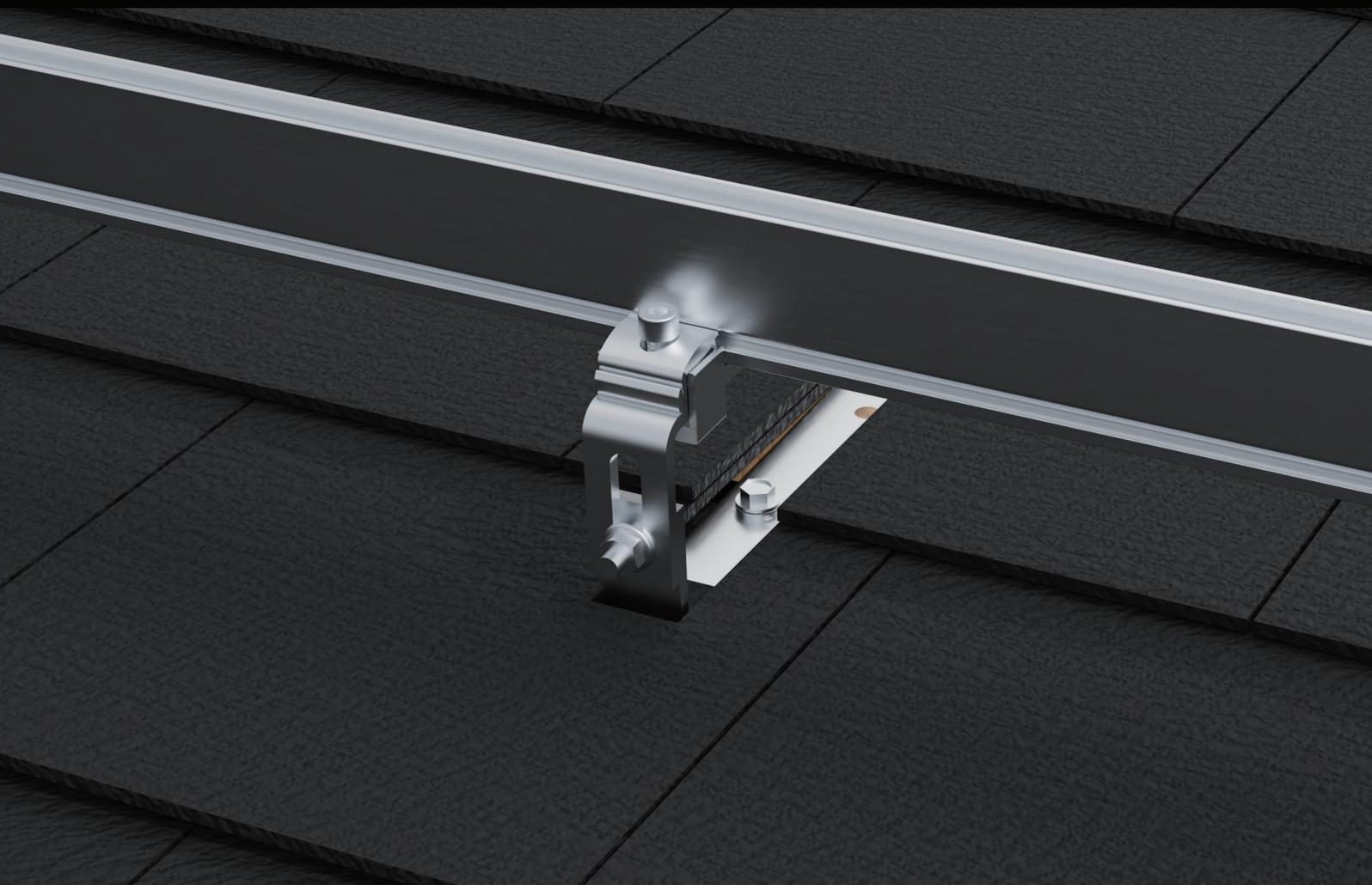


NOVA



INSTALLATION GUIDELINE

V 1.0



Roof Mounting System

NOVA SLATE HOOK

PART #NOVA-TRH-A19/21/22



25 YEAR WARRANTY



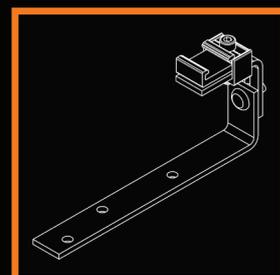
UP-TO 30% FASTER INSTALLATION



PORTRAIT



LANDSCAPE



WWW.NOVAMOUNTING.COM

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1. INTRODUCTION

Welcome to the NOVA Solar Mounting Solution Installation Guideline. This guide is your comprehensive resource for installing NOVA's solar mounting systems. Designed with precision and engineered for durability, our systems ensure a seamless and efficient installation experience.

Whether you're working with penetrative tin roofs, tile roofs, or other specialised surfaces, this guideline provides step-by-step instructions and all the necessary details to ensure a successful and long-lasting solar installation.

2. GENERAL

This installation guideline outlines the correct procedure for assembling the NOVA Roof Mounting System and must be followed precisely. Before beginning installation, please read this guideline carefully to ensure full understanding of the process and associated safety requirements. Compliance with all safety precautions, handling guidelines, and the procedures outlined in this guideline is essential for a safe and successful installation.

In addition to this guideline, refer to any project-specific layout drawings, engineering reports, or planning documents provided by NOVA Mounting. These documents contain important technical data and site-specific instructions that must be adhered to throughout the installation process.

Please note that the illustrations and diagrams within this guideline are provided for general guidance and may differ slightly from actual system configurations depending on roof type, region, or project requirements.

LIABILITY

All technical content and guidance contained in this guideline is developed using current standards, regulations, and NOVA Mounting's expertise in solar mounting systems. While every effort has been made to ensure accuracy, final responsibility lies with the installer to verify compliance with local codes, structural suitability, and safe work practices. Refer to our official warranty and liability conditions available at www.novamounting.com

INSTALLATION GUIDELINES

Ensure that the roof construction is suitable for the introduction of forces at the fixing points and their subsequent transmission. In order to compensate thermal expansion, include a break every 25 meters when planning the PV-system. For module positioning/fastening points please refer to manufacturers recommendations. Please follow your local timber construction standard. Please do not use installed roof connections as ladder. If installation is located within 10km from the coast, we advise not to use zinc coated material. For further information please contact your sales representative or the technical department at NOVA Mounting.

TESTING & CERTIFICATION

All components have been tested and developed to be compliant with relevant guides and regulations.

MAINTENANCE

To ensure the long-term safety, performance, and structural integrity of the NOVA Mounting System, periodic inspections and maintenance are required. All maintenance activities must be carried out by qualified personnel familiar with the system and local safety standards.

- Perform a general system inspection annually. Additional inspections should be conducted after severe weather events, such as storms with wind speeds exceeding 75 km/h or heavy hail.
- Inspect all screw connections and tighten any that are loose, following the specified torque values provided in the installation instructions
- Any damaged, corroded, or loose components must be repaired or replaced immediately.

DISASSEMBLY & DISPOSAL

Reused components are classified as wearing parts, and responsibility for assessing wear rests with the installer. NOVA disclaims any liability or warranty for reused components. Disassembled parts should be properly recycled, with metals and plastics sent for recycling, and other materials disposed of according to their composition.

WARRANTY

Warranty according to the terms and conditions found on the website www.novamounting.com

NOVA is not accountable for the roof's capability to maintain the introduced forces. Please check the roof's compatibility with a static engineer.

3. SAFETY GUIDELINE

Before commencing installation, ensure the mounting surface is structurally sound and suitable for the applied loads of the solar array. All installations must be performed in accordance with the system design, local building codes, and relevant Australian Standards. Carefully plan the panel layout to accommodate thermal expansion—introducing expansion joints every 25 metres is recommended. Always follow the solar panel manufacturer's guidelines regarding clamping zones and attachment points. Do not use mounting components as footholds or for temporary access. Ensure the roof surface is clean, dry, and free of debris before beginning work. If in doubt, consult a structural engineer or contact NOVA Mounting's technical support for project-specific guidance.

PERSONNEL & SUPERVISION

- Installation must be carried out by qualified and trained personnel, with a minimum of two professionals present at all times
- All installers must be familiar with this guideline and local safety standards before beginning work.

WORKSITE SAFETY

- Never install the mounting system in high winds, wet conditions, or on slippery or uneven roof surfaces.
- Keep the roof clean and dry. Remove any algae, debris, or obstacles before beginning installation.
- Do not walk on the mounting system or solar panels at any time.
- Never stand in gutters or areas not designed to support weight.
- If working on tiled roofs, slide tiles upward to create footholds—do not damage tiles or roof structure.

MANDATORY SAFETY CHECKS

- Do not alter or substitute system components.
- Ensure all fasteners are tightened to the recommended torque (12–14 N.m).
- Double-check all fixings before finalising installation.

GENERAL RESPONSIBILITY & SAFETY GUIDELINE

Ladders & Access Equipment: Place ladders on stable, solid surfaces. Maintain a ladder angle of approximately 75°, and ensure it extends at least 1 metre above the roof edge. Where possible, secure the ladder at the top using a rope or tension strap.

Handling and Modification: Do not throw or roughly handle any components. Avoid bringing the system into contact with sharp or heavy objects. Do not modify components in any way, including exchanging bolts, drilling holes, or bending parts. Any such modifications not described in the standard installation procedure will void the warranty.

Roof Inspection: Before installation, verify the roof's load-bearing capacity. Check that the roof is in good condition and can support the weight of the solar panels, including additional materials and loads.

Weather Conditions: Avoid installation in adverse weather conditions, such as strong winds or wet, slippery surfaces.

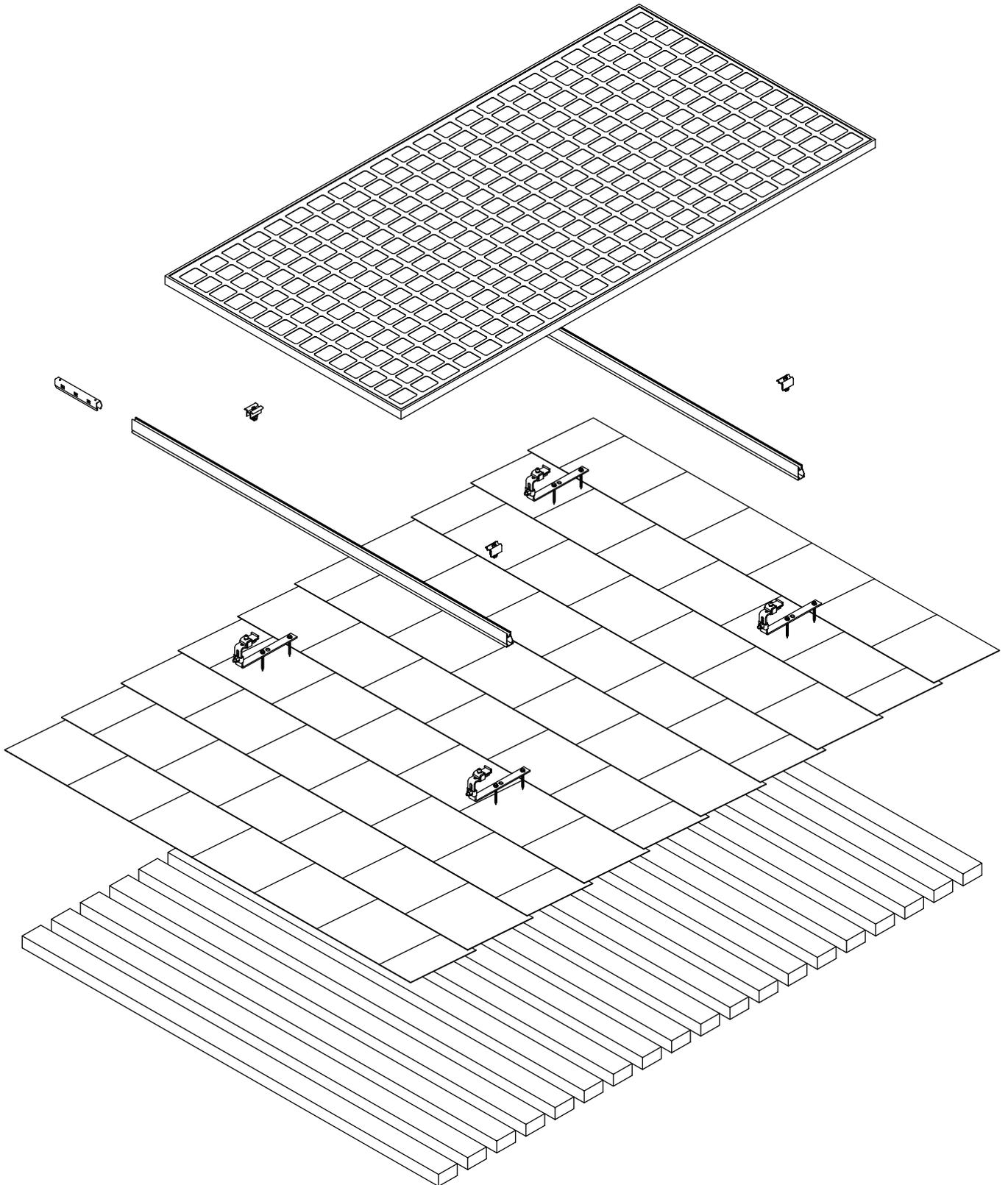
Safety Measures: Follow all fire regulations related to photovoltaic installations. Ensure the roof surface is clean, dry, and free of debris before beginning installation. Use safety nets and edge protection as necessary.

Earthing and Bonding: Perform equipotential bonding, grounding, and earthing according to country-specific standards and regulations.

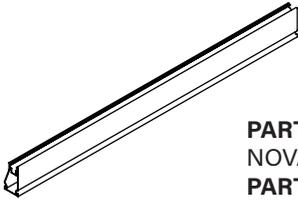
Protective Gear: Wear appropriate protective equipment such as helmets, gloves, and non-slip safety boots.



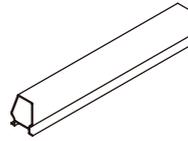
4. SYSTEM OVERVIEW



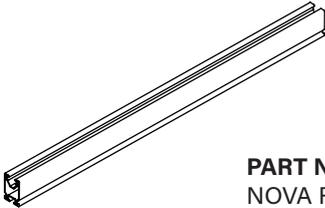
PARTS LIST



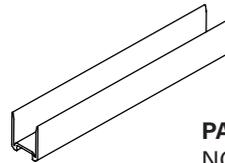
PART NAME:
NOVA RAIL
PART NO.:
NOVA-RA-NOV-___



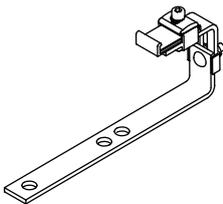
PART NAME:
NOVA INNER RAIL JOINER
PART NO.:
NOVA-SK-NOV



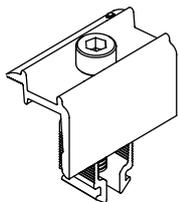
PART NAME:
NOVA RAIL
PART NO.:
NOVA-RA-NOU___



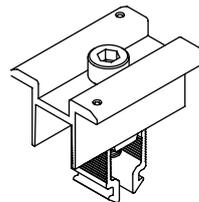
PART NAME:
NOVA INNER RAIL JOINER
PART NO.:
NOVA-SK-NOU



PART NAME:
NOVA TILE SLATE HOOK
PART NO.:
NOVA-TRH-A19/21/22

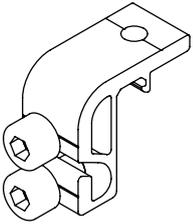


PART NAME:
NOVA END CLAMP
PART NO.:
NOVA-PC-NEC40-NS6

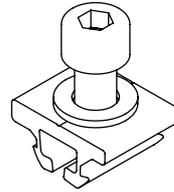


PART NAME:
NOVA INNER CLAMP
PART NO.:
NOVA-PC-NIC35A-NS6

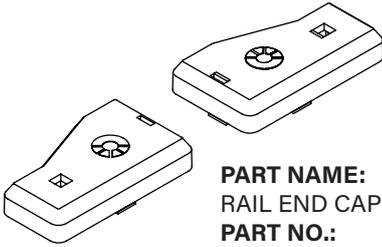
ACCESSORIES LIST



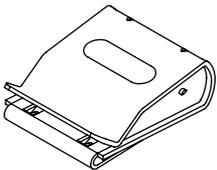
PART NAME:
EARTH LUG
PART NO.:
NOVA-AC-ELG03



