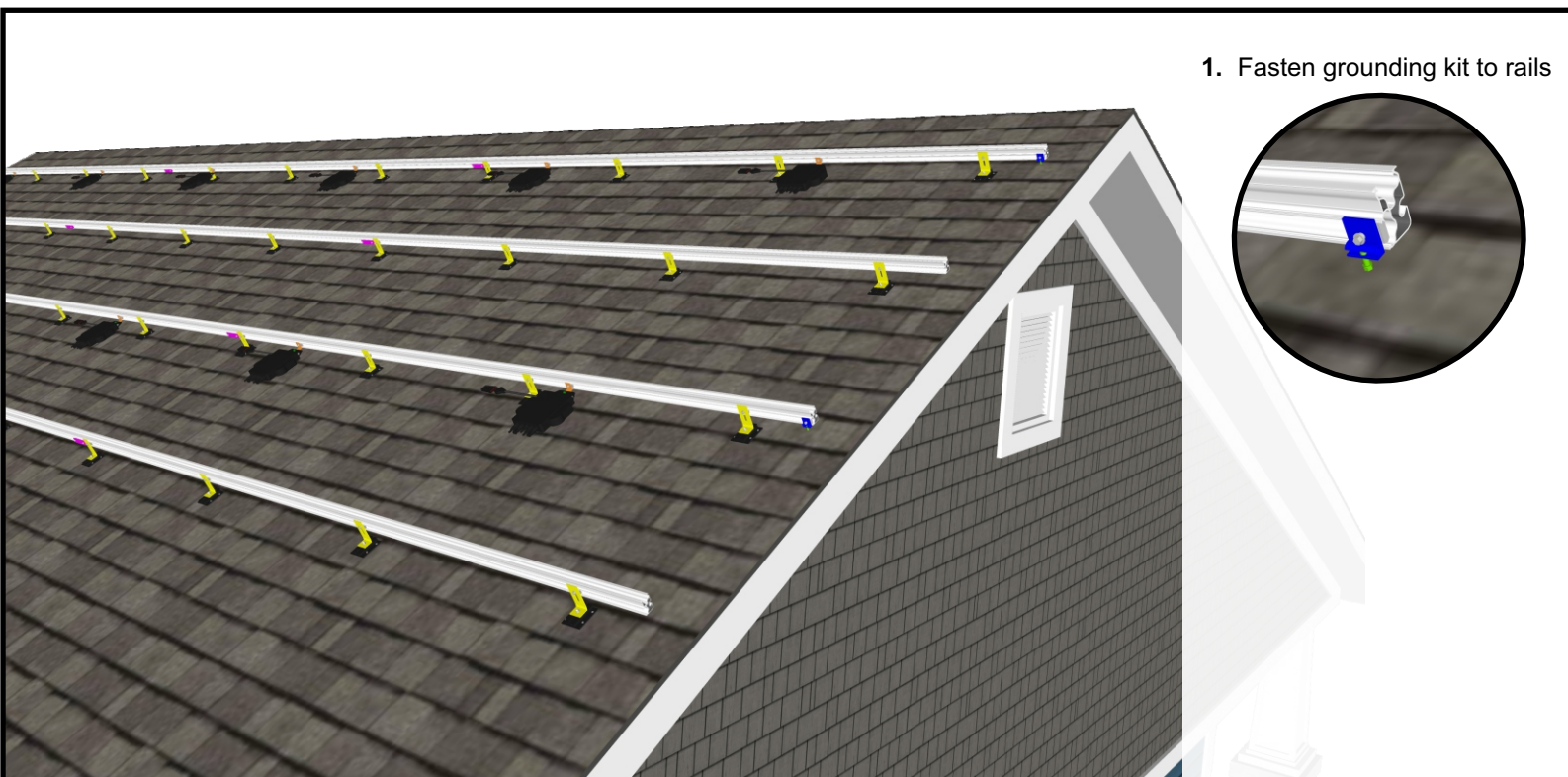


INSTALLATION PROCEDURES

- STEP 05** - Connect the rails together by installing the rail joiner as shown below. As you can see in the image, we have connected three rails together using the joiners. This electrically bonds the rail and structurally joins the rail together. Notice the four rows of rails that allow us to install two arrays of panels.

