Roofit.Solar

Velario Slim
Safety and Installation Manual

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→ Acronyms and definitions

BIPV	Building integrated photovoltaics (i.e. metal integrated photovoltaics)
DC	Direct current
JB	Junction box
STC	Standard Test Conditions (T= 25 °C, Solar Irradiance = 1000 W/m^2, AM = 1.5G)
VDC	Volts of direct current
Isc	Short circuit current
Voc	Open circuit voltage
Pa	Pascal
Roofit Solar Energy OÜ	Producer of BIPV modules, hereinafter referred to as Roofit.Solar.
Buyer	A person or party that purchases the BIPV module from Roofit.Solar.
BIPV module	A building integrated photovoltaic device that converts sunlight into electricity.
Warranty period	The period begins on the date of purchase of the BIPV module by the Buyer.
BIPV system	A system composed of two or more Roofit.Solar BIPV modules combined with an inverter and other electrical accessories.

→ Introduction

This manual contains essential safety information about electrical and mechanical installation that must be followed before handling, installing, and maintaining Roofit.Solar BIPV modules. Mechanical and electrical installation of the BIPV system must follow all safety precautions described in this guide along with all applicable local codes, including electrical codes, building codes and electric utility interconnection requirements. Electrical connections must be made by a certified electrician of the corresponding country, and planning the location of the modules on the roof should be carried out by a competent professional with experience in designing PV systems. Failure to follow these instructions may result in death, injury, or property damage. The installation and handling of BIPV modules require professional skills in both BIPV module and roof installation and must only be performed by qualified people. The installer or distributor must inform the end-user (or consumer) of the above matters accordingly and provide them with this manual.

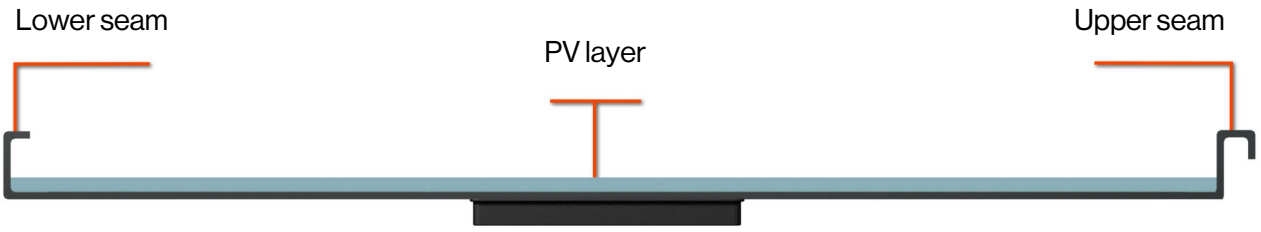
Disclaimer of Liability
All information contained in this manual is the intellectual property of Roofit.Solar and is based on the technologies and experience acquired and accumulated by the company. This manual does not constitute a warranty, either explicit or implicit. Roofit.Solar does not assume responsibility and expressly disclaims liability for any loss, damage, or expenses arising from or in any way related to the installation, operation, use or maintenance of our BIPV modules. Roofit.Solar assumes no responsibility for any infringements of patents or other rights of third parties that may result from using our BIPV modules.

Roofit.Solar reserves the right to change the safety and installation manual without prior notice. The latest versions will be available on our website https://roofit.solar/. If BIPV modules are installed as per the requirements set forth in this manual, only then will the limited warranty provided for customers be valid. In case of any inconsistency among different language versions of this document, the English version shall prevail.

Mechanical drawing

Roofit.Solar BIPV module can be used as a construction material on roofs and is available in 2 size variations. General information about the components of Roofit.Solar BIPV module and their functions are depicted in the pictures below. Detailed information about the dimensions, including electrical, mechanical, and thermal characteristics can be found in the datasheets of the corresponding BIPV modules.

View from the front View from the back



View from the bottom edge

Operation safety

Unpacking and storing:

- Transport and store the BIPV modules in their original boxes in a ventilated, rainproof and dry location.
- Storage requirements: relative humidity < 85% and temperature range of -40°C to 40°C.
- In case of a longer storage period (>6 months), boxes must be opened to ensure ventilation.
- The thickness of the forklift blades should be less than 80 mm for convenient handling of the pallet from all sides.
- DO NOT stack more than 3 wooden pallets on top of each other. Cardboard boxes are stored in 1 layer.
- Do not expose the modules and their electrical contacts to any unauthorized chemical substance.

Handling:

- Installation must strictly comply with local occupational safety regulations. All BIPV components and surfaces (glass, metal profiles, seams, and cabling) present inherent slip, trip, and puncture hazards, especially when wet, dusty, or icy. Roofit.Solar accepts no liability for injuries, falls, or damages resulting from rooftop installation activities or surface hazards.
- DO NOT lift the module by holding it from the junction box or cables.
- Never step or place heavy loads on the modules. Do not allow the module to bow or twist due to external forces. Do not drop BIPV modules or allow objects to hit or fall directly on the modules. Localized stress causes microcracks at cell level, which may reduce the module's reliability and lead to the withdrawal of the warranty.
- DO NOT place the module so that a load is applied onto the junction box or cables.
- DO NOT leave the module unsecured. If it falls, the glass layer could break. A module with a broken glass layer cannot be repaired and must not be installed.