PART NAME:
MICROINVERTER MOUNTING NUT
PART NO.:
NOVA-AC-NRN



PART NAME:
RAIL END CAPS(BLACK ONLY)
PART NO.:
NOVA-AC-AEC



PART NAME:
2 CABLE PANEL CLIPS
PART NO.:
NOVA-AC-PCC



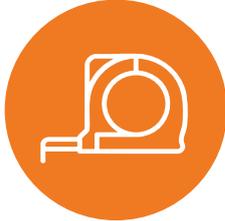
PART NAME:
RAIL CABLE MANAGEMENT CLIP
PART NO.:
NOVA-AC-PCC08

5. INSTALLATION PREPARATION

TOOL LIST



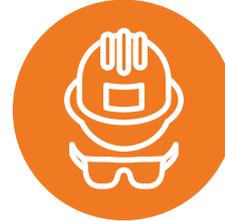
**MARKER
CHALK**



**TAPE
MEASURE**



**PLIERS
TIN SNIPS**



**PROTECTIVE
EQUIPMENT**



**STRING
LINE**



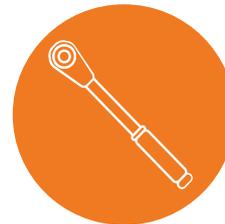
**CIRCULAR
SAW**



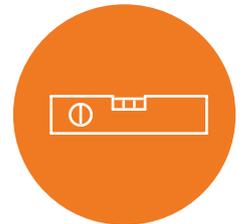
**IMPACT
DRIVER**



**NUT
SETTER**

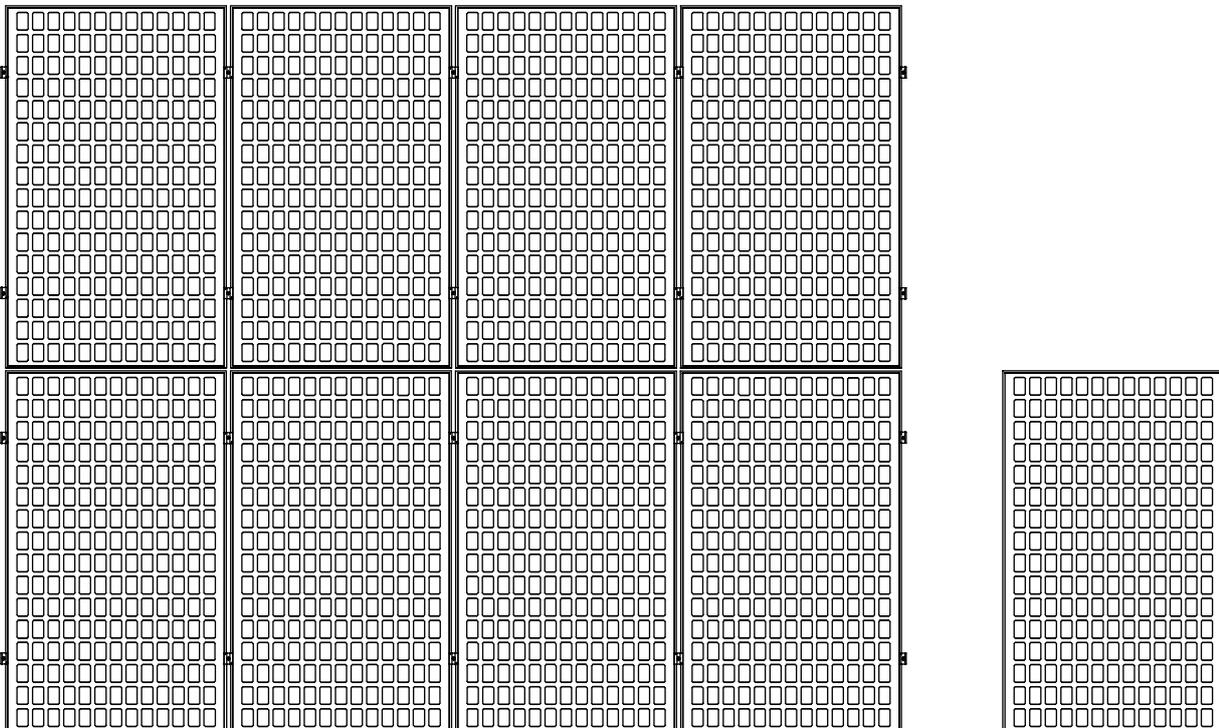


**TORQUE
WRENCH**



**SPIRIT LEVEL
SET SQUARE**

MEASURE THE SOLAR MODULES

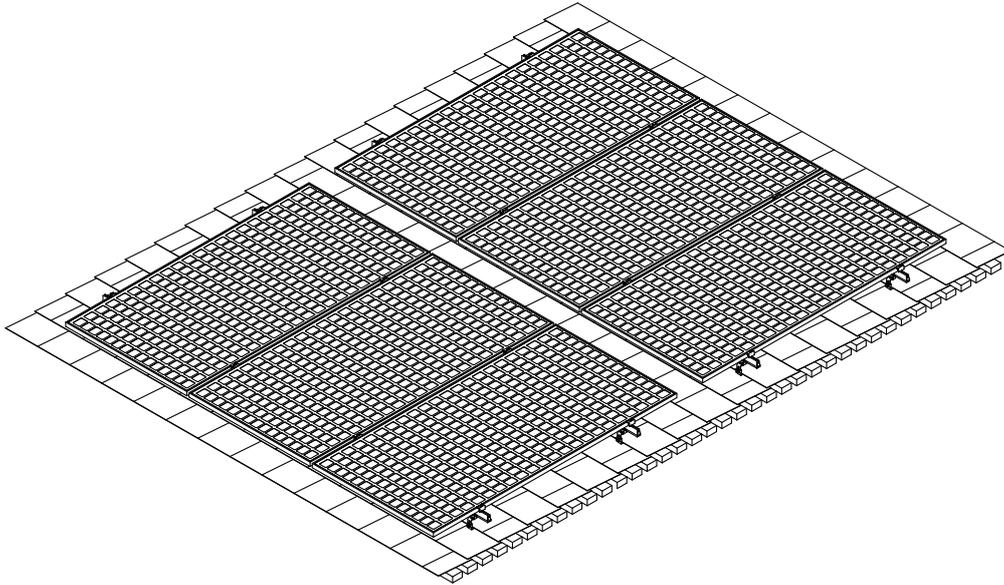


- Take the dimensions of the array field from the planning documents.
- Determine module size.
- Check the position of the purlins/rafters.
- Determine and mark positions of slate hooks.



Please ensure to follow all relevant standards and guidelines including, but not limited by, wind region, terrain category, off purlin requirements, roof zoning and building structural capacity. Please request relevant certifications from your local NOVA distributor.

PORTRAIT SET UP

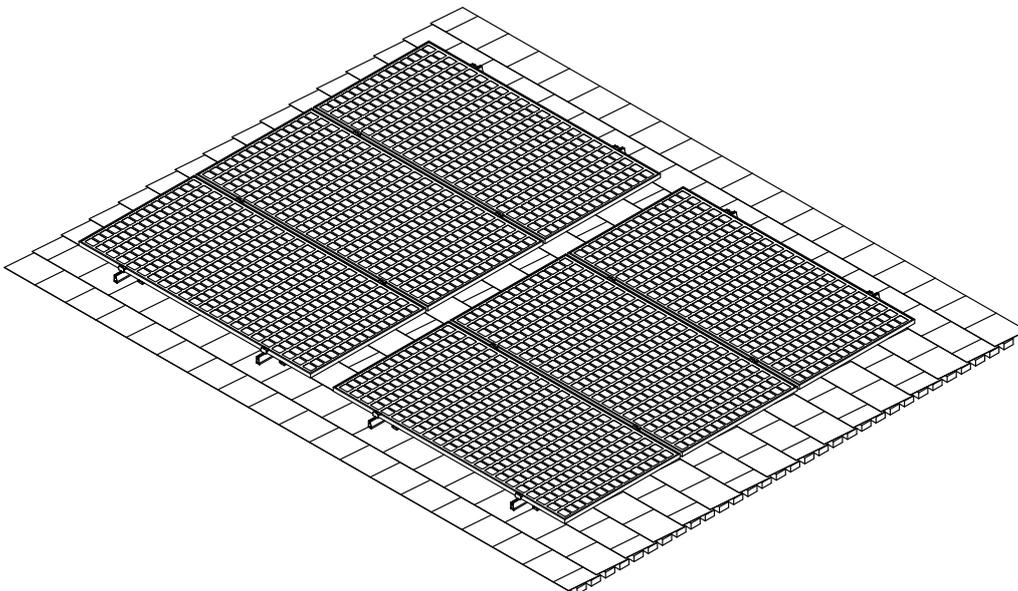


- Take the dimensions of the array field from the planning documents.
- Determine module size.
- Check the position of the purlins/rafters.
- Determine and mark positions of slate hooks.



Please ensure you follow all module manufacturer requirements for clamping zones etc, along with local relevant standards and guidelines for installation.

LANDSCAPE SET UP



- Take the dimensions of the array field from the planning documents.
- Determine module size.
- Check the position of the purlins/rafters.
- Determine and mark positions of slate hooks.

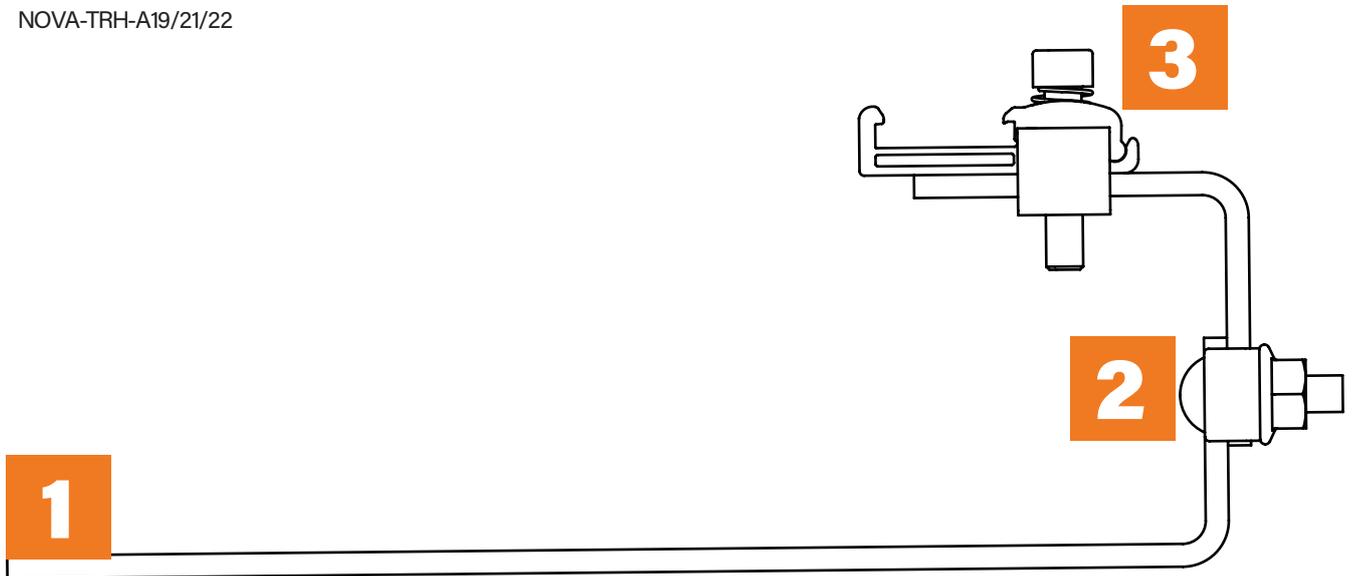


Please ensure you follow all module manufacturer requirements for clamping zones etc, along with local relevant standards and guidelines for installation.

6. INSTALLATION GUIDELINE

NOVA SLATE HOOK

NOVA-TRH-A19/21/22



1. PART NAME: BASE MOUNTING PLATE

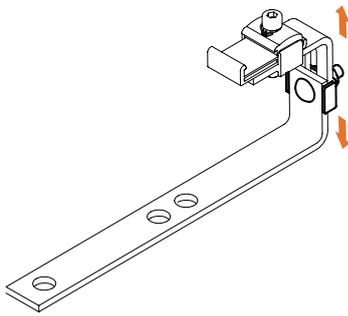
2. PART NAME: M10 NUT

3. PART NAME: NOVA RAIL CLAMP

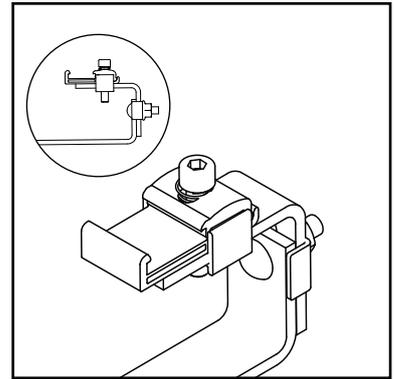
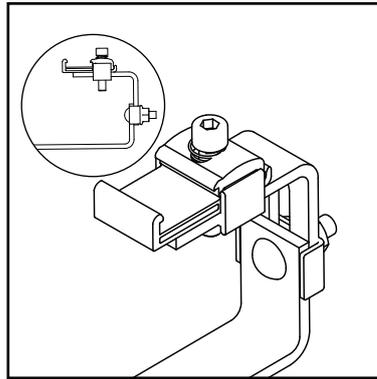


Note Packers (shims/spacers) may be used to level tile hooks on uneven rafters or roof surfaces. This method is suitable for small adjustments (1-5 mm) only and should be used in conjunction with structural screws that maintain sufficient embedment depth.

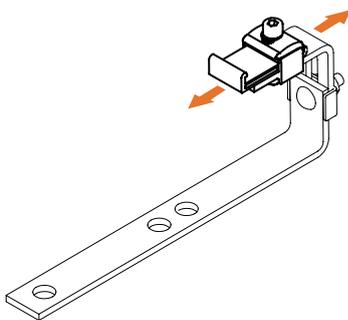
NOVA SLATE HOOK ADJUSTABLE FEATURES



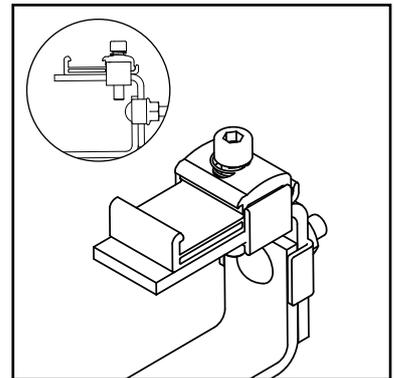
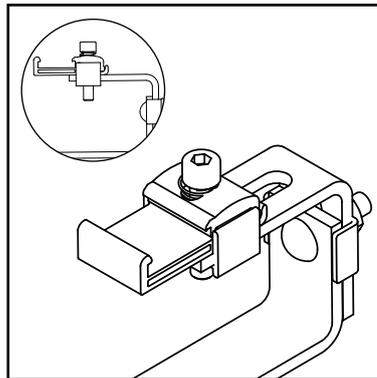
**HEIGHT
ADJUSTMENT**



The NOVA slate hook height can be adjusted both internally and externally of the roof to allow for discrepancies of the roof. To do this, loosen the required bolts and slide the brackets up or down until in position and tighten.

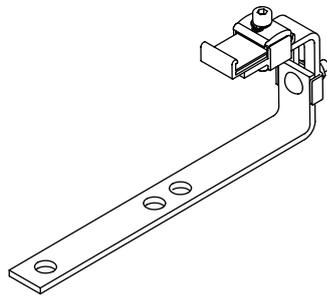


**RAIL CLAMP
ADJUSTMENT**

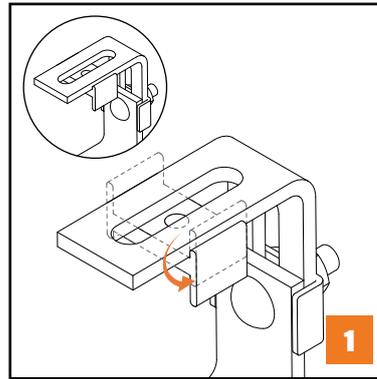


The NOVA slate hook's rail clamp can be adjusted to allow for discrepancies in the roof and reduce pressure on the NOVA rail. To do this, at the point of installing the rail, slide the clamp into position and tighten.

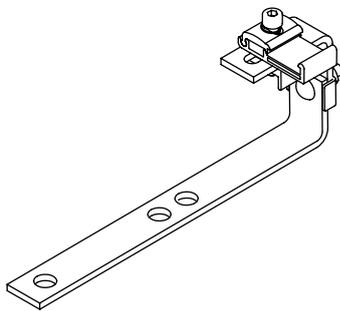
NOVA RAIL CLAMP PORTRAIT/LANDSCAPE CONFIGURATION



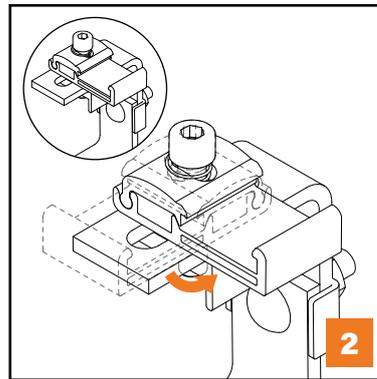
PORTRAIT

**STEP 1**

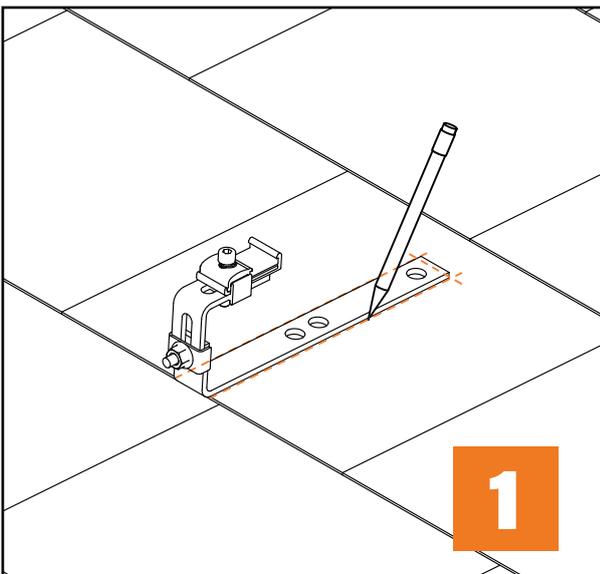
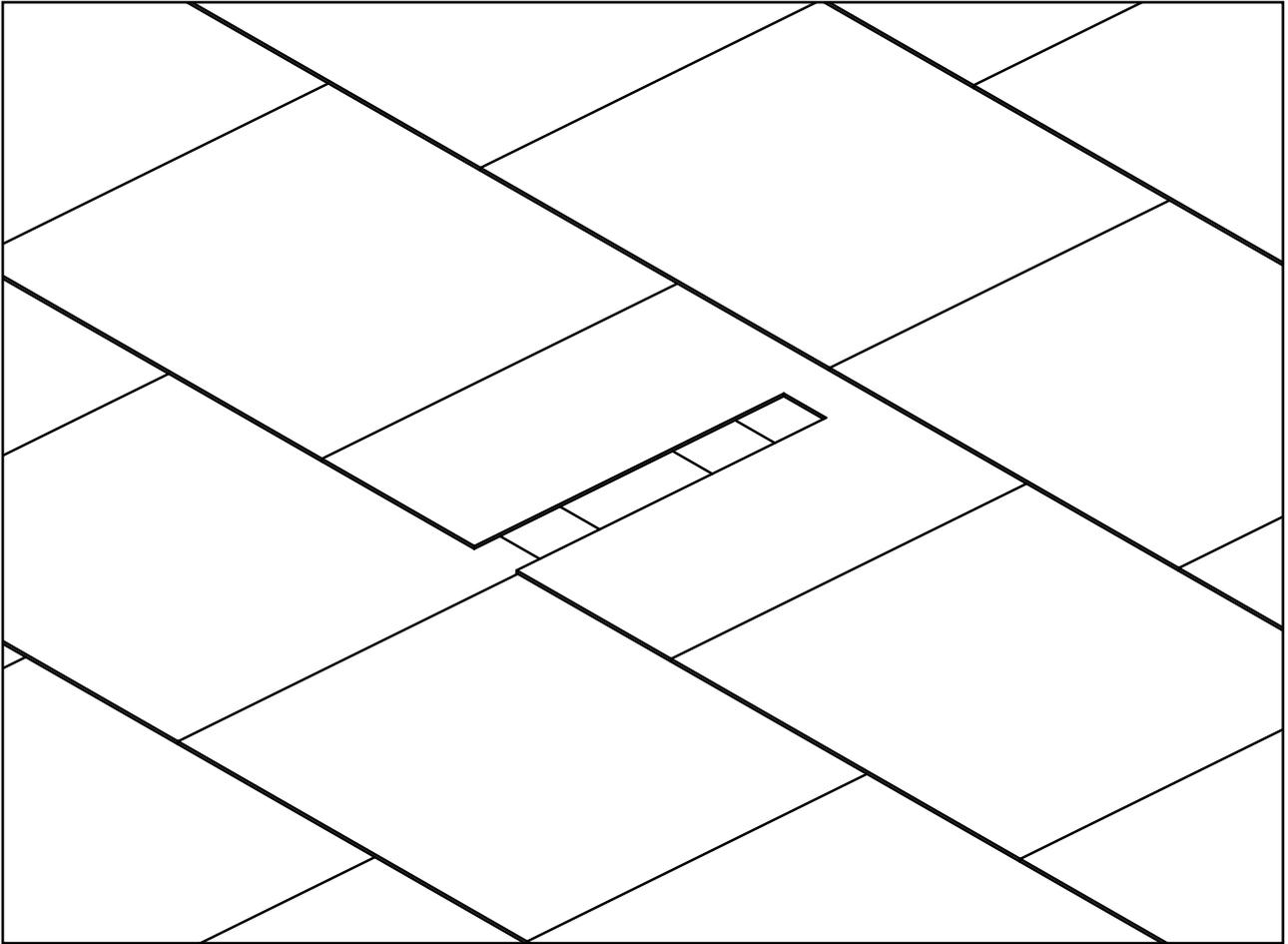
Remove the M8 bolt and clamp from the bracket, taking care not to keep the components of the clamp in one piece. Turn the U-clamp over so the short side of the bracket is facing upwards.



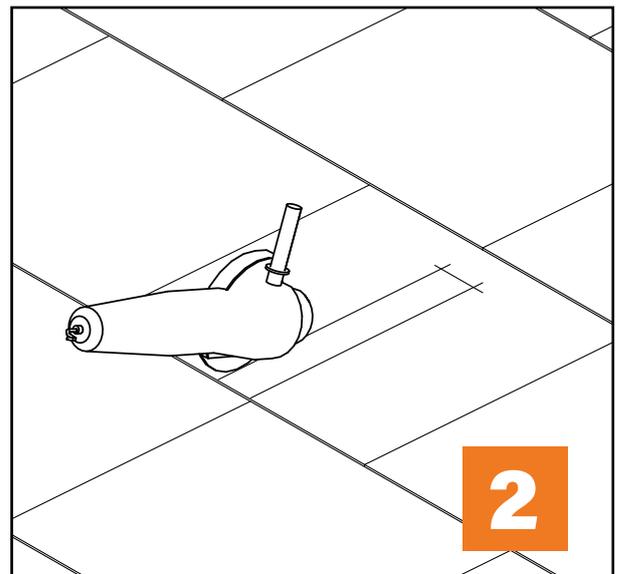
LANDSCAPE

**STEP 2**

Ensure the clamp sits correctly when reinstalled. Reinstall the clamp in landscape orientation as shown.