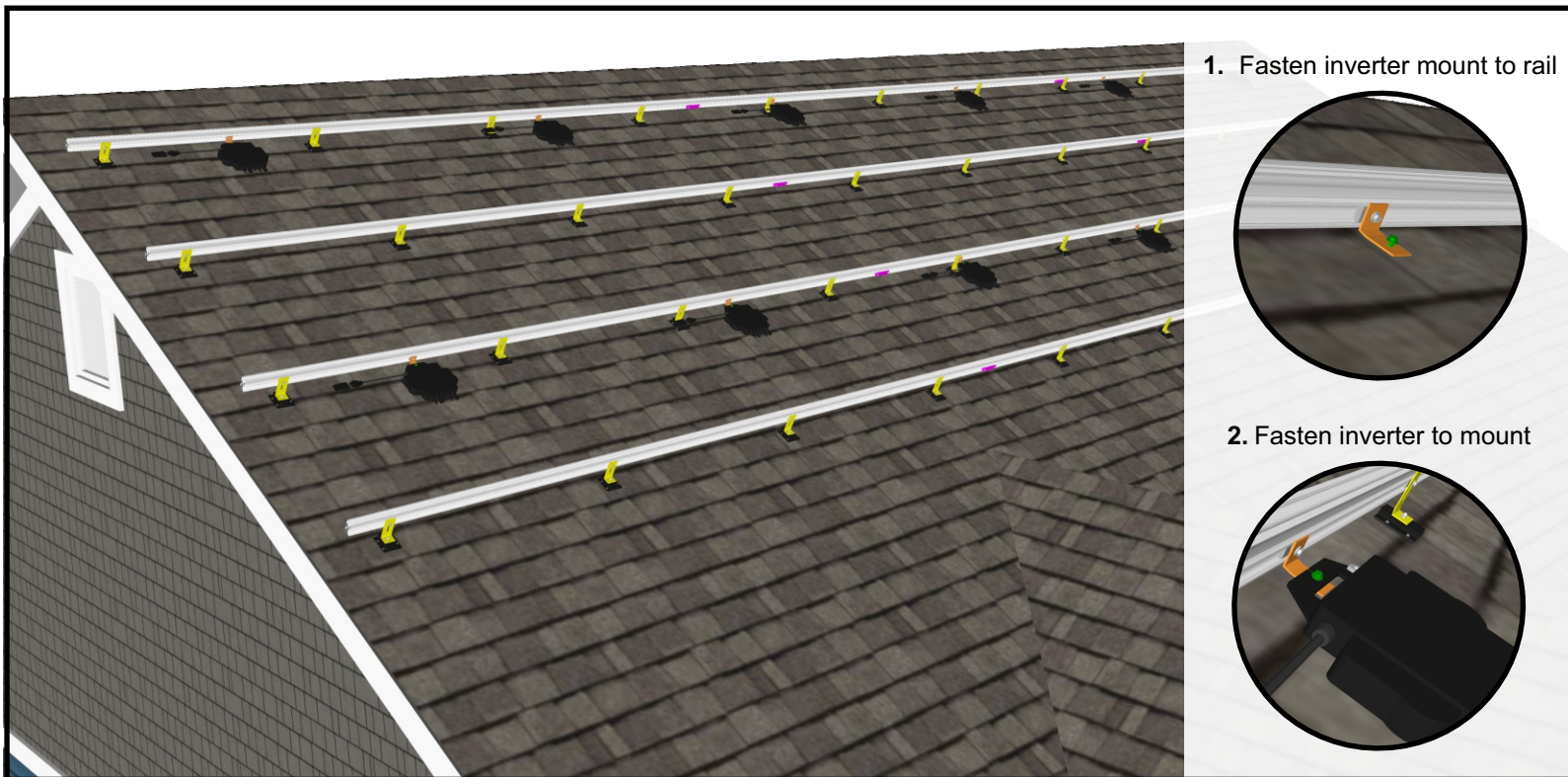


- STEP 06** - Fasten the Kinetic solar grounding lug to the end of every second rail as shown below.