Installation:

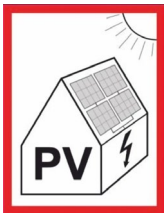
- Do not paint or apply any unauthorized adhesive on the modules.
- DO NOT disconnect/connect electrical connections under load.
- DO NOT install the modules in adverse conditions (rain, strong or gusty winds, wet or snowy roof surfaces, etc.).
- DO NOT use mirrors or other magnifiers to concentrate sunlight onto the module.
- DO NOT overbend or apply stress to the cables. Observe the recommended cable bending radius.
- Ensure that all electrical connections are properly secured and protected from unwanted interference.
- The cables shall be fixed to the installation system to avoid direct sunlight or immersion in water and mechanical damage to the cable; otherwise, it may cause accelerated cable ageing or fire.
- Before installation, ensure all the connectors are equipped with dust caps. Uncapped connectors are not waterproof when unmated. Therefore, remove the dust caps only prior to making electrical connections.
- DO NOT connect different connectors (different brands or models).
- BIPV modules do not contain any serviceable parts. DO NOT open, repair or disassemble any part of the module.
- DO NOT attempt to remove any markings, labels or parts attached to the module.
- DO NOT cut or drill holes in the glass part of the module.
- Roofing metal or metal parts of BIPV modules can only be cut with tools that do not produce excessive heat (e.g. metal scissors, low-speed circular saw etc.).
- Avoid damage to the metal coating by using proper accessories for installation. If any damage occurs, for example, coating scratches, those must be promptly repaired with suitable touch-up paint. Any debris from the construction must be removed from the modules.

Electrical and fire safety

Follow all relevant laws, regulations, guidelines, and safety measures when handling solar modules and PV system parts. Insulated tools are required throughout the electrical installation to protect against electrical shocks. Roofit.Solar BIPV modules are classified as **Class II devices** and must be integrated exclusively with approved balance-of-system (BOS) equipment, such as inverters, cabling, overcurrent protection, and batteries. Follow the installation and operating instructions of these auxiliary components explicitly.
Assume the system is always energized. Contact with active electrical components can cause severe injury or death. The BIPV layers generate dangerous DC electricity (**> 30 VDC** and **> 30 mA**) under any light exposure, including low-light, overcast, or artificial illumination conditions.

Environmental factors alter nominal module output relative to Standard Test Conditions (1000 W/m², 25°C, AM1.5): lower temperatures increase voltage, while snow/water reflections boost current. Apply the appropriate safety factor to nominal Isc and Voc values when sizing fuses, conductors, and component ratings to account for worst-case local ambient temperatures. To mitigate internal fire risks from DC arcing, the system must utilize string inverters or protection equipment equipped with a DC Arc-Fault Circuit Interrupter (AFCI) compliant with **EN IEC 63027**. Roofit.Solar recommends using a DC combiner box equipped with an emergency disconnect mechanism (commonly referred to as fireman's switch or rapid shutdown switch) to enable isolating live DC power lines between the solar array boundary and the inverter.

Consult your local authority about building or structural fire safety guidelines and requirements.
According to IEC 61730 Part 2, the fire rating of Roofit.Solar modules is classified as **Class A.**
According t**o EN 13501-5 a**nd test method CEN/TS 1187, the modules are classified as **Broof (t1)**, **Broof (t2) and Broof (t4).**
According to EN 13501-1:2016 and test method EN 13823 and EN ISO 11925-2, the modules are classified as **B-s1, d0**.
The roof underlayer and building materials directly beneath the BIPV modules must be rated to withstand continuous temperatures of at least **80°C**.



Permanent warning labels must be placed at the main service meter and DC disconnection points to inform emergency services of the PV installation; layout and text must comply with national regulations.

Information for Fire Services

- **Daylight Voltage Hazard:** Disconnecting the inverter or main AC breaker stops current flow but does not eliminate voltage. BIPV modules generate full open-circuit voltage (Voc) as long as daylight is present, even if the array is physically damaged or cut. Voltage can only be eliminated by completely covering the active PV surface with light-blocking, opaque materials (e.g., blankets or sun-blocking coatings).

- **Energized Roof Surface:** Roofit.Solar modules are mechanically seamed and galvanically bonded. If a damaged live conductor contacts the metal underlayer or seam, the entire roofing structure becomes energized. Treat all structural metal roofing sheets as a live electrical hazard during an emergency.

- **Water Suppression Limits:** In accordance with DIN VDE 0132, water suppression on live components up to 1000 VDC requires strict adherence to minimum safety distances: 1 meter for spray nozzles and 5 meters for solid jets.