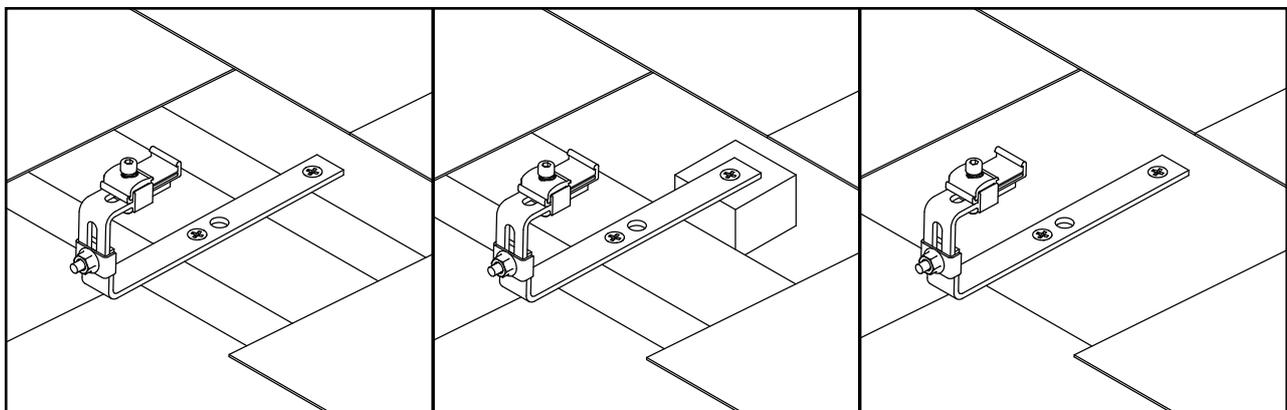
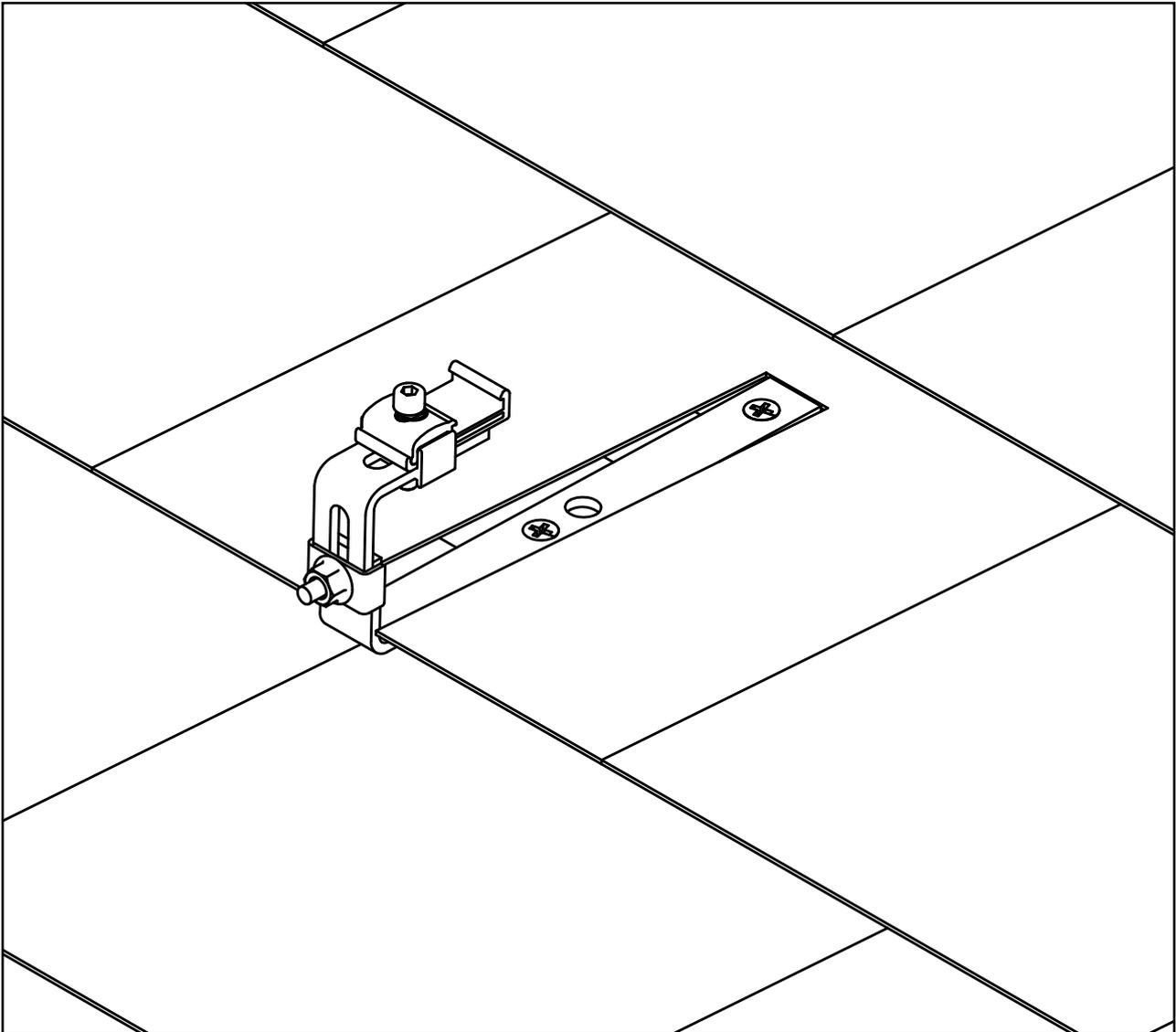
CUT-OUT THE SLATE ROOF

STEP 1
Identify and mark the slate tile to be cut. Remove any overlapping tiles. Position the roof hook and mark the cut-out location.



STEP 2
Cut along the marked lines using an angle grinder.

INSTALLING THE SLATE HOOK BY DIFFERENT WAYS



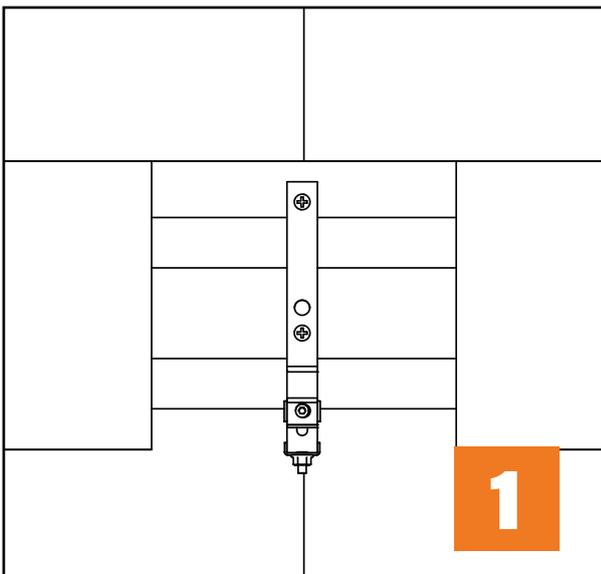
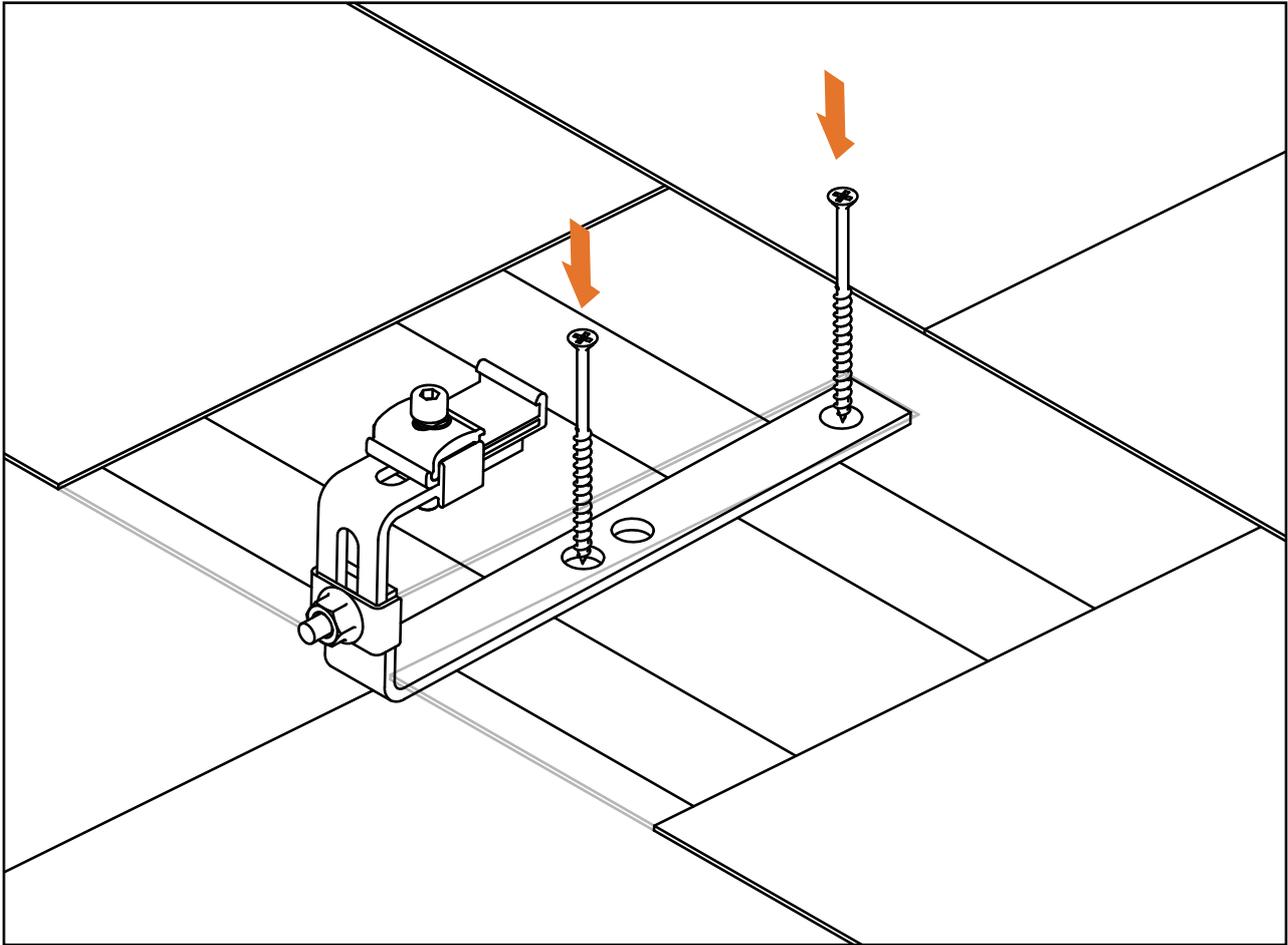
**ON THE
TWO BATTENS**

**ON ONE BATTEN
AND A TIMBER SHIM**

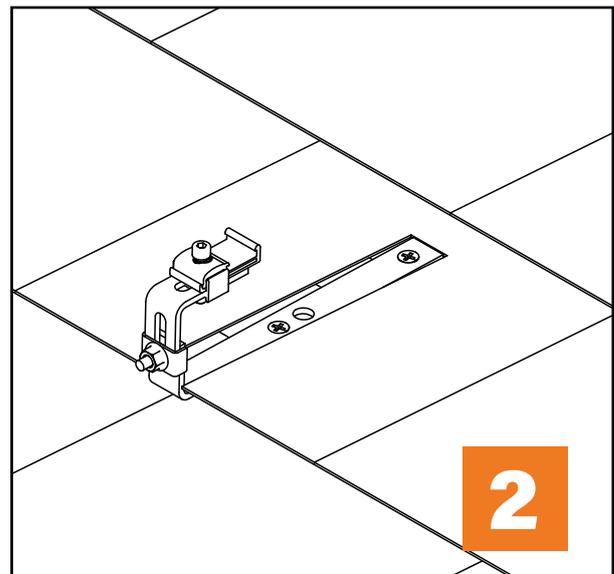
**ON SOLID WOOD
BOARDS/CONCRETE**

 Before installing the hooks, determine the appropriate waterproofing method such as a flashing or a similar waterproof material—to ensure long-term protection.

INSTALLING THE SLATE HOOK ONTO THE TWO BATTENS

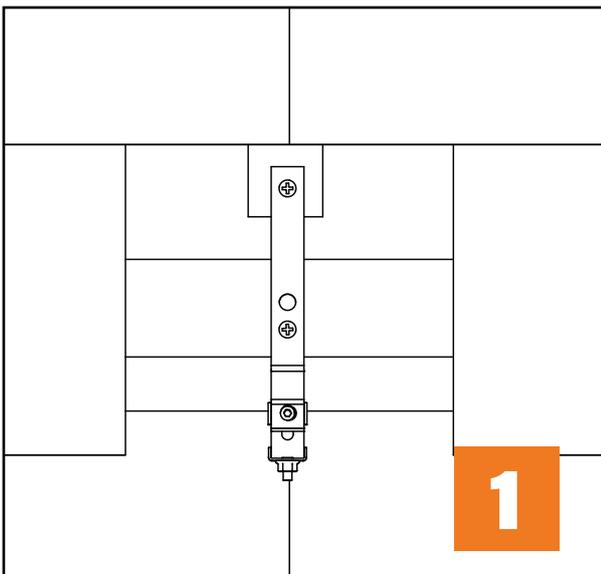
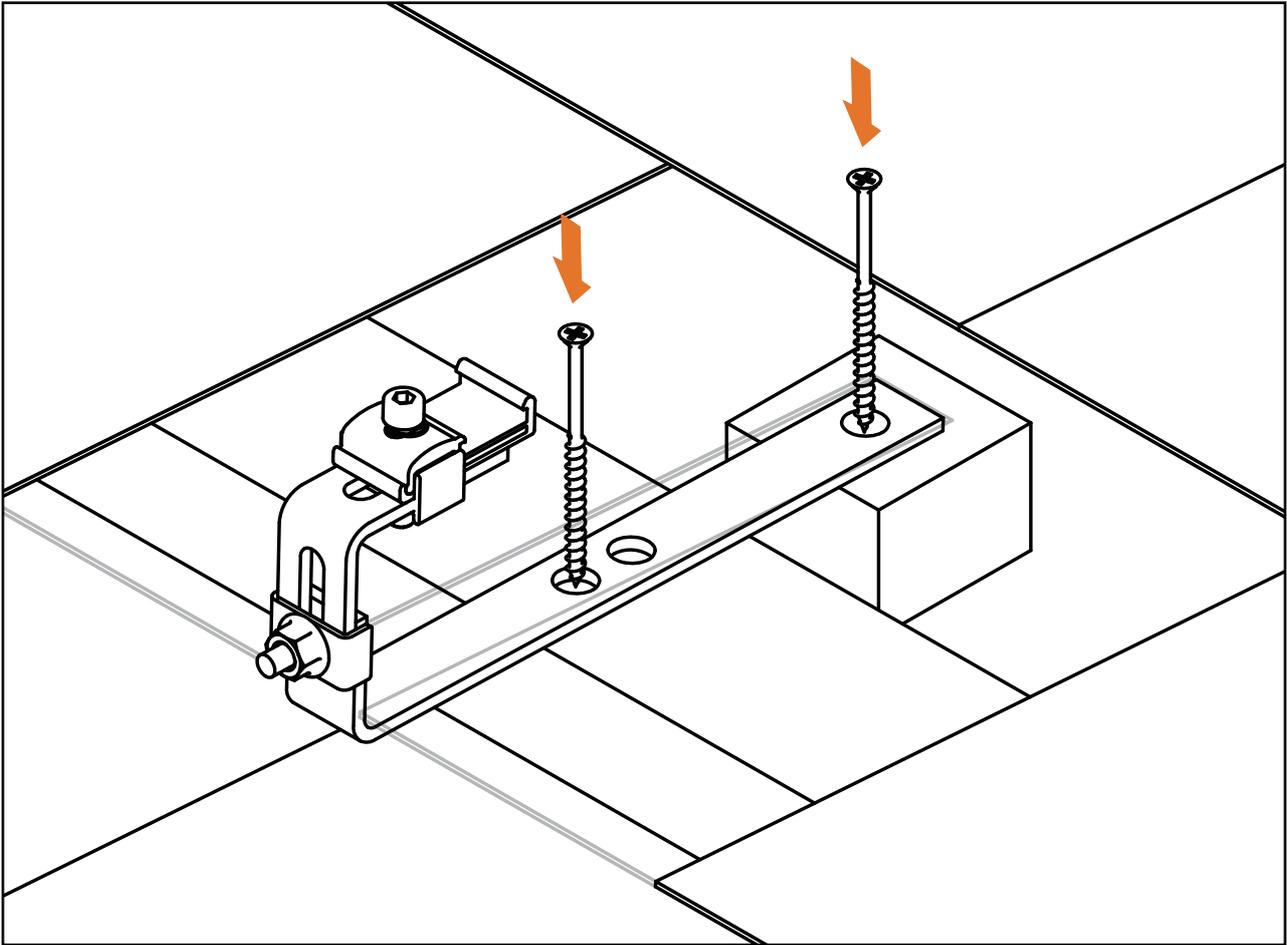


STEP 1
Position the slate roof hook to avoid interference with overlapping slate tiles.

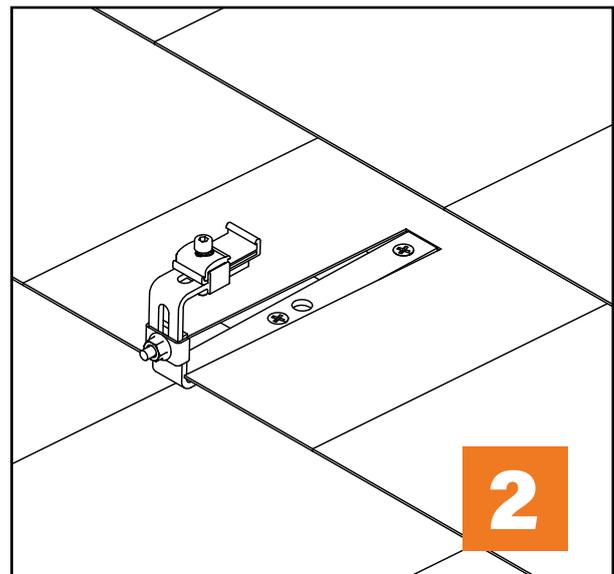


STEP 2
Secure the slate roof hook to the battens using two countersunk screws through the mounting holes.