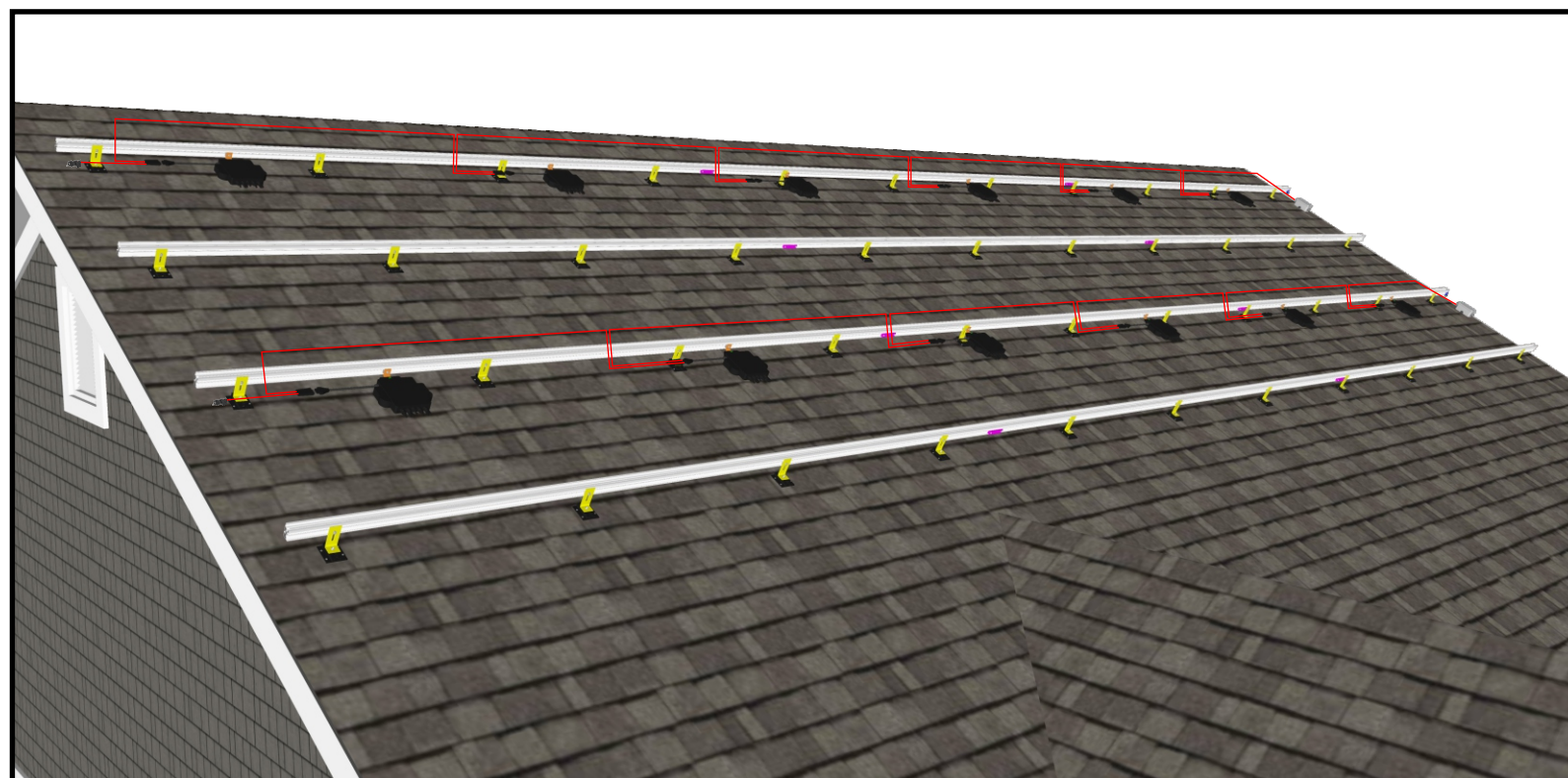


INSTALLATION PROCEDURES

STEP 07 - Fasten the inverter mounts to the rail and then fasten your inverters to the mounts as shown in the images below.

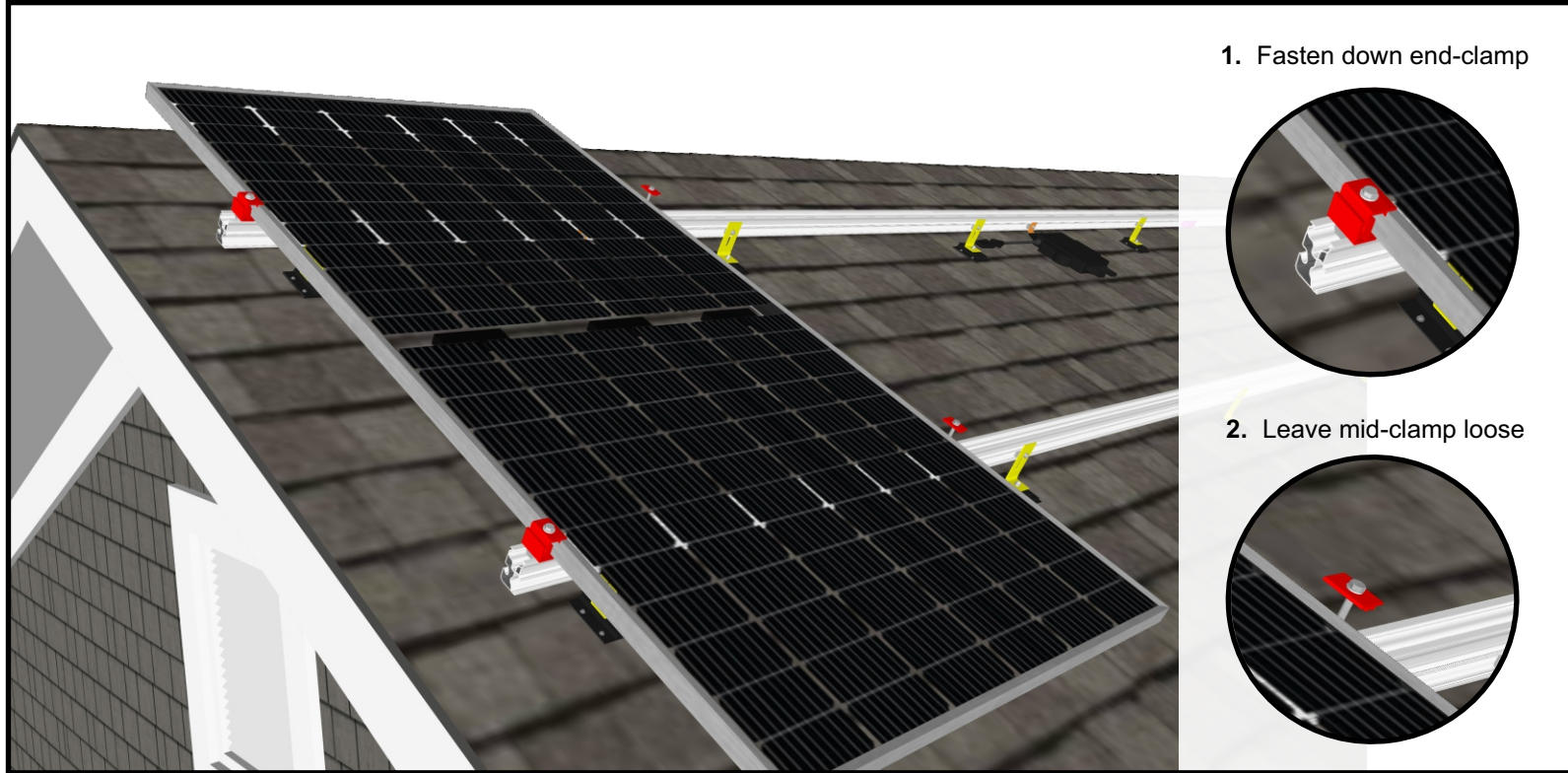


STEP 08 - Layout your trunk cable and plug in the inverters. Once the cable is plugged into the inverters zip-tie the cable onto the rail and make it as neat and tidy as possible.

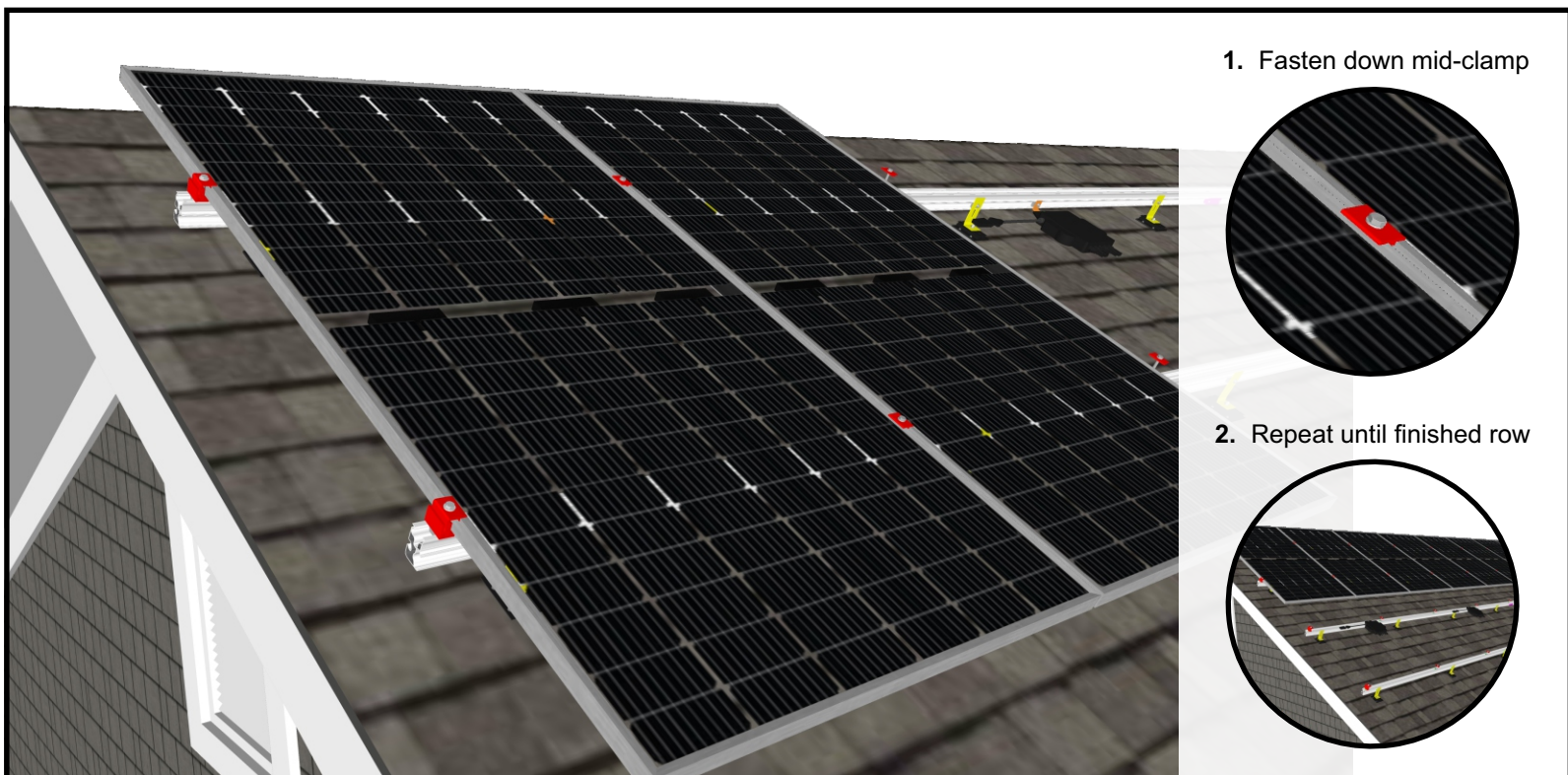


INSTALLATION PROCEDURES

- STEP 09** - Plug your positive and negative MC4 connectors from your solar panel into the first positive and negative connectors located on the lower part of the inverter. Then clamp down the end clamps and leave the mid-clamps loose for the next solar panel to be clamped into place.