INSTALLING THE SLATE HOOK ONTO ONE BATTEN AND A TIMBER SHIM

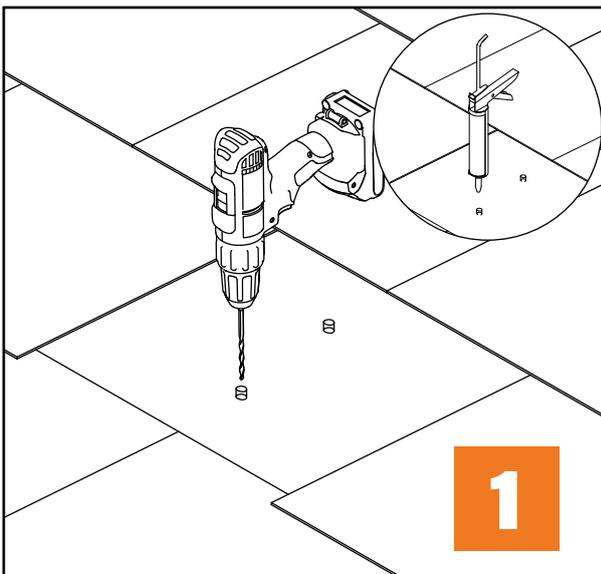
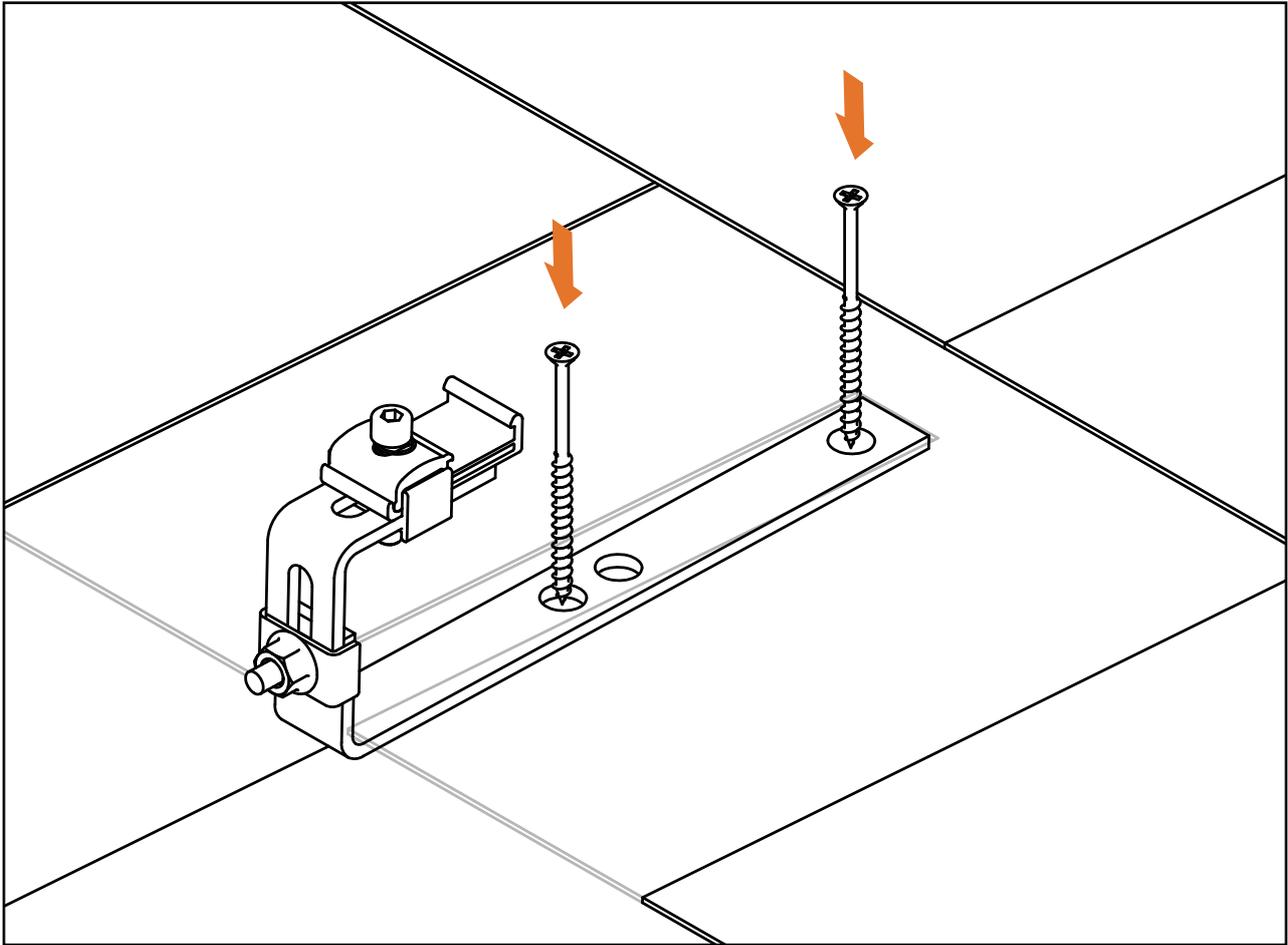
**STEP 1**

Position the slate roof hook to avoid interference with overlapping slate tiles. Place a shim (not included) beneath the slotted hole of the slate roof hook for leveling.

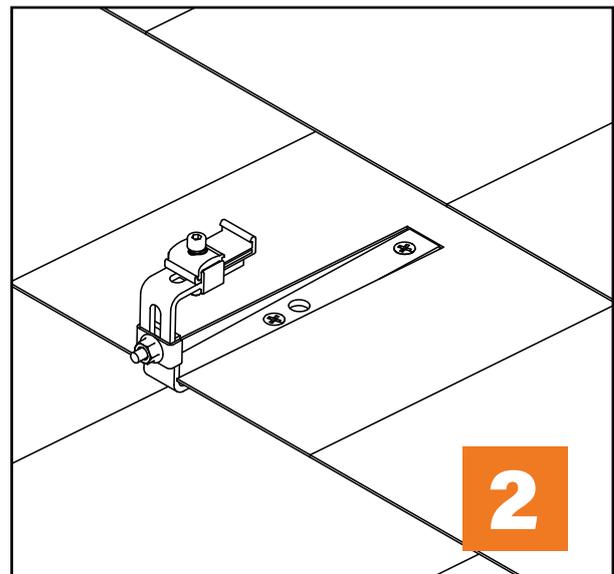
**STEP 2**

Secure the slate roof hook to the battens using countersunk screws through the mounting holes.

INSTALLING THE SLATE HOOK ONTO SOLID WOOD BOARDS/CONCRETE

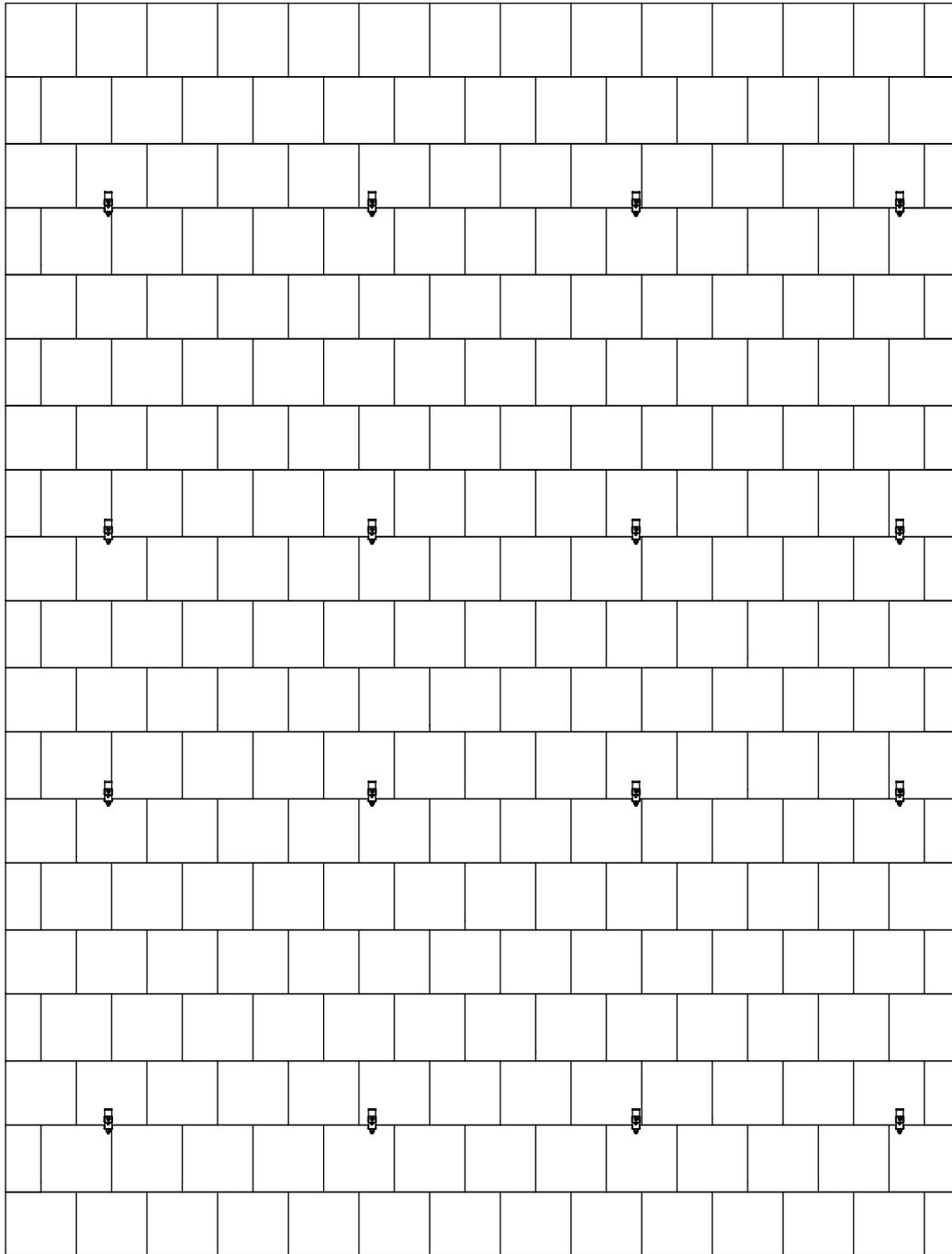


STEP 1
Pre-drill holes in the roof and insert suitable plugs (not included). Fix the screws using a chemical anchor, following the manufacturer's instructions before installation.



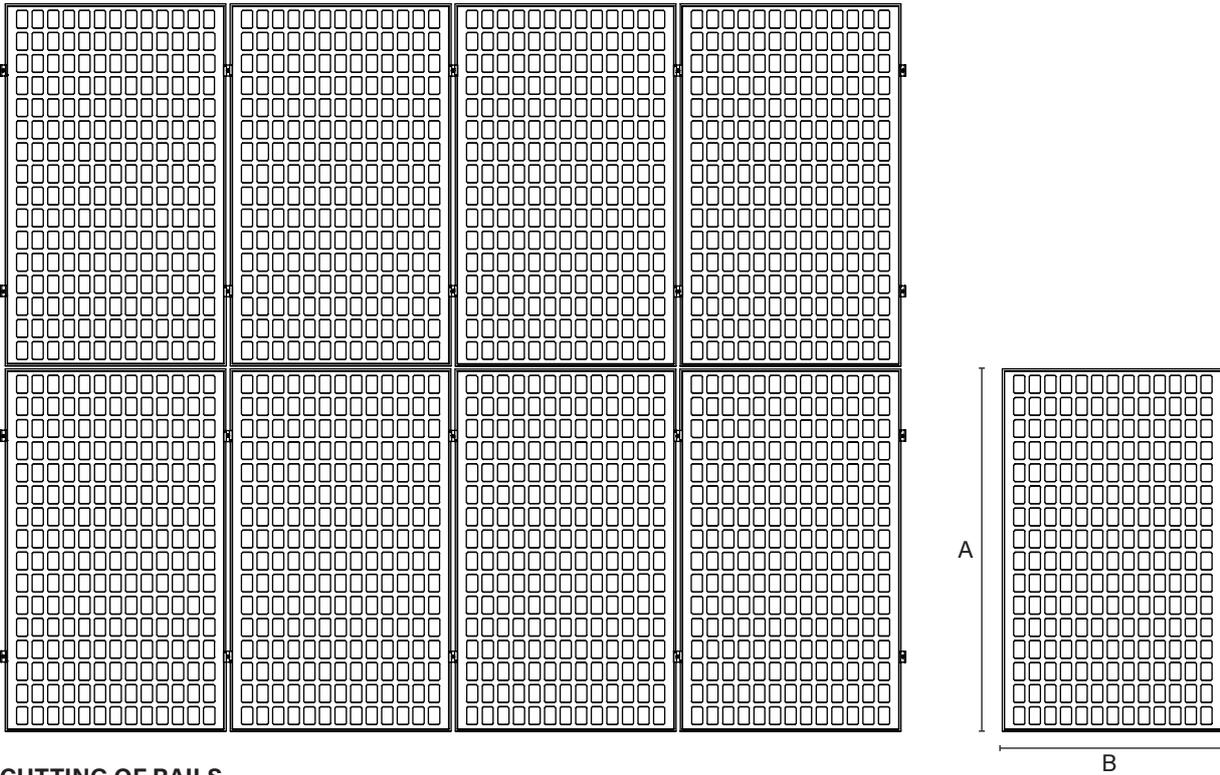
STEP 2
Secure the slate roof hook to the surface using countersunk screws through the mounting holes.

SLATE HOOK LAYOUT



Repeat Step 1 and 2 until installation of all Slate Hooks are complete.

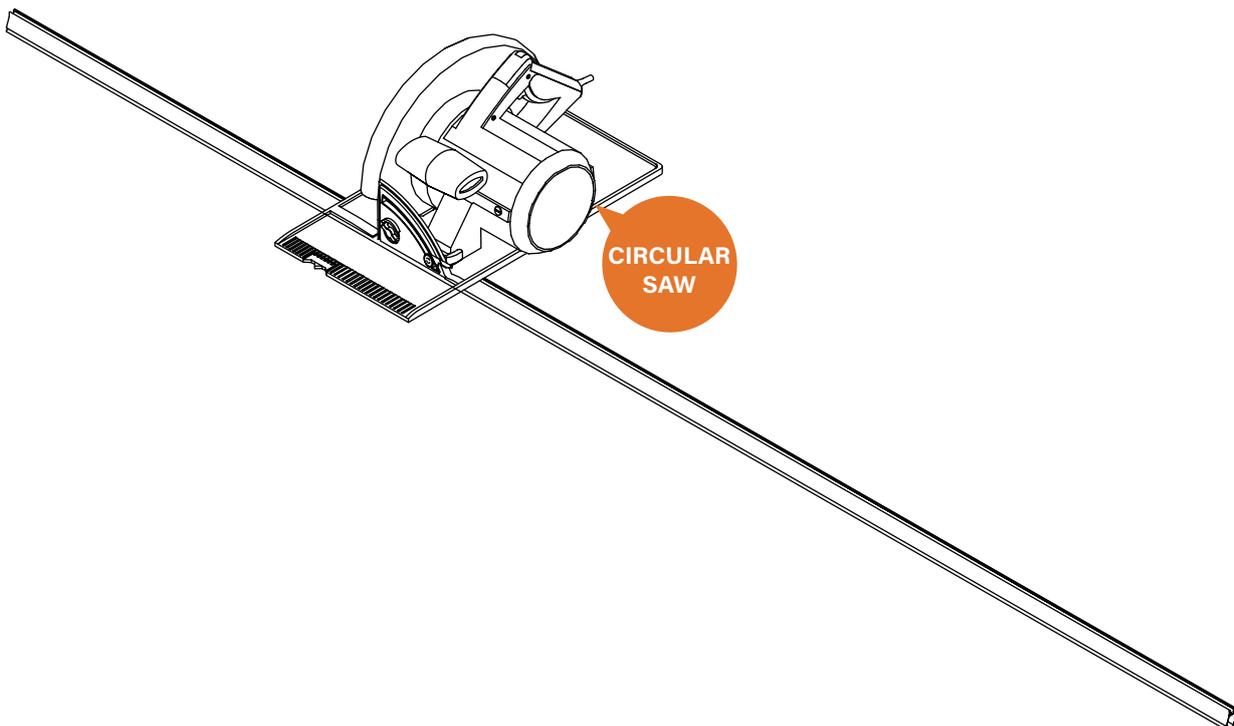
MEASURING & CUTTING RAILS



CUTTING OF RAILS

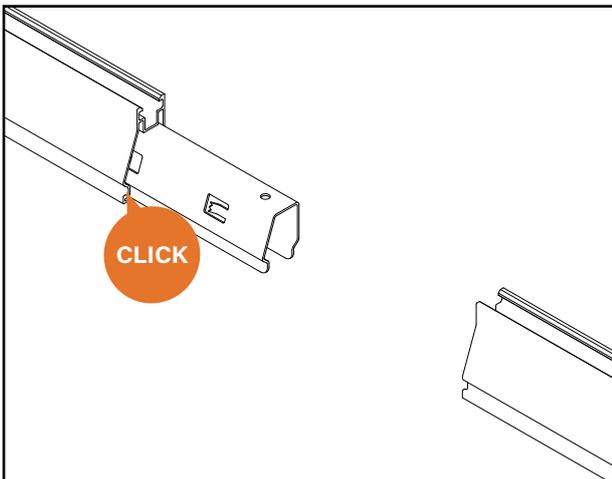
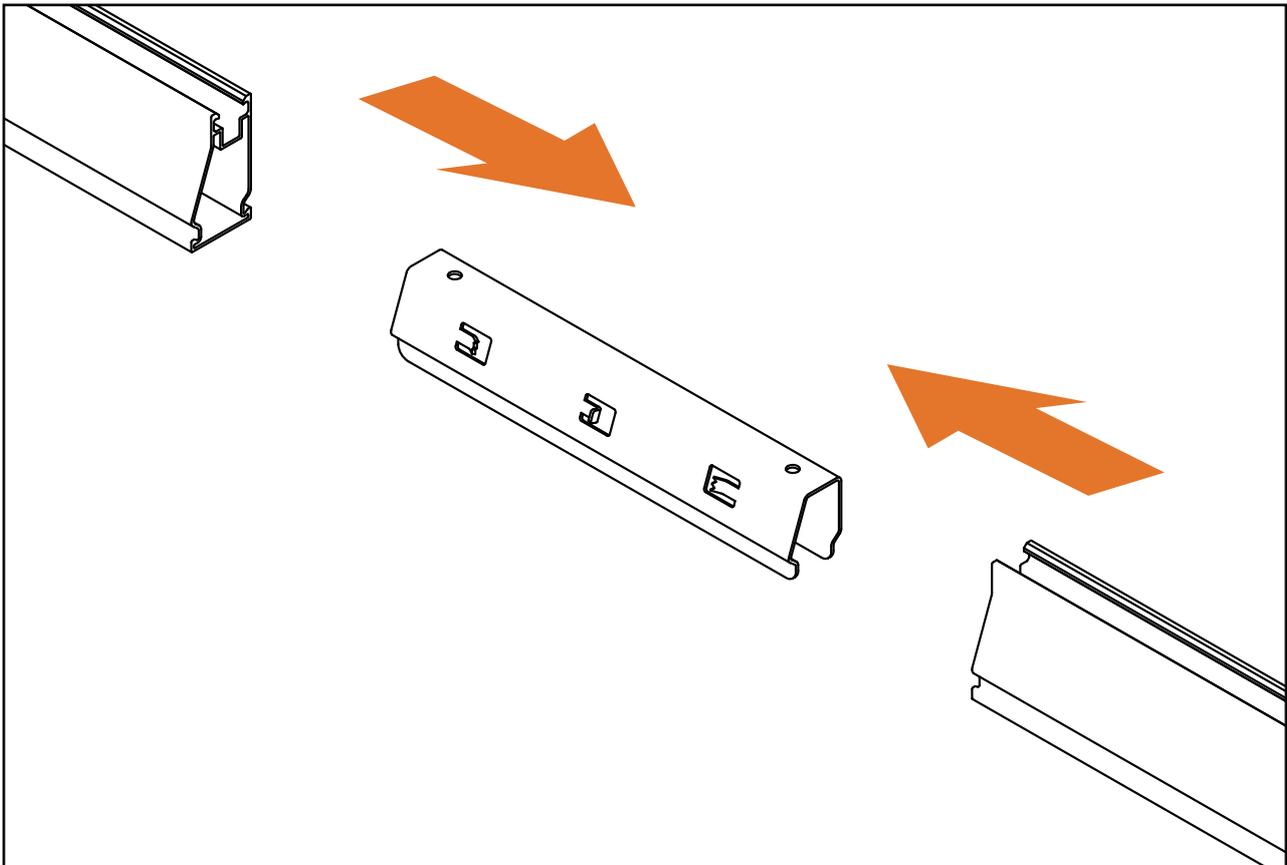
Measure and cut the rail length using one of the following methods:

- Use the formula: $(B + 20) \times \text{Number of modules} + 20 + 70$
- Alternatively: $(\text{Width of panel} + \text{Width of mid clamp}) \times \text{Number of modules} + \text{Width of end clamp} + (35 \text{ mm overhang} \times 2)$
- If the rail is running parallel to the long edge of the panel, use the length of the panel as the rail length.