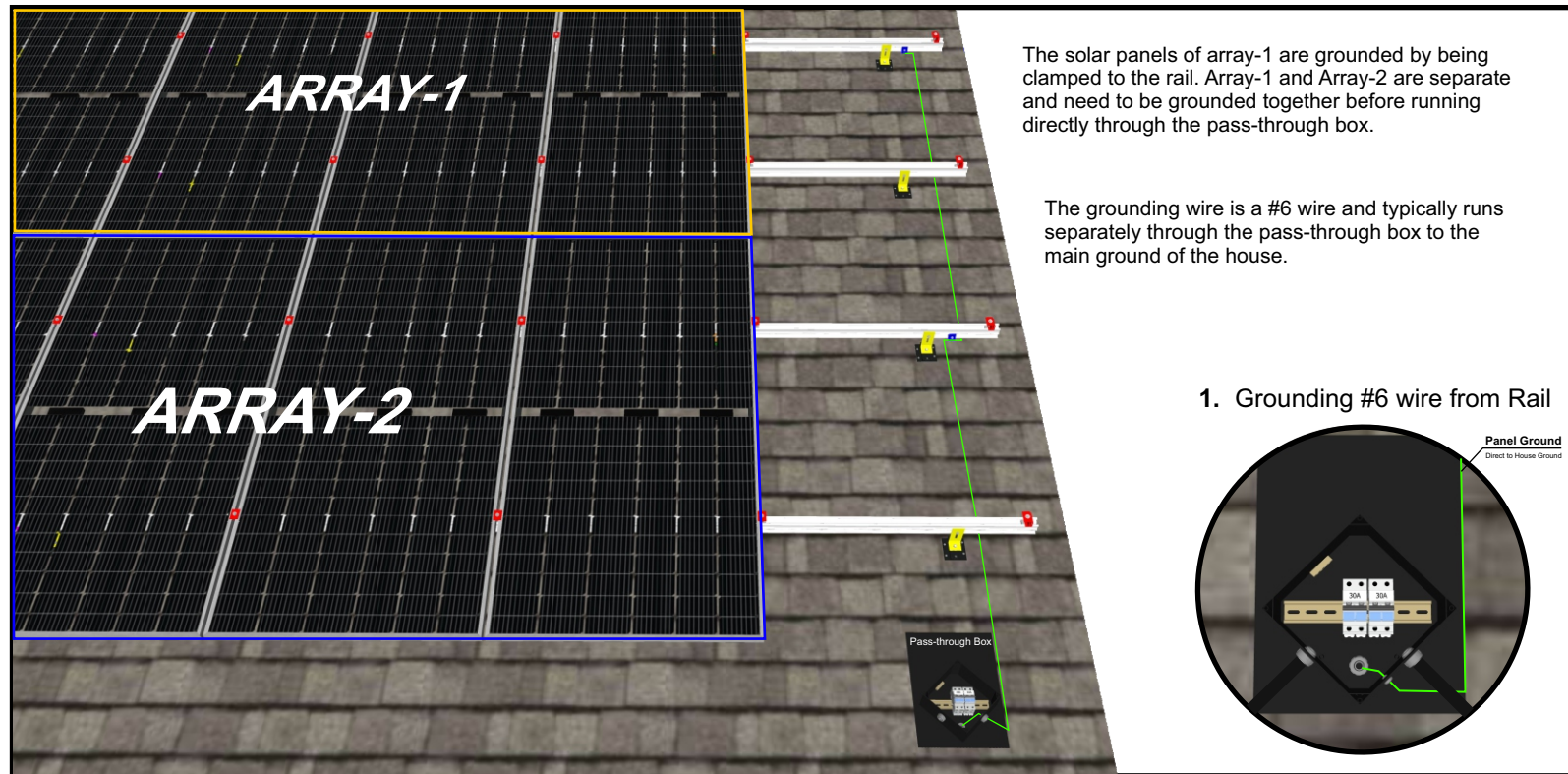


- STEP 10** - Repeat the process by clicking in the positive and negative MC4 connectors into the second set of MC4 connectors located at the bottom of the inverter. Then fasten the mid-clamps down onto the second solar panel frame and repeat the process until the string is completed.