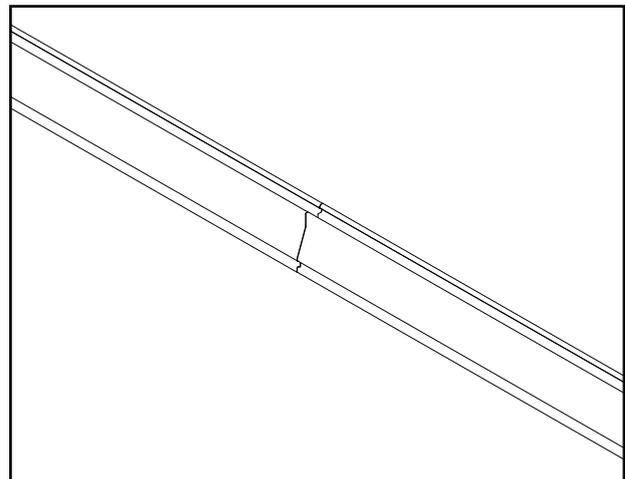


Cut using an aluminium circular saw blade for best results.

JOINING RAILS

**STEP 1**

Take one piece of rail and slide the joiner in until it stops. The joiner has a built-in stop feature to prevent over-insertion.

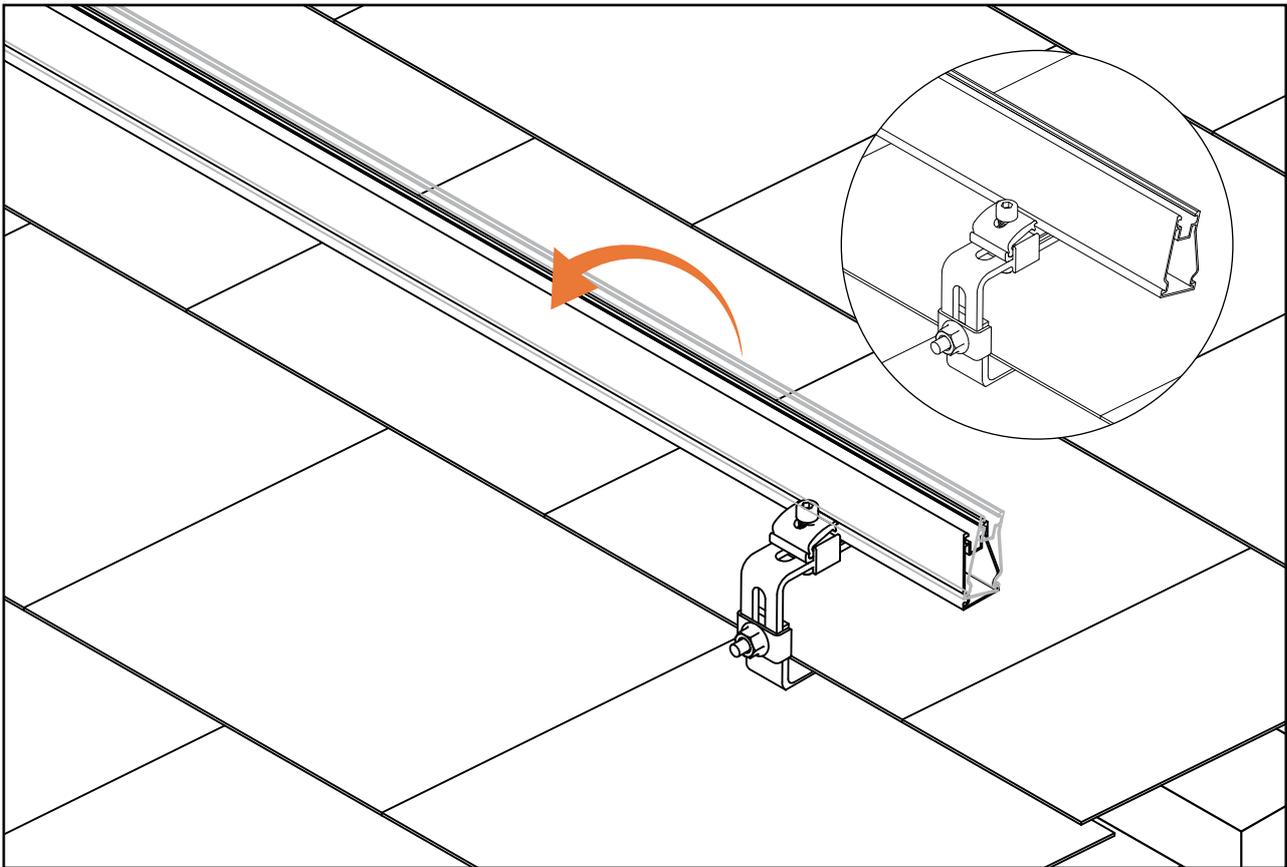
**STEP 2**

Slide the second rail onto the joiner until it is firmly seated against the stop. Repeat as needed until the full rail length is assembled.

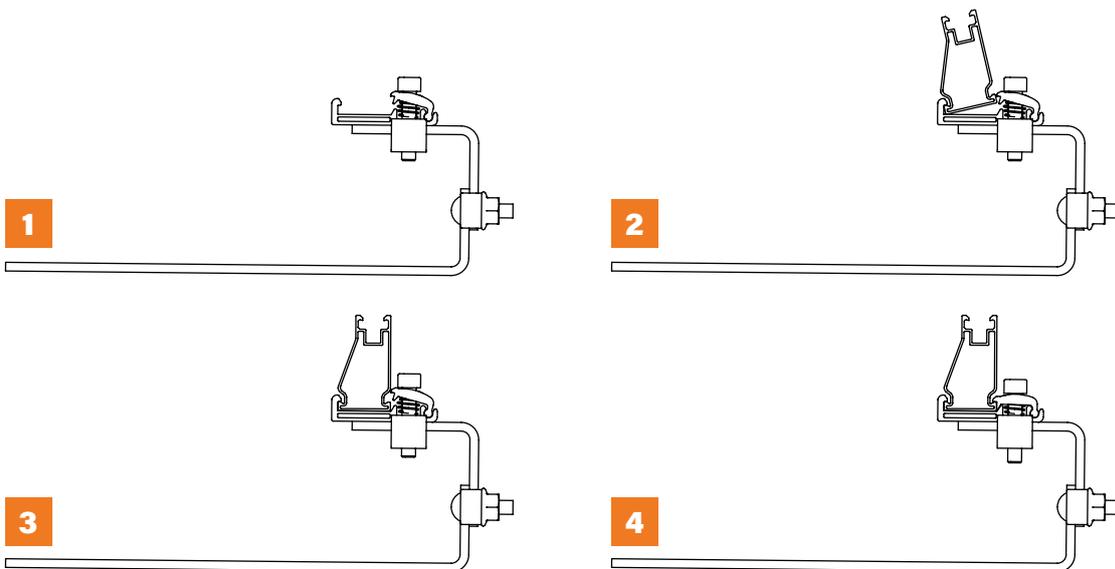
 The joiner contains an earthing connector that creates electrical continuity between the rails eliminating the requirement to run a continuous bonding.

The joiner can be removed with pulling force. If removed, inspect the locking teeth. If they are deformed, carefully bend them back into position before reuse. If damaged, discard and replace with a new joiner.

MOUNTING THE RAIL TO THE CLAMP



i For ease of installation ensure full length of rail has been joined together prior to installing on clamps.



STEP 1: Slightly loosen the M8 bolt, if required. Do not remove it completely.

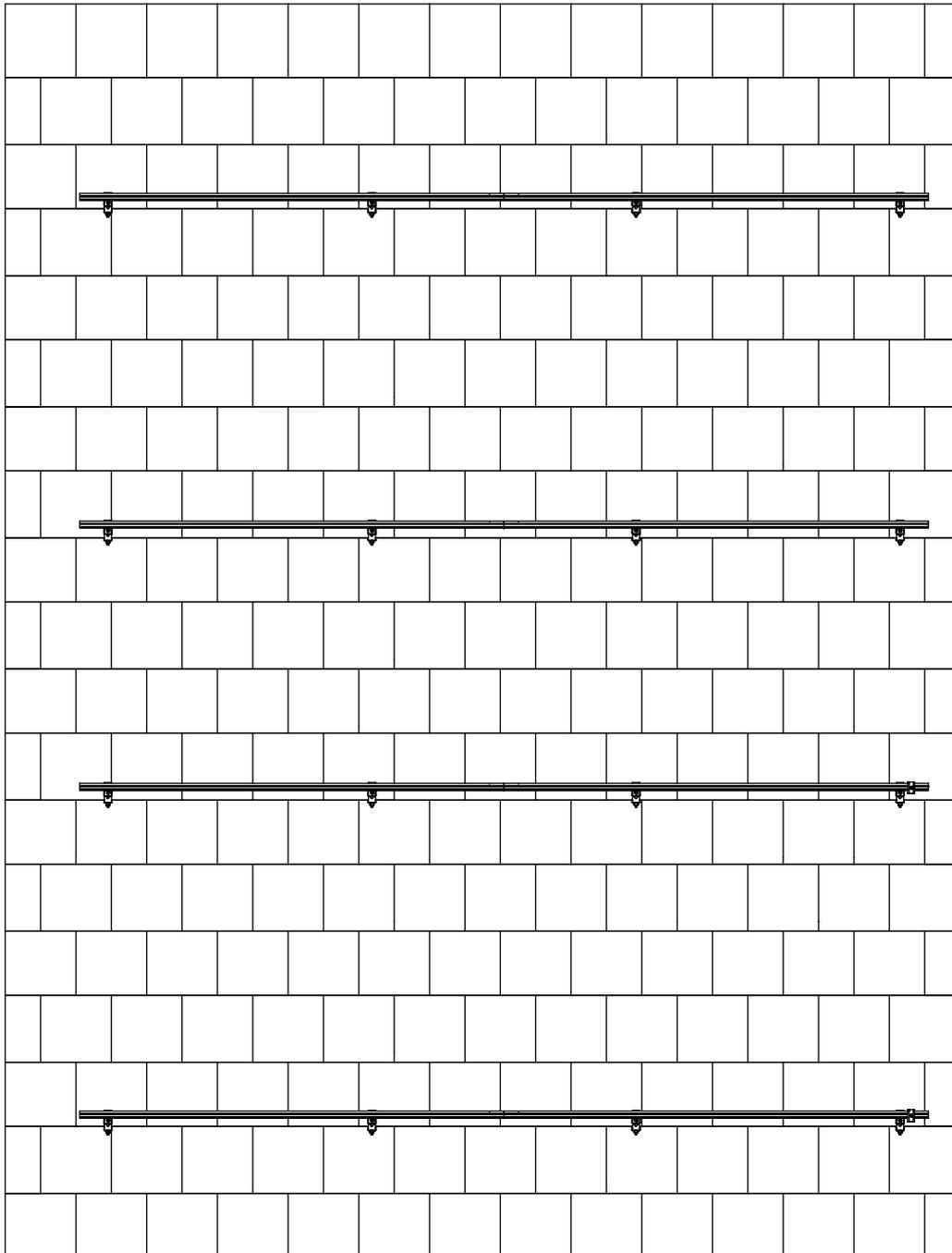
STEP 2: Position the back edge of the rail into the open side of the Rail Clamp.

STEP 3: Rotate the rail so the rear flange rests securely on the clamp closest to the bracket, and the bottom edge sits flush against the clamp base.

STEP 4: Tighten the clamp to the specified torque (12-14 N.m).

i While the illustrated orientation is preferred, reversing the rail will not affect the mounting system's structural integrity.

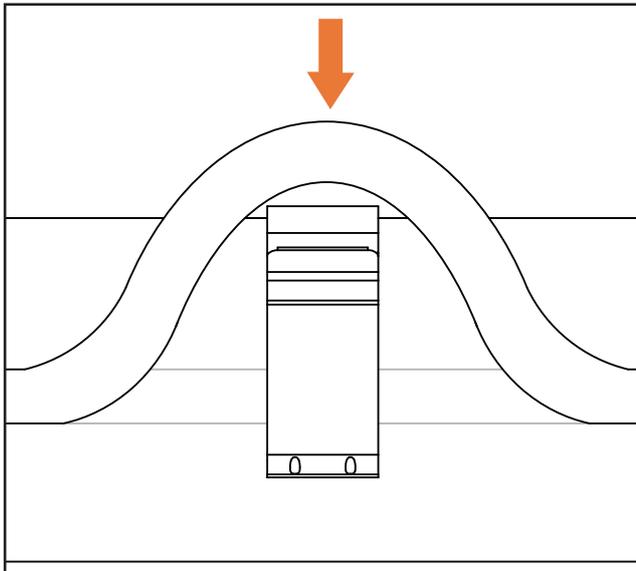
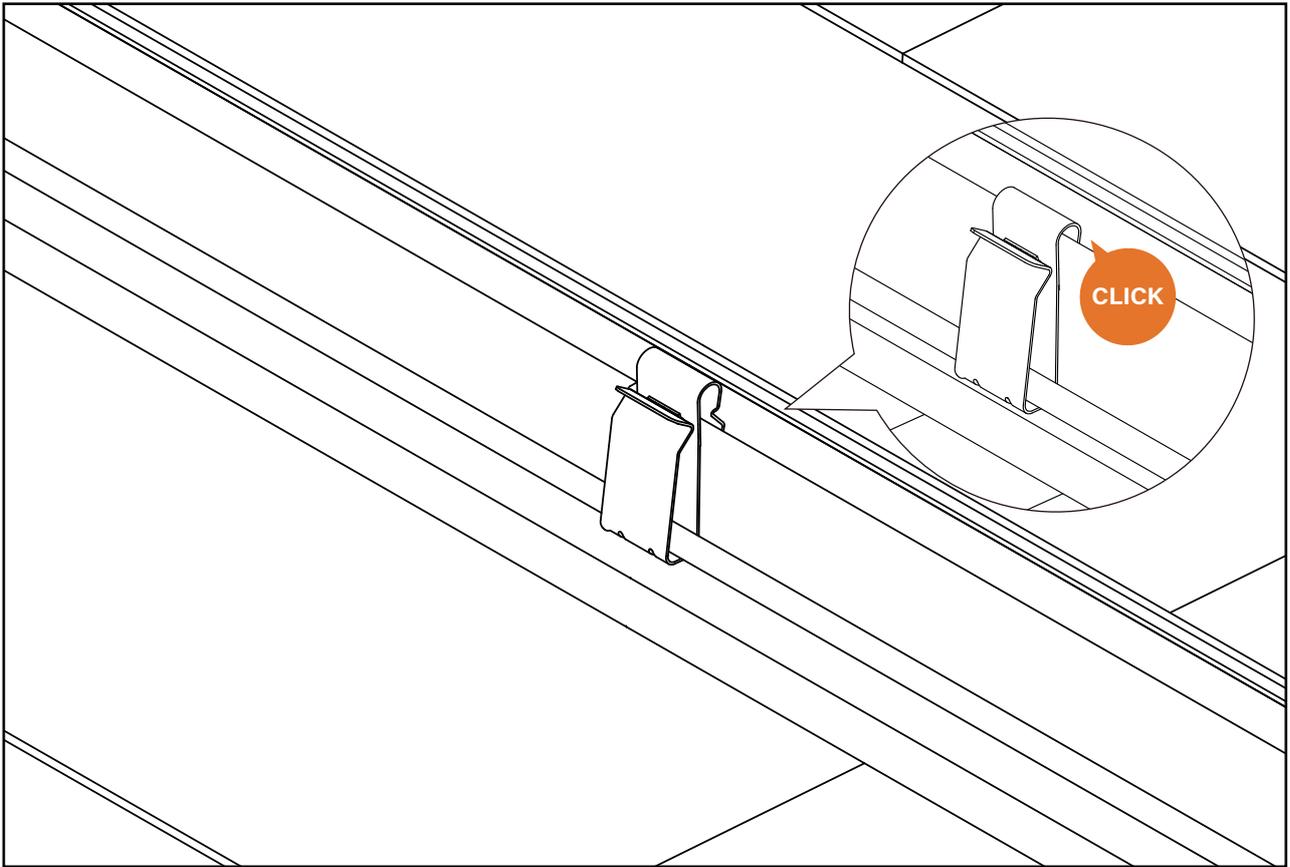
ARRAY LAYOUT



For best aesthetics, it is recommended to use a string line to level the rail and compensate for any irregularities in the roof.

 Note this step is not a requirement but does represent best practice.

NOVA CABLE MANAGEMENT CLIP



As an alternative to traditional cable management NOVA cable management clips can be utilised to improve efficiency.

STEP 1

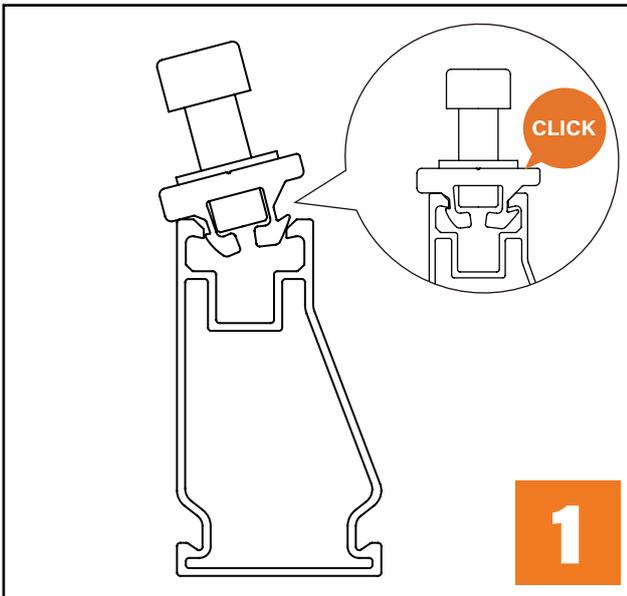
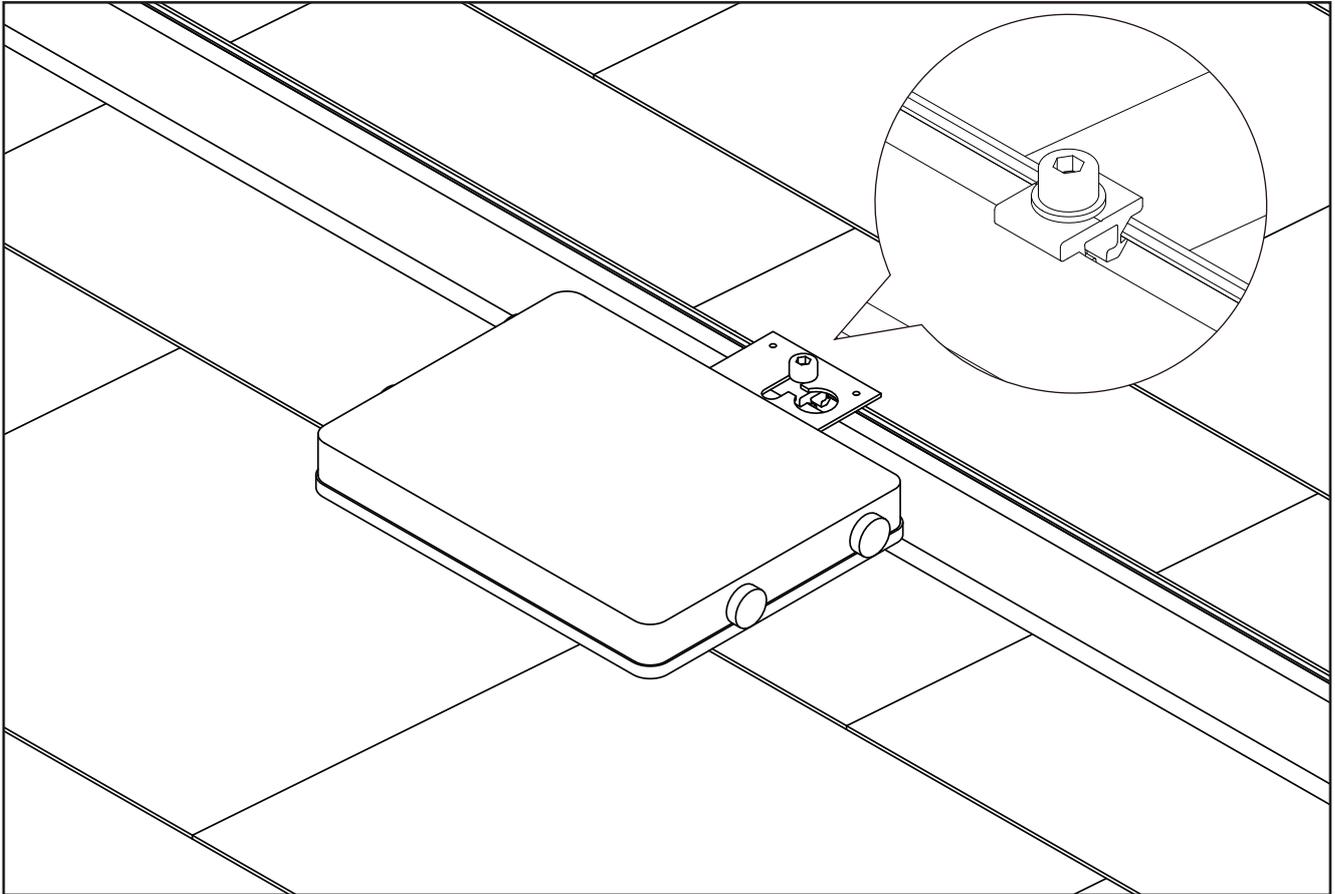
Insert clip onto angled side of rail.