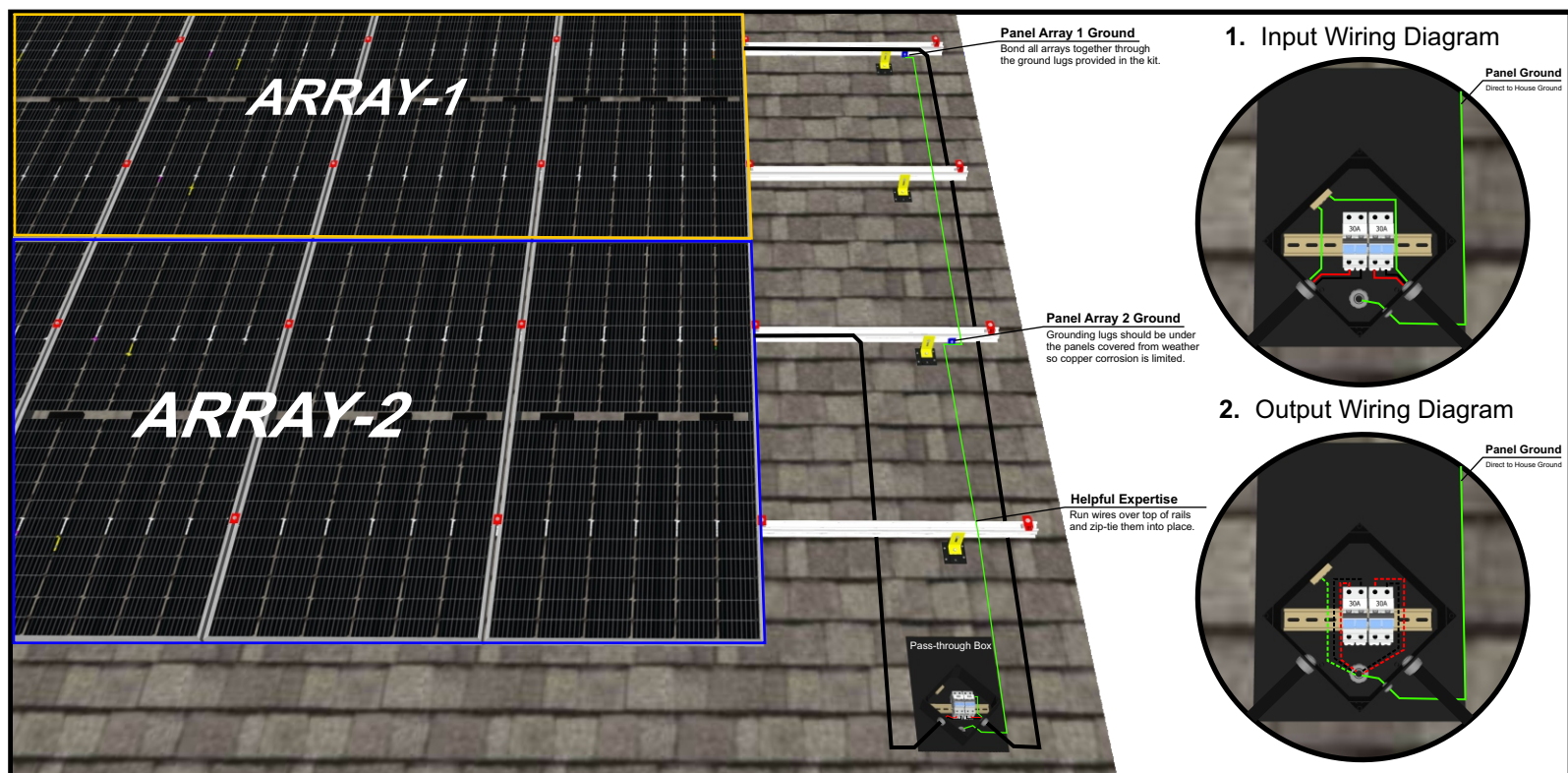


INSTALLATION PROCEDURES

- STEP 11** - Ground the solar panel arrays together using the grounding lugs and #6 wire. Starting with array-1 and daisy chaining into array-2 and then run it through the pass-through box down to the main house ground.