STEP 2

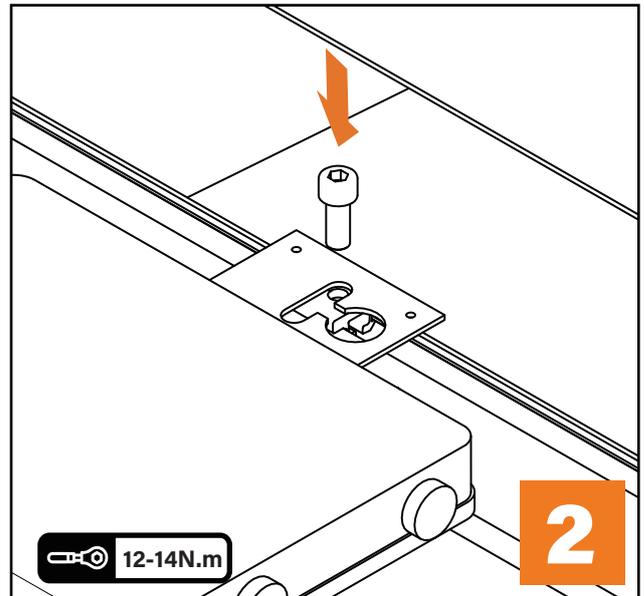
Insert up to 4 DC 6mm cables into clip.

i Ensure sufficient distance is maintained between clips to reduce cable sag.

NOVA MICROINVERTER MOUNTING NUT

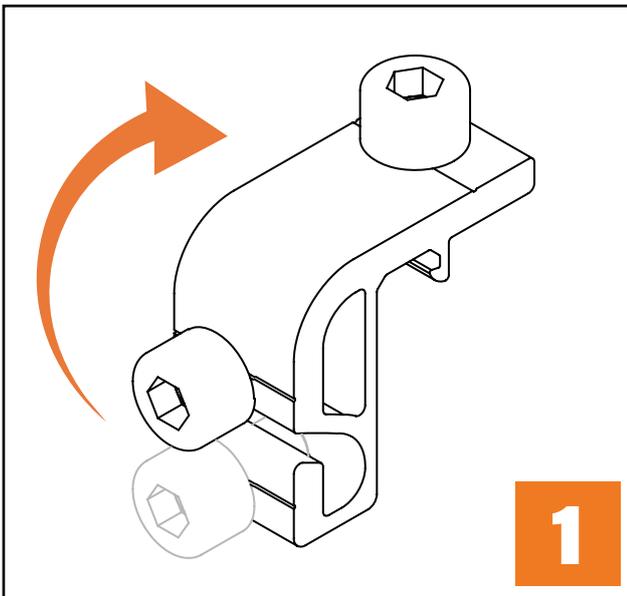
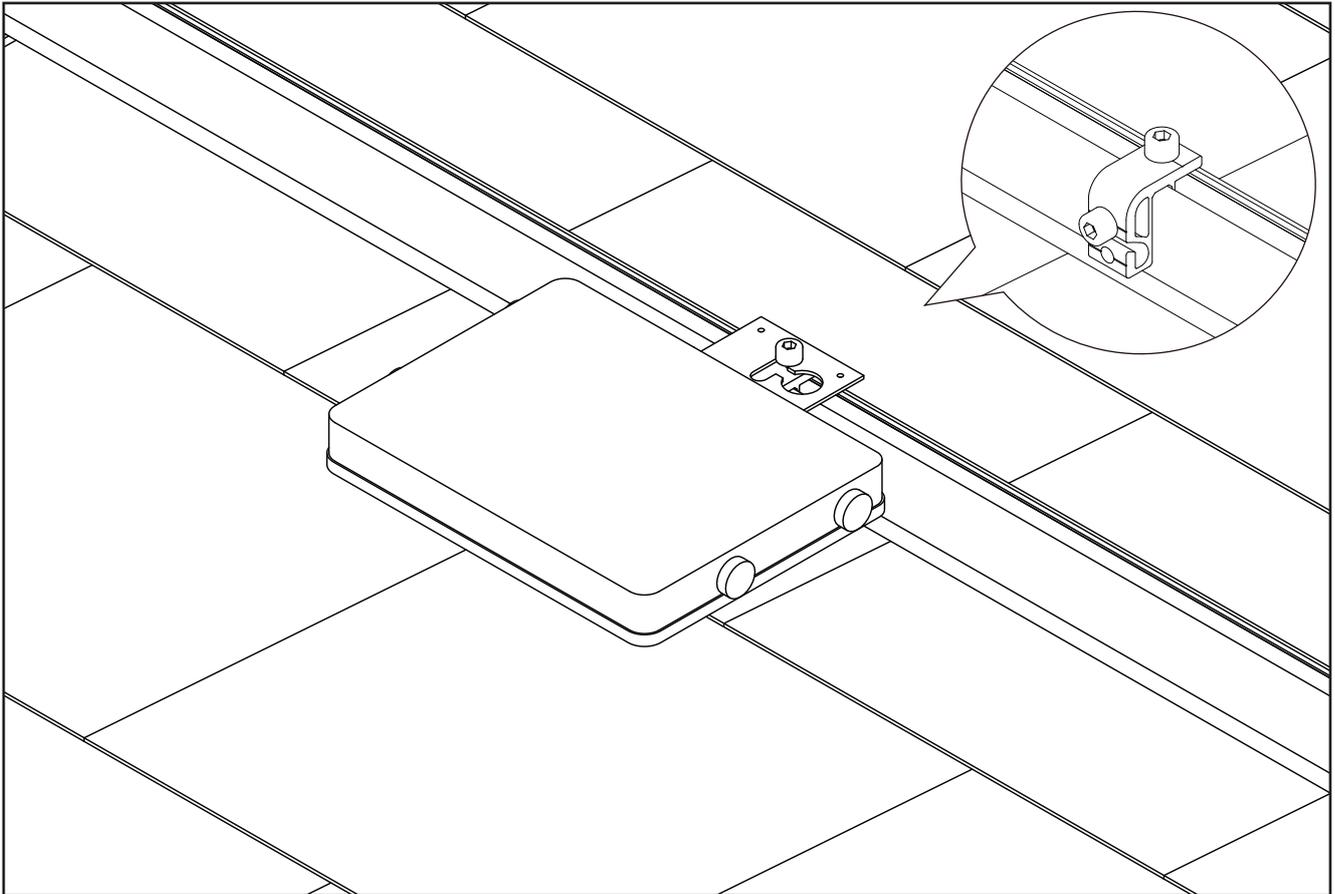


STEP 1
With the bolt screw installed, click the microinverter/
optimiser nut in place.

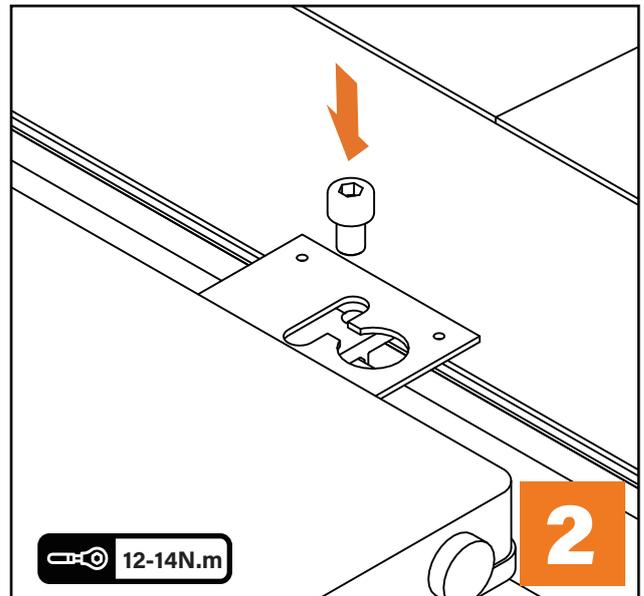


STEP 2
Remove the bolt if necessary and place through
microinverter/optimiser mounting plate, tighten to correct
torque (12-14 N.m).

NOVA MICROINVERTER EARTH LUG



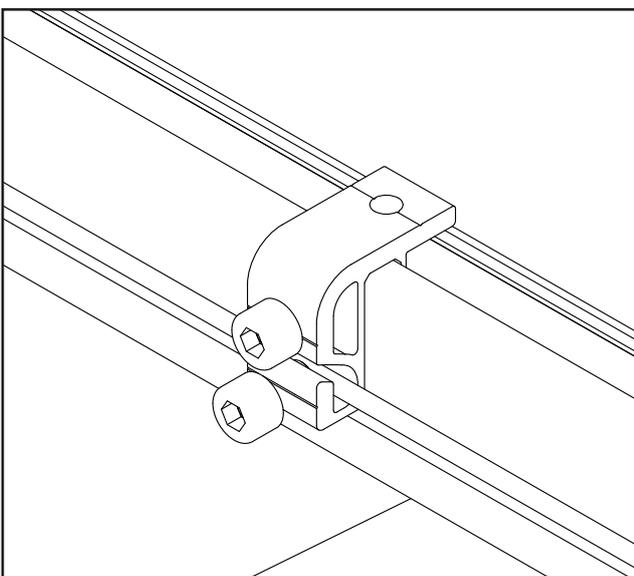
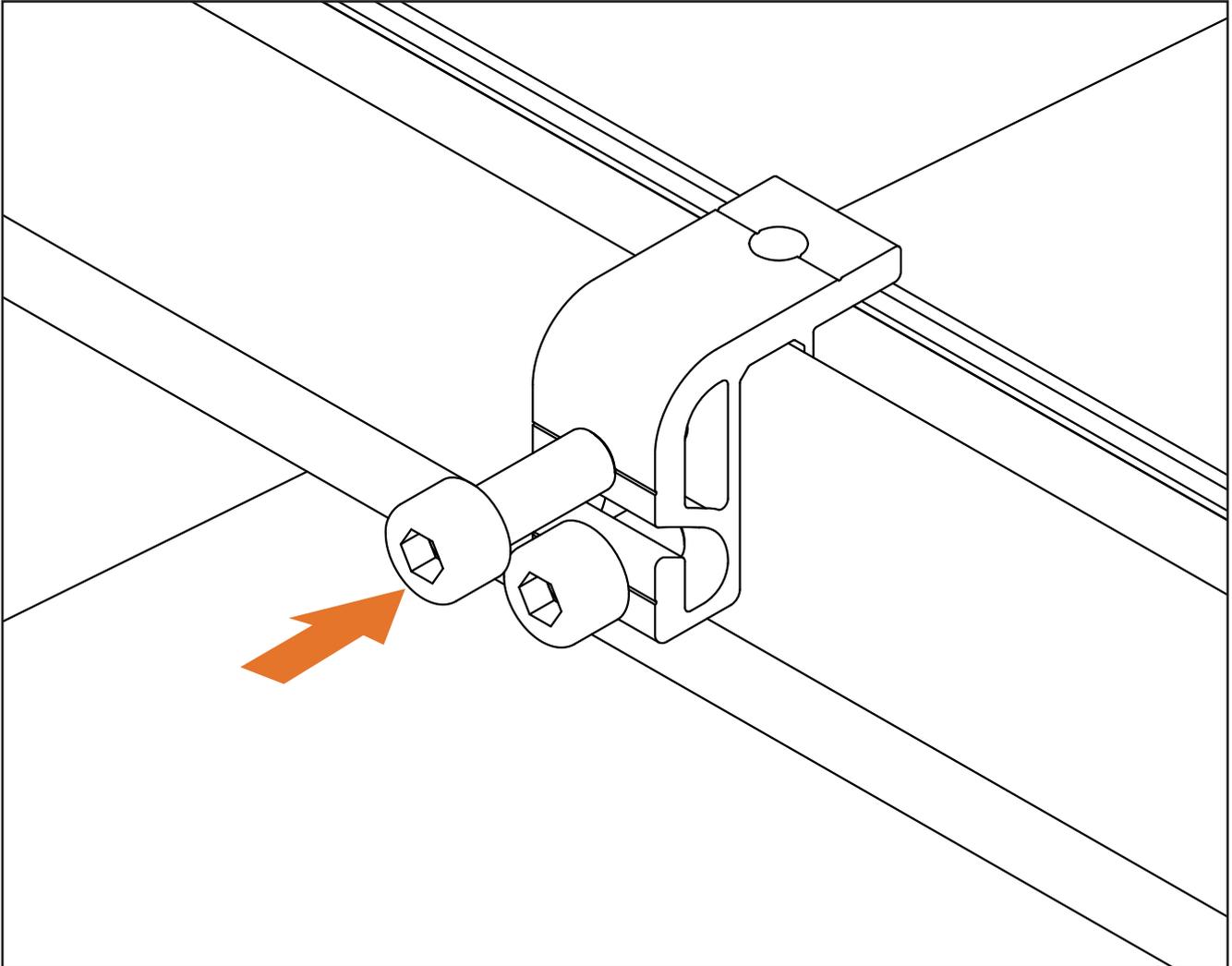
STEP 1
Remove the bottom bolt from the terminal section of the lug. Mount the earth lug onto the side of the rail.



STEP 2
Mount the microinverter or optimiser to the lug using the top hole, and tighten to the recommended torque (12-14 N.m).

 Note the earth lug should be positioned on the flat side of the rail.

EARTHING SOLAR ARRAY

**STEP 1**

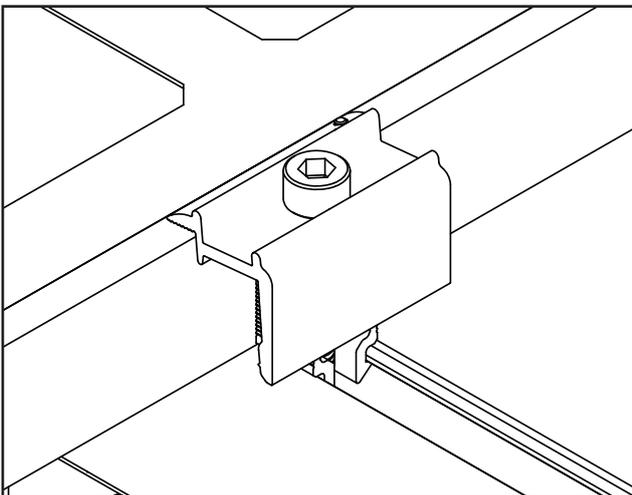
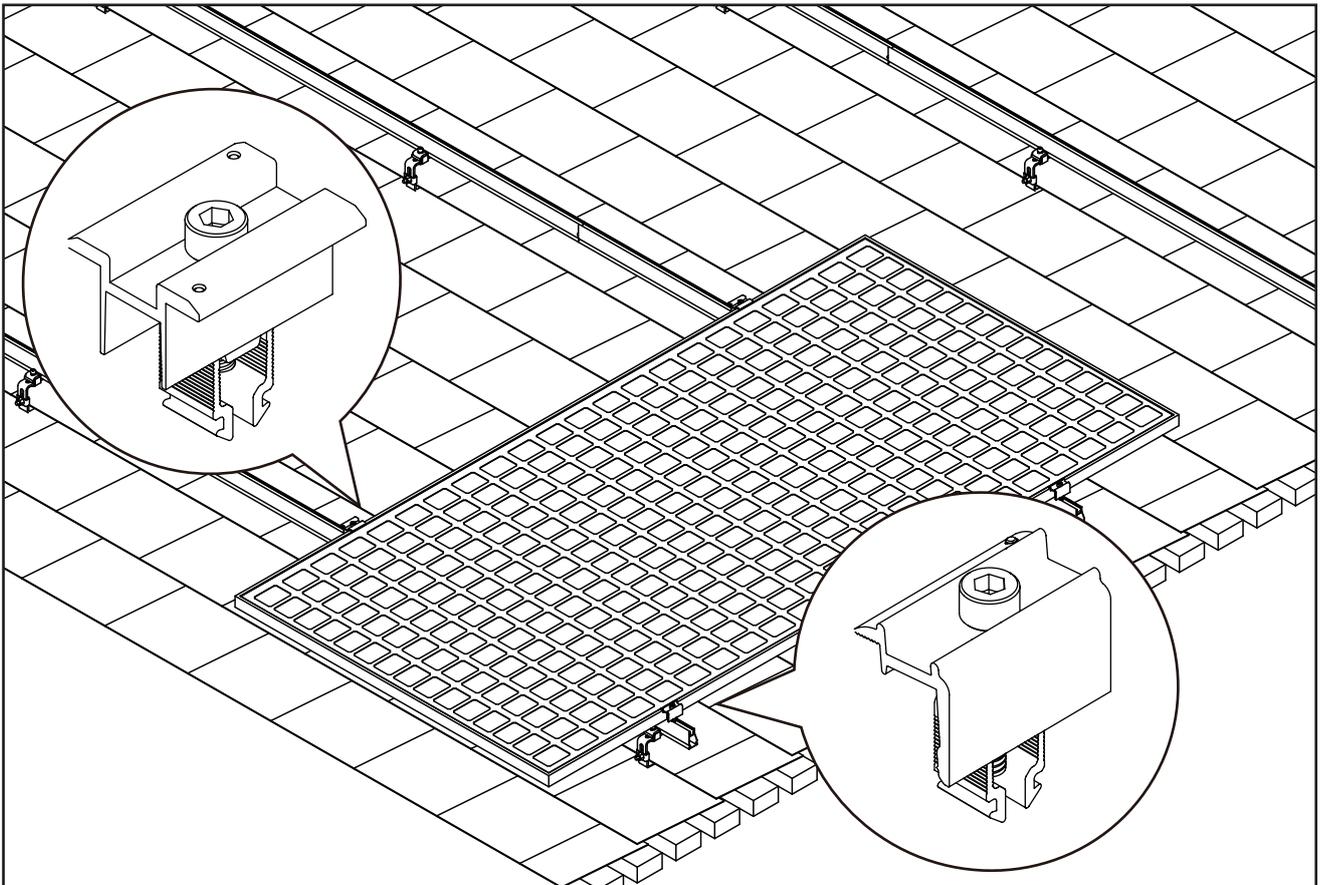
Mount the earth lug to the flat side of the rail tightening the top bolt to the recommended torque (12-14 N.m).

STEP 2

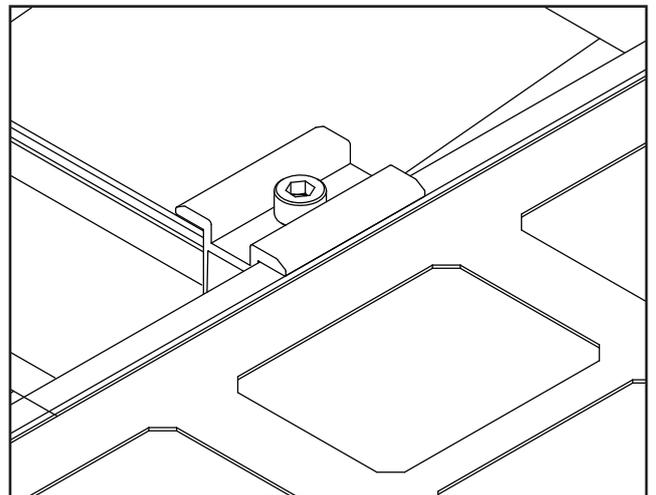
Strip and connect the cable into the terminal point on the bottom of the lug. Ensure overtightening does not damage cable.

 Using bootlace ferrules on flex cables is recommended to prevent damage. Applying cold galvanizing spray is also advised. Always follow all relevant local rules and guidelines.

NOVA PANEL CLAMPS



NOVA END CLAMP

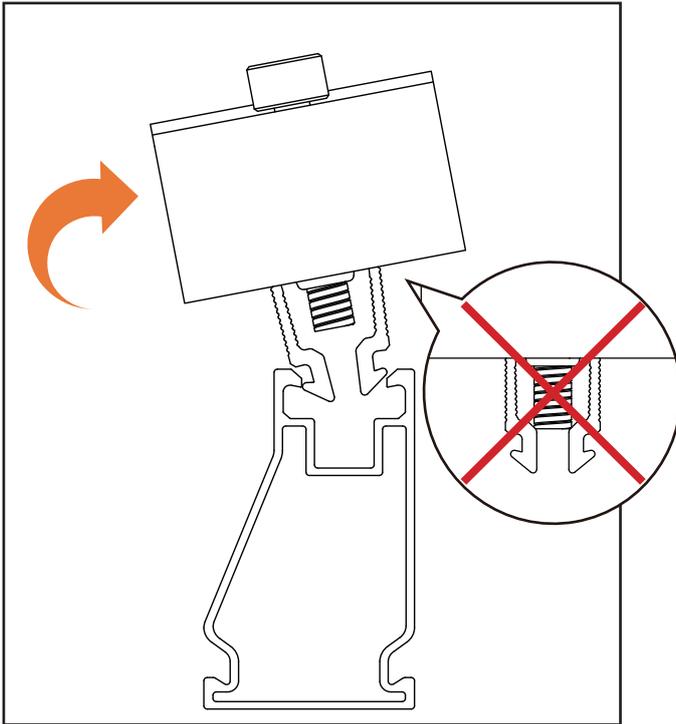


NOVA INNER CLAMP

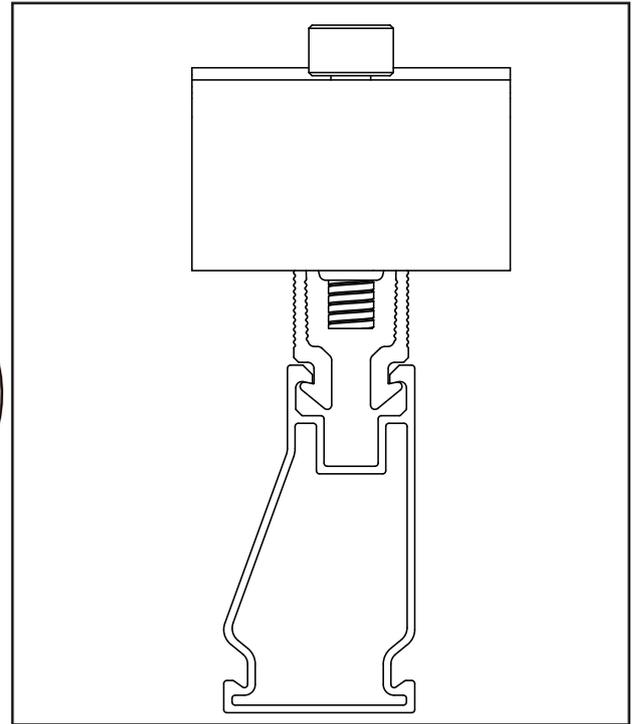
NOVA provides 2 types of clamps for connecting the modules to the rails. The end clamp is designed to start and finish the row of modules. The inner clamp is designed for the interconnection of modules.

i Note: Mill finish components include built-in earthing pins. Black anodized components may feature either built-in pins or a preassembled earthing washer, depending on the region. Always refer to local standards and guidelines for earthing requirements.

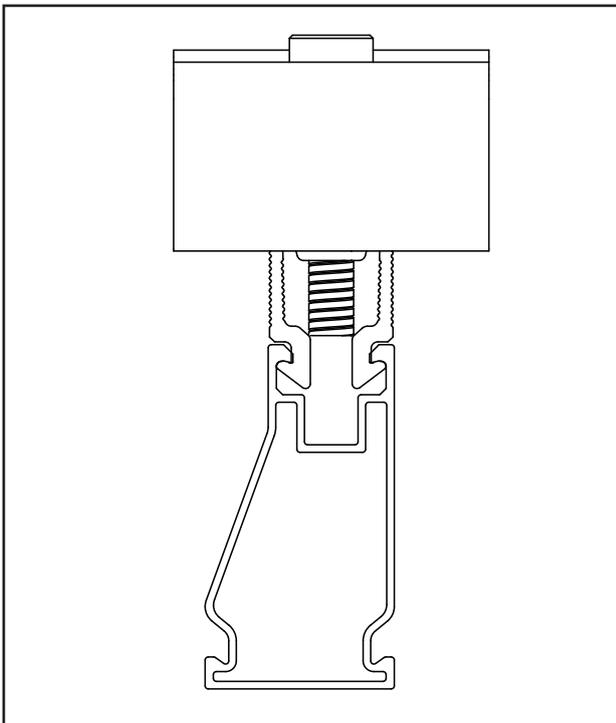
INSTALLING THE NOVA MODULE CLAMPS



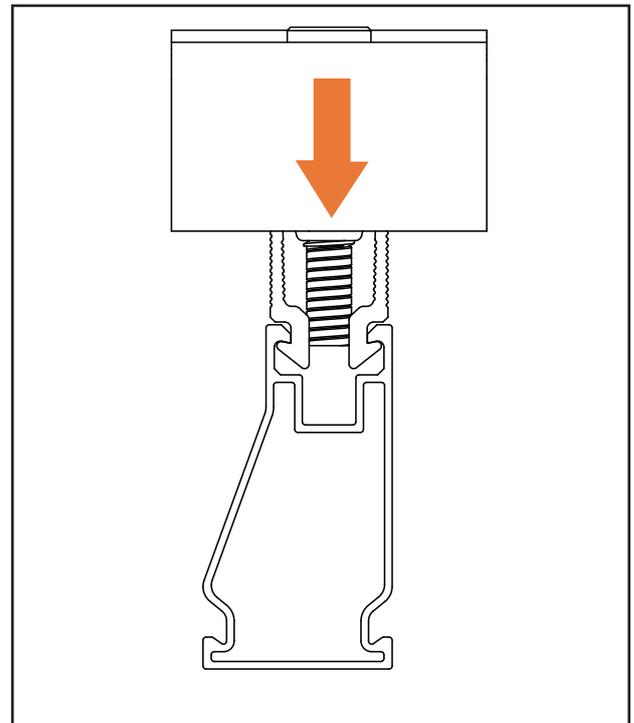
Ensure the bolt is loosened before installation to allow the clamp to properly clip into the rail. Failure to do so may obstruct insertion and risk damaging the rail. Refer to the diagram for correct positioning.



When installed correctly the bracket of the clamp shall be freestanding and tight inside the rail.

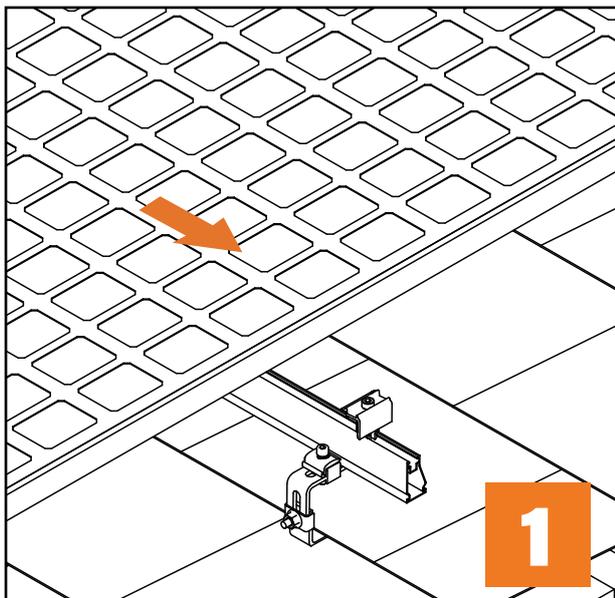
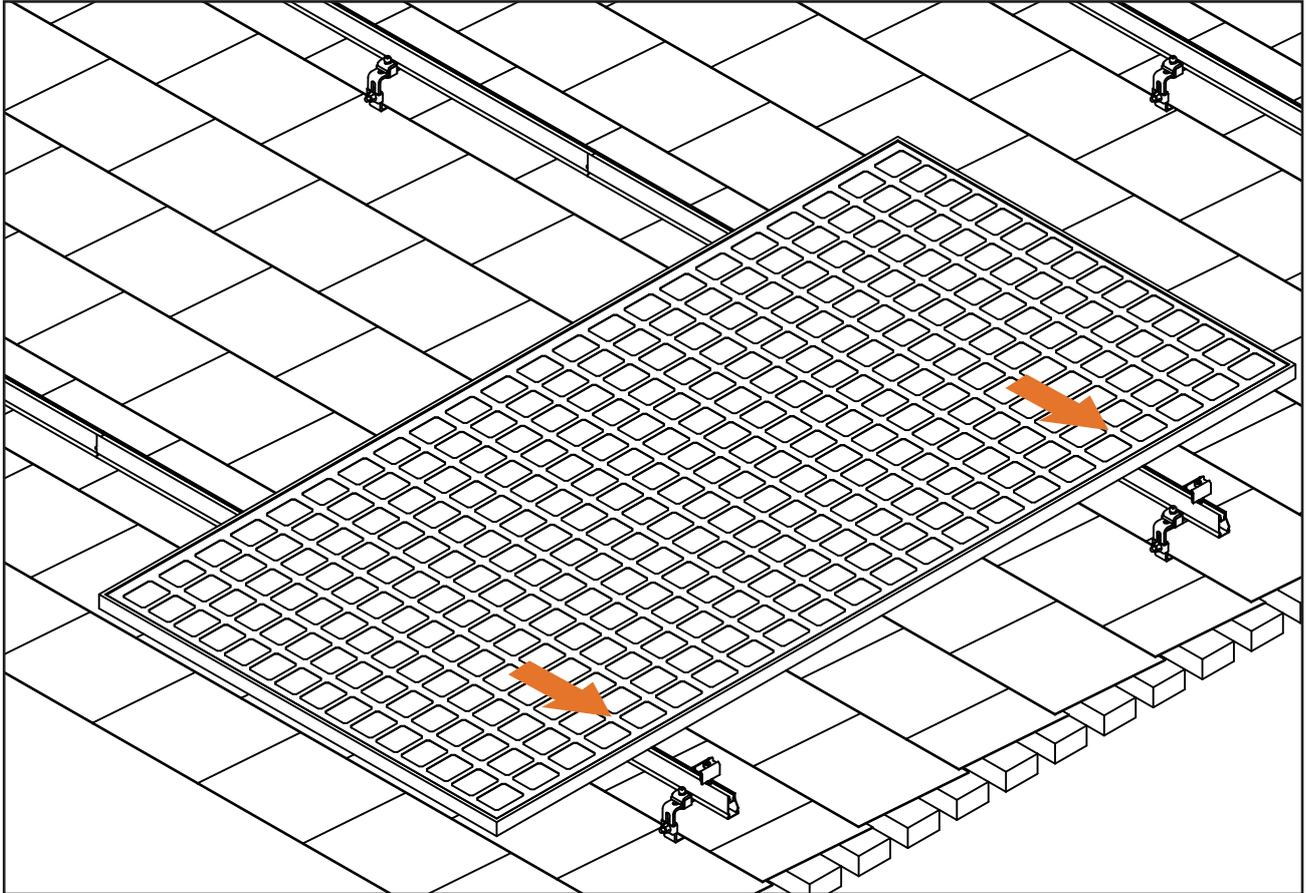


When clamp is tightened it is expected to drive down through the lower section of the clamp, this pushes the clamp out and creates the pressure required to hold the clamp in position.

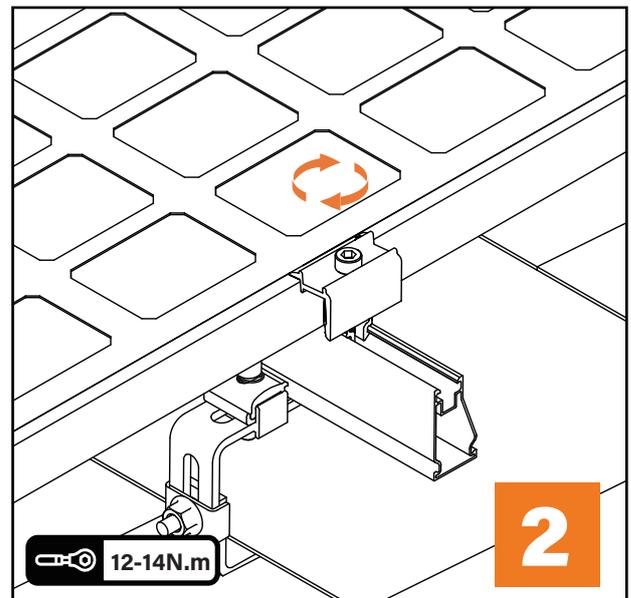


 Minor thread stripping during tightening is normal and expected.

FIRST SOLAR MODULE PLACEMENT AND FIXING

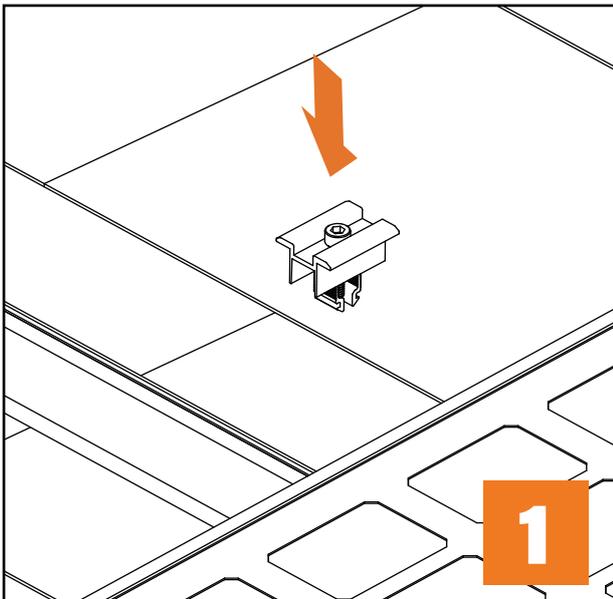
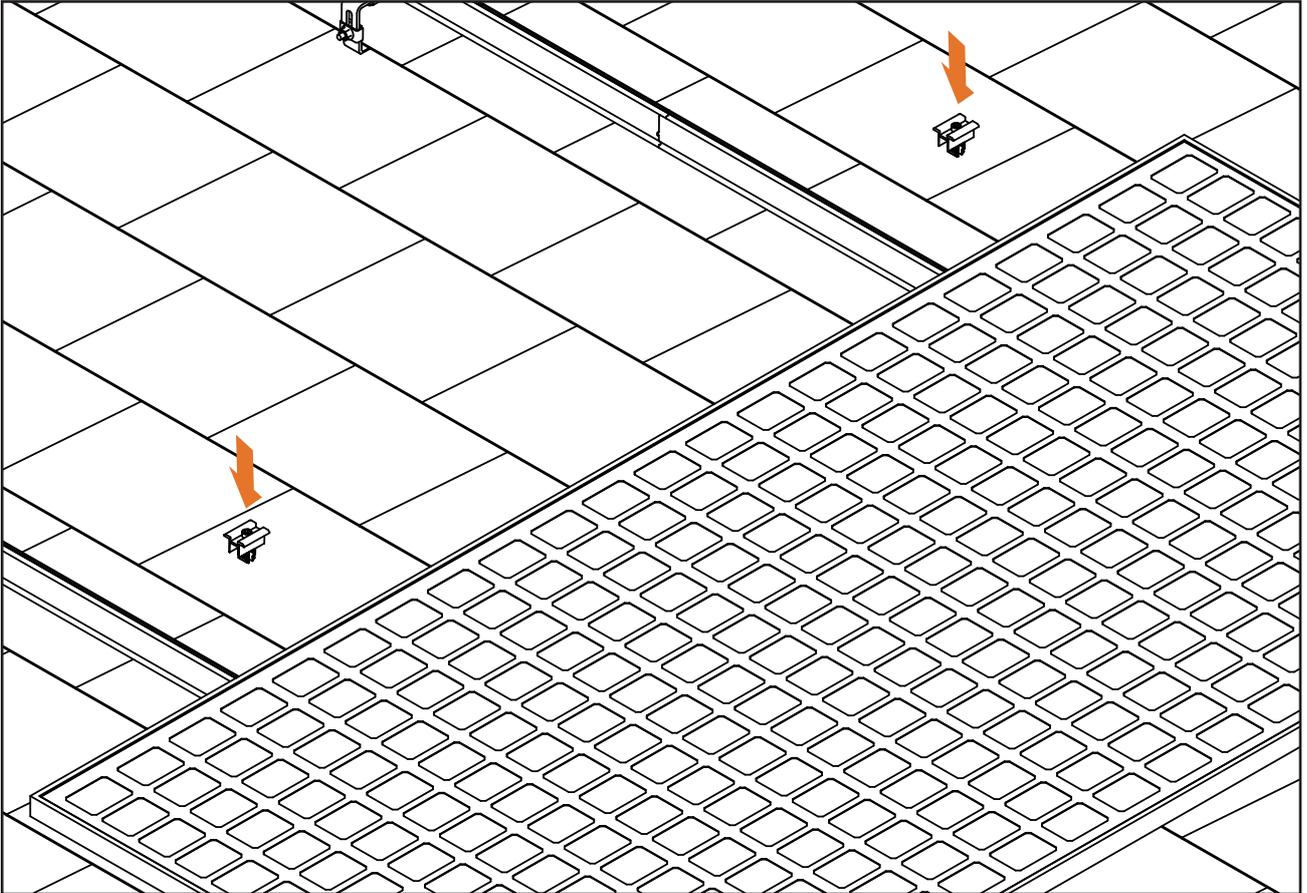


STEP 1
Slide the first module into place, lifting it and positioning the end clamps firmly against the module edge.