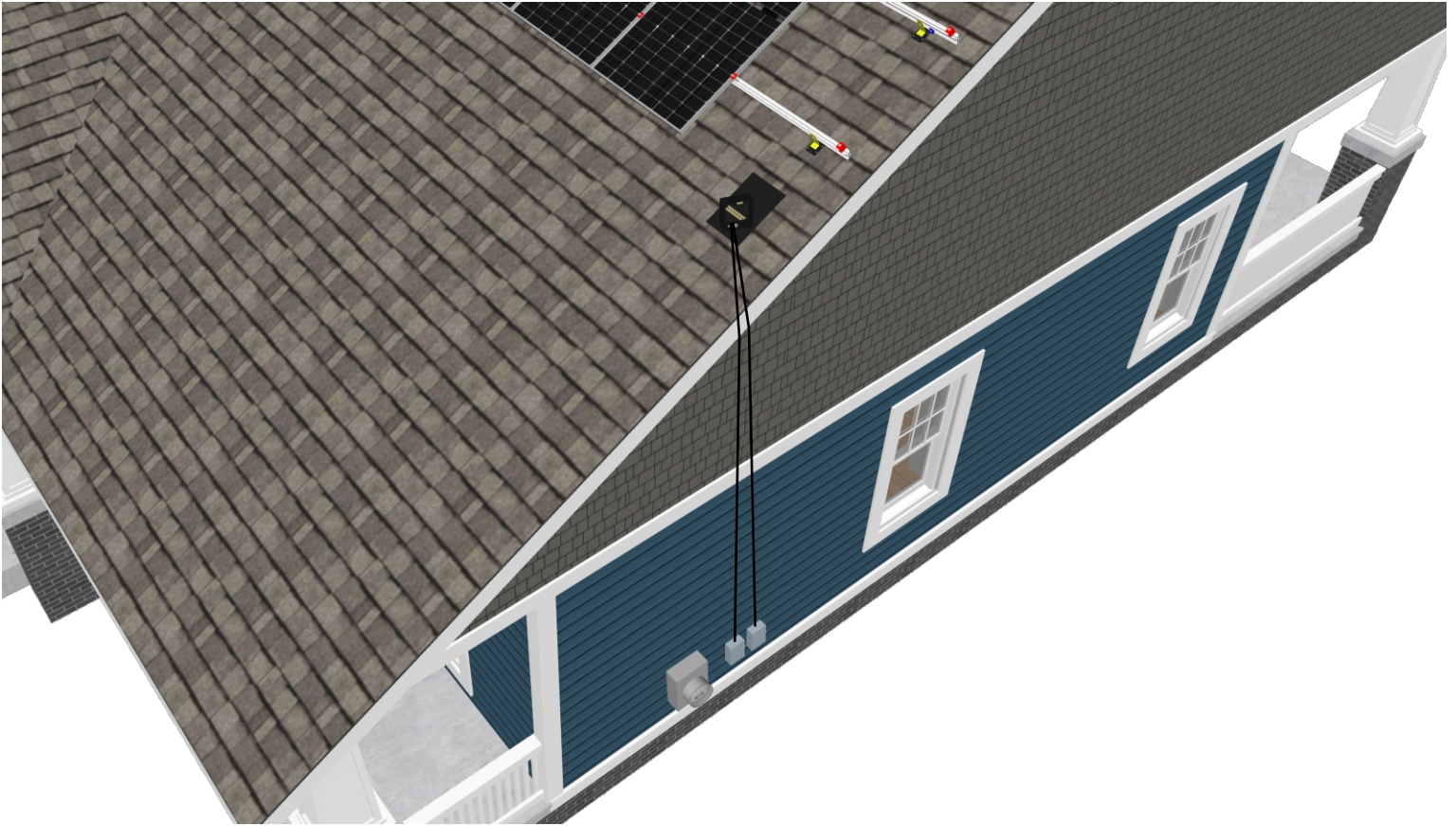
- STEP 12** - Both array-1 and array-2 trunk cables run into the pass-through box and through the dual pole 30A breakers. This provides a roof shut off which is required to meet code. Then run your wiring from the pass-through box down to the main electrical service panel which is located after the meter base. Consult with your local electrician on the correct size for the 2-pole breakers needed to complete this install. Note: Some Inspectors want to see a main disconnect by the home meter base, so we include the 2-Pole disconnect on the next page.



INSTALLATION PROCEDURES

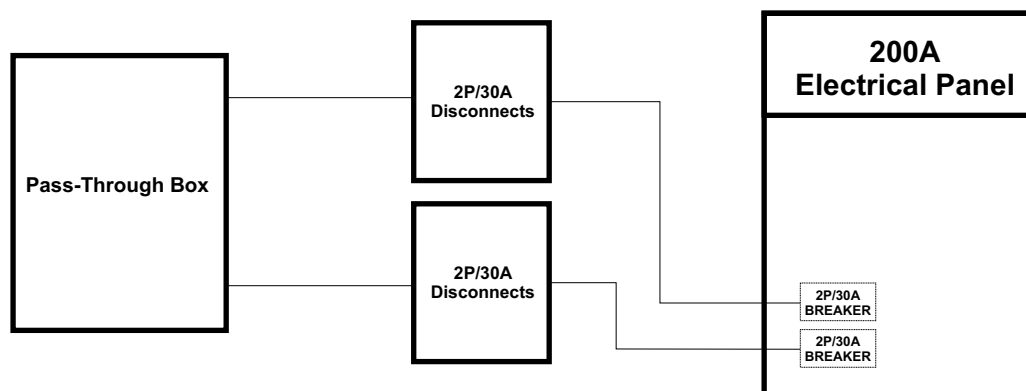
Disconnecting Means by the Meter Base

If you use a disconnect by the Meter Base you will need to use 2 disconnects, one for each branch of inverters. Each branch is rated at 30A and will run through the roof pass-through box were you will transition your wire into outdoor or indoor wire and Merritt them together in the box and then run down through the (2) 30A disconnects and lastly into your electrical panel.



Single Line Wire Diagram

2 Disconnecting Circuits running into a 200A service panel with rated breakers.



SINGLE LINE DRAWING

This is the single line drawing for this PV installation.

SYSTEM DETAILS

PV Module: Longi LR4-72HPH 455W

Collector Type:	Solar PV Module
Module Power:	455W
Number of Modules:	24
Total DC Power:	10.92KW

Module Electrical Properties (STC)