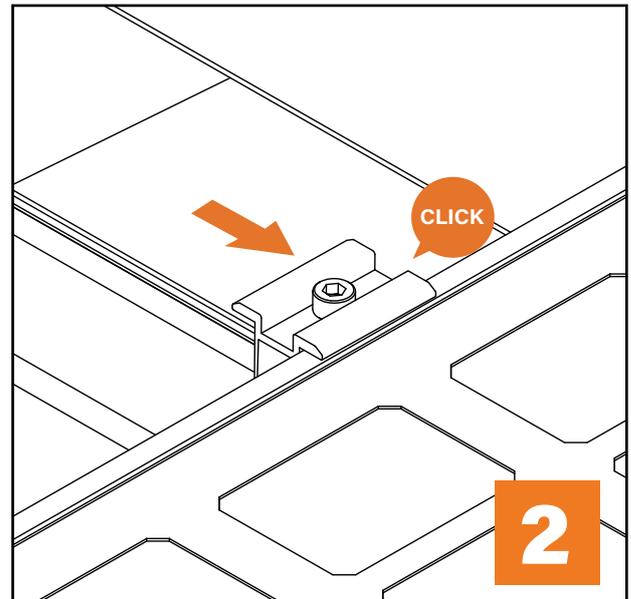


STEP 2
Tighten to the required torque (12-14 N.m), ensuring the end clamps remain tight and straight against the module's edge.

INSTALLING THE INNER CLAMPS ON MOUNTING RAILS

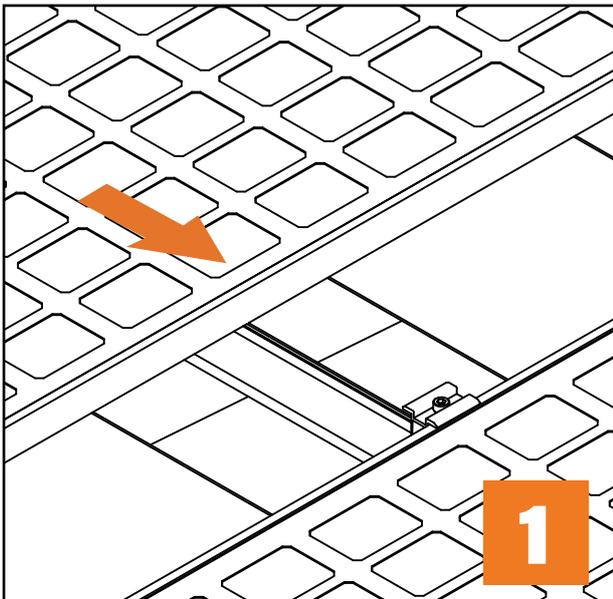
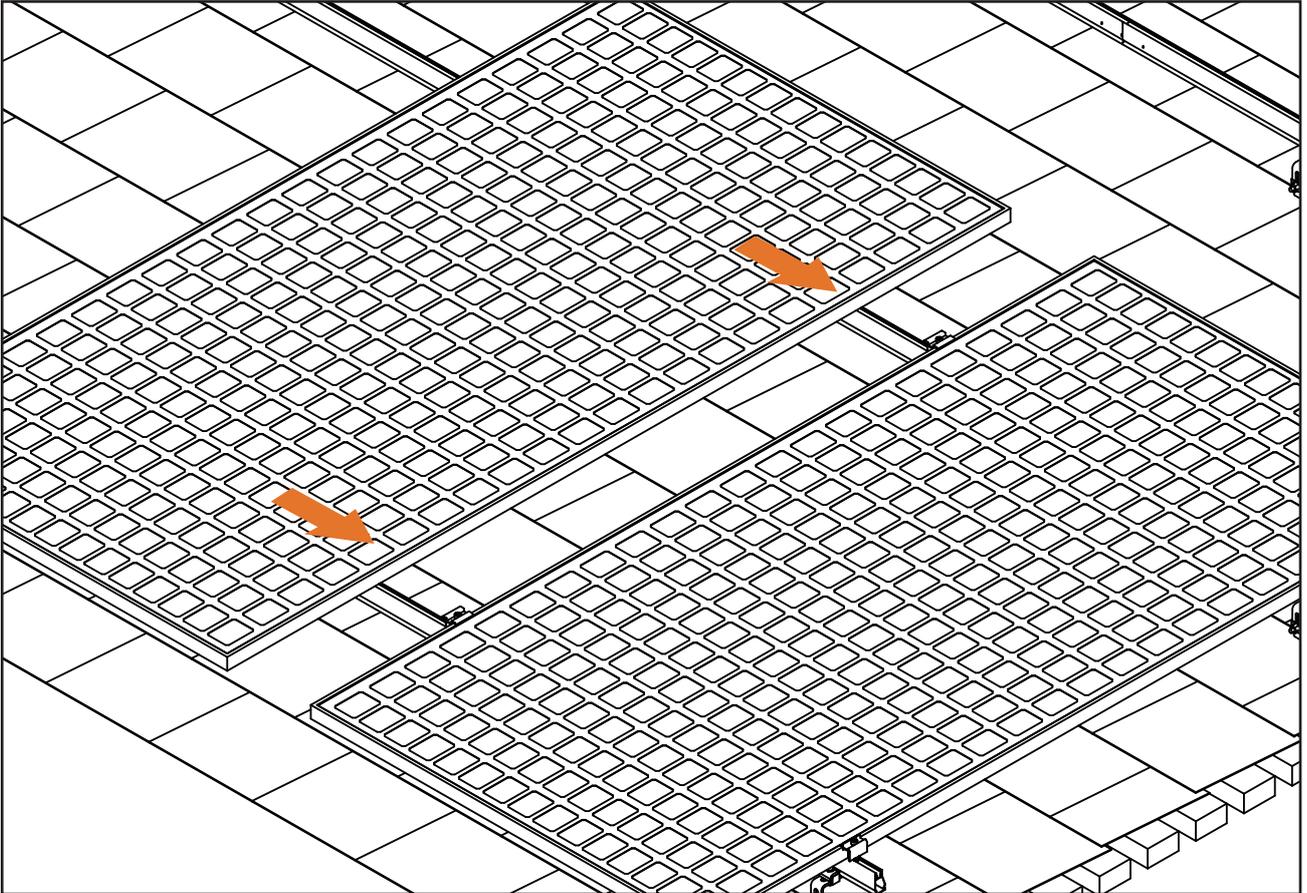


STEP 1
Insert the inner clamps into the mounting rail. Ensure they are positioned loosely for easy adjustment.

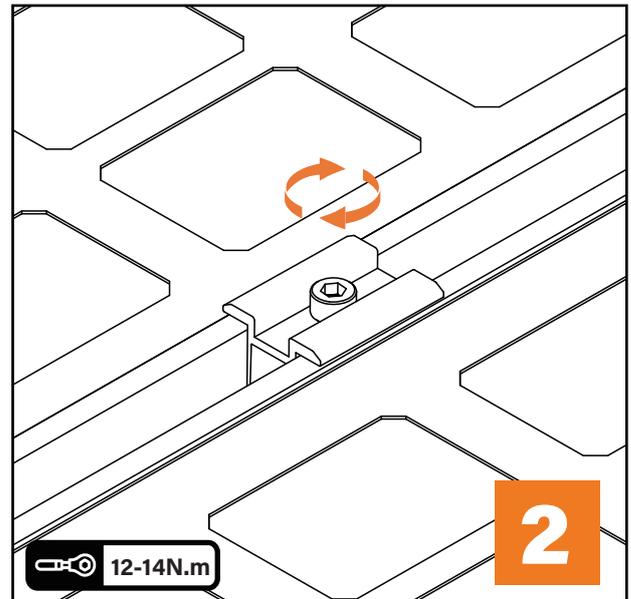


STEP 2
Slide the inner clamps against the edge of the first module.
Note: The inner clamps remain free-standing to facilitate positioning of the second module.

SECOND SOLAR MODULE PLACEMENT AND FIXING

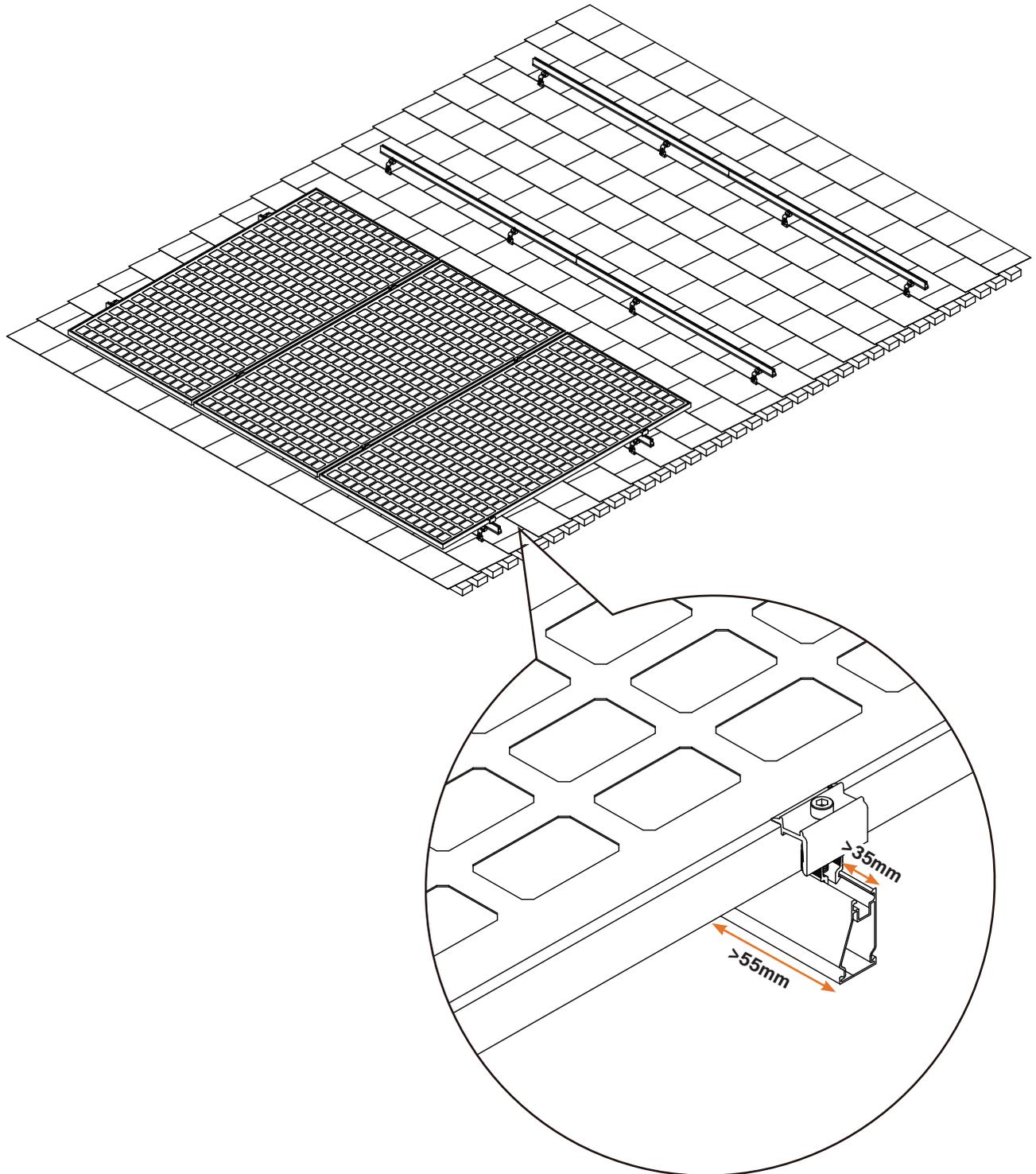


STEP 1
Slide the next module towards the inner clamps and align it using a spirit level, set square, or another straight edge.



STEP 2
Tighten the inner clamps to the required torque (12-14 N.m), ensuring they remain straight and firmly against the module edge.

INSTALLING THE LAST SOLAR MODULE OF THE ROW

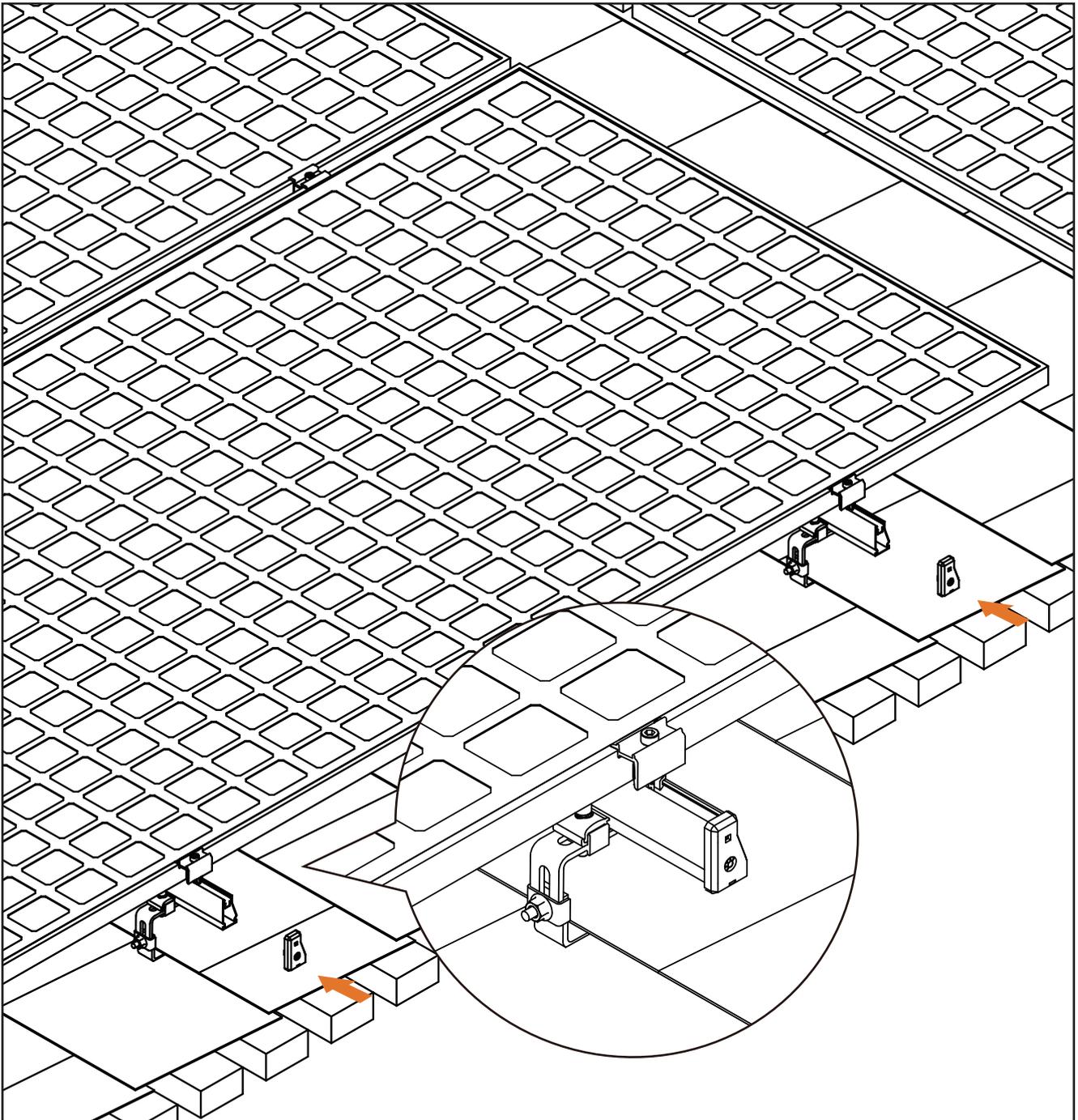


1. Place the last solar module on the mounting rails.
2. Slide the panel tightly against the last inner clamps, ensure the panels are aligned, and tighten to the recommended torque (12–14 N.m).
3. Install the final end clamps into position and tighten.



Remember to double check that you have the recommended 35mm of rail past the last end clamp. Repeat on all subsequent rows until complete.

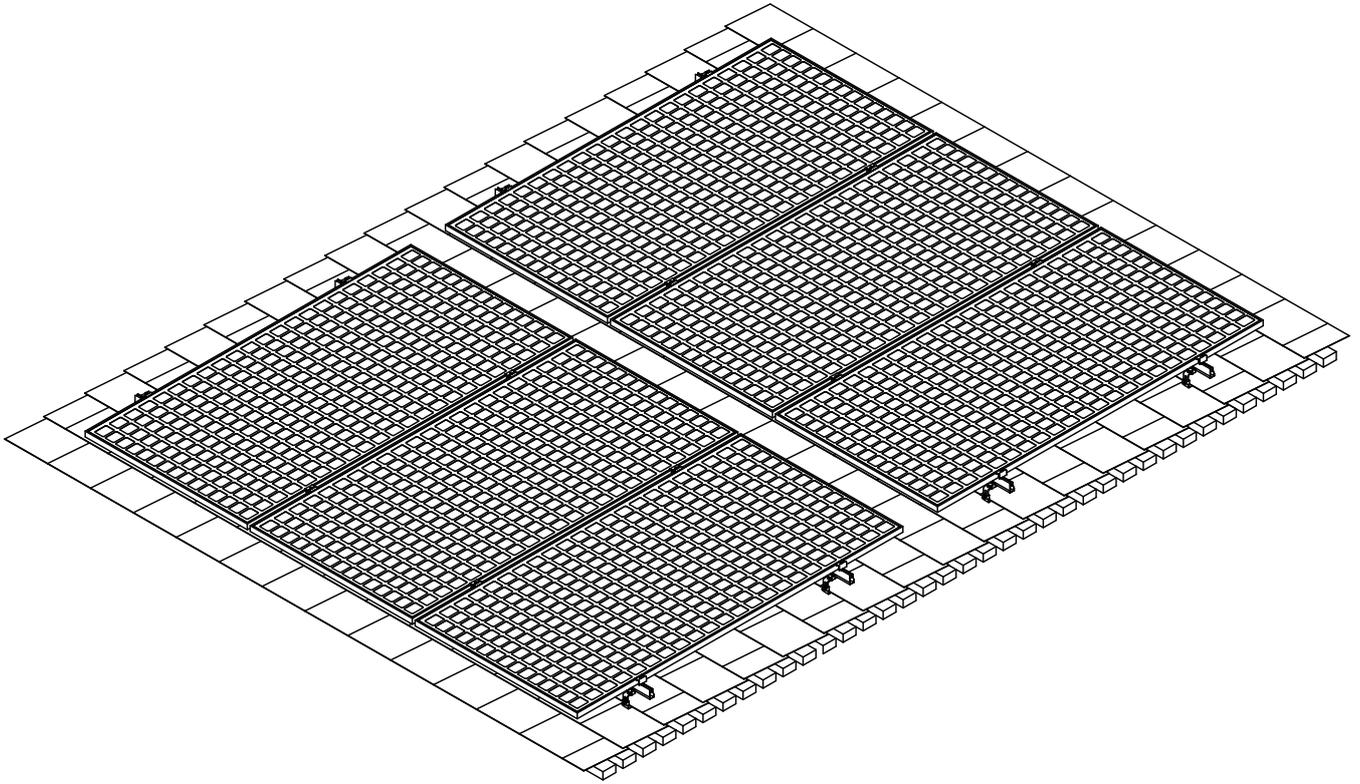
INSTALLING THE NOVA END CAPS



Insert the end caps onto the exposed ends of the mounting rails, ensuring a snug and secure fit.

i This step is optional and serves as an aesthetic enhancement only.

SOLAR MODULE INSTALLATION COMPLETED



NOVA