Vmpp:	41.7V
Imp:	10.92A
Voc:	49.5V
Isc:	11.66A
Module Efficiency:	20.9%

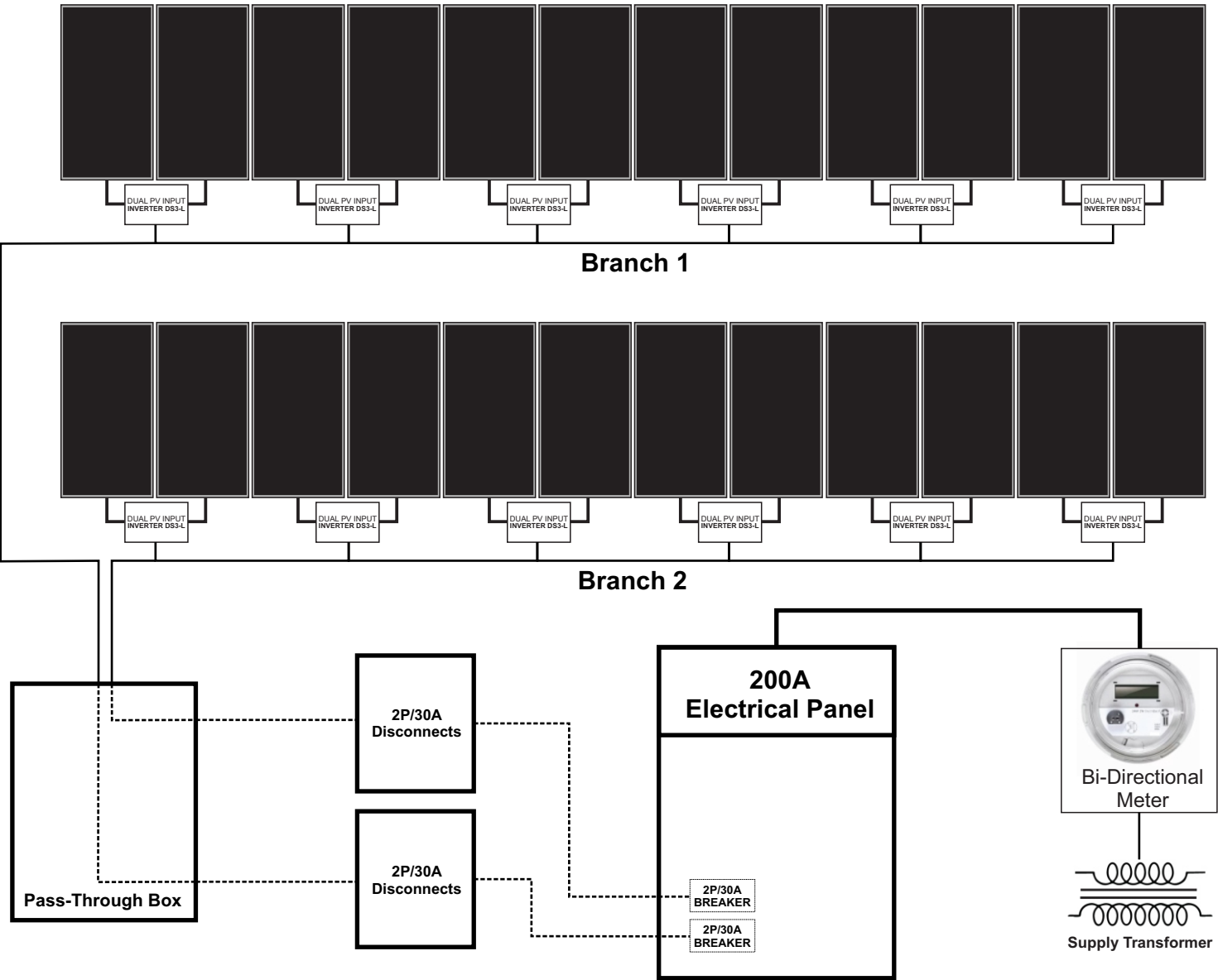
All Inverters used contain CSA Standard C22.2 no 107.1 for utility grid connection.
All equipment installed meets CEC Standards.
Inverters Meet NEC 2014 690.12 Rapid Shutdown

Inverter Type: Dual Micro Inverters

Brand:	APSYSTEMS
Model:	DS3-L
Number of Inverters:	12
Total AC Power Generation:	9.216 KW

Inverter Electrical Properties

Max DC Voltage:	60V
Max Input Current:	18A x 2
Peak AC Power:	768VA
Nominal AC Current:	3.2 @ 240V
Max Units Per 30A Branch:	7
CEC Efficiency:	96.5%
NEMA Rating:	6
Safety:	EC 690.12 / UI1741 / CSA C22.2 No 107.1-16



DISCLAIMERS

IMPORTANT: Please follow installation and wiring instructions exactly as outlined to ensure safety. We recommend installation by solar professionals & electricians to ensure adherence to relevant electrical codes. We have made every reasonable effort to ensure the accuracy of the instructions in this manual, but Solar Online Ltd does not guarantee that the information is error free, nor do we make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current.

DISCLAIMER: This kit has been engineered for use in home applications. Any variance by the end-user is solely of their own discretion. Solar Online Ltd. assumes no responsibility for improper installation in accordance with any laws and regulations governing: cottage, residential or commercial applications. Solar Online Ltd disclaims liability for any direct, indirect or incidental damages caused by, or in case of, installation not performed following the instructions and cautions in this manual. Solar Online Ltd will refuse requests for exchanges or returns, resulting from the purchase and installation of items which do not comply with local codes. To avoid such concerns Solar Online Ltd recommends installation by a professional electrician or solar installation technician. Examples that are shown within this manual are for illustrative purposes only.