→ BIPV system planning

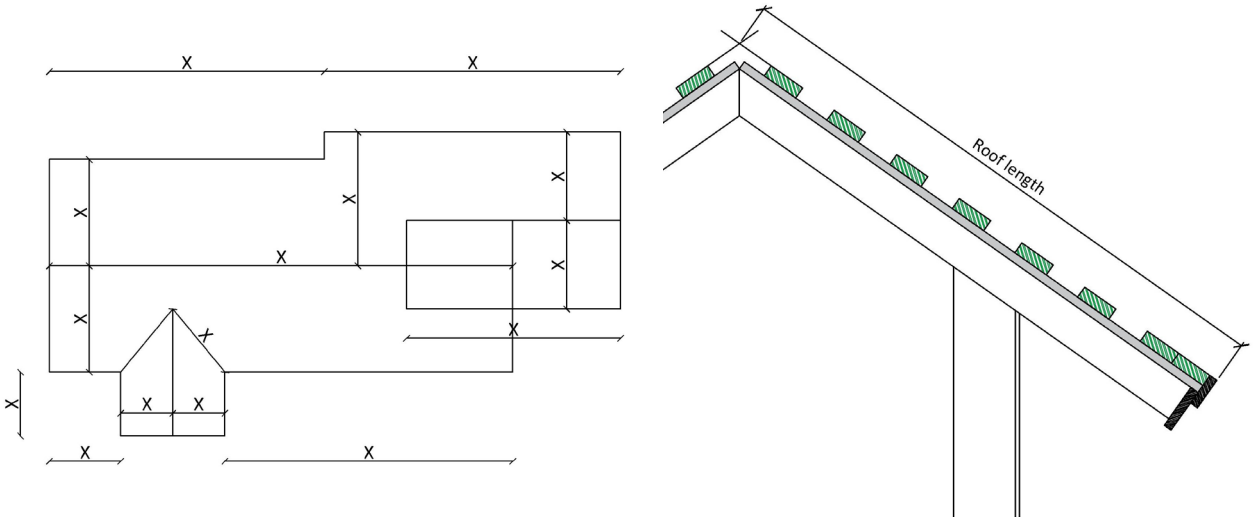
Please obtain information about any requirements and necessary approvals for the site, installation, and inspection from relevant authorities. Keep in mind the potential reflective glare from the glass surface to the surroundings. Proper measures must be taken to ensure the performance and safety of the BIPV module when installed or operated in areas with heavy snow, extreme cold, strong wind, near coastal areas or deserts. Modules are designed to operate within an **ambient temperature range of –40°C to +40°C,** which is the monthly average highest and lowest temperature of the installation site. Modules are designed to operate in an environment **with up to 85% annual relative humidity**. **The maximum system voltage** is 1000 V for altitudes up to 3000 m, and 600 V for altitudes up to 4000 m.

Ensure that the module is not exposed to wind or snow that exceeds the maximum permissible load. BIPV modules have been tested for 10 000 Pa downforce and 4500 Pa uplift force according to IEC 61215. A safety factor of 1.5 needs to be considered to determine the final design load for installation. According to that:
The maximum permissible designed **snow load is 6666 Pa** with a safety factor of 1.5.
The maximum permissible designed **wind load is 3000 Pa** with a safety factor of 1.5.

Damage caused by direct or indirect lightning events is not covered under warranty. Therefore, surge protection is recommended for BIPV modules to be installed in locations with a high probability of lightning strikes. In the case of lightning protection system, Roofit.Solar BIPV module metal parts must not be used as down conductors.
BIPV modules should not be installed where any corrosive agents and/or flammable gases may be generated or collected. To avoid galvanic corrosion, evaluate material compatibility during layout planning. Due to the risk of galvanic corrosion, installation in direct contact with copper roofing components is not covered by the product warranty.

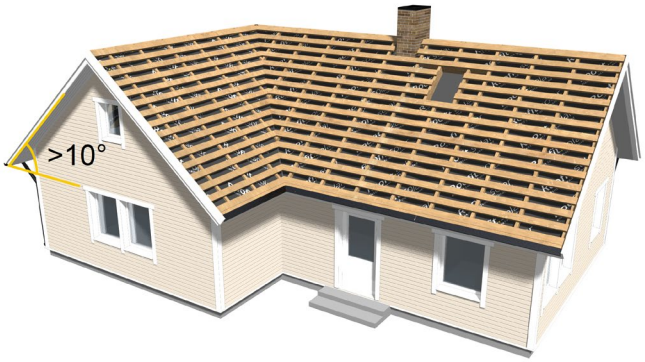
Measuring the roof

The customer needs to provide Roofit.Solar with a drawing or a simple sketch of their roof with essential measurements for the BIPV system planning. The length of the roof is measured from the outer surface of the farthest-facing board from the eaves to the middle of the ridge.



Roof support structure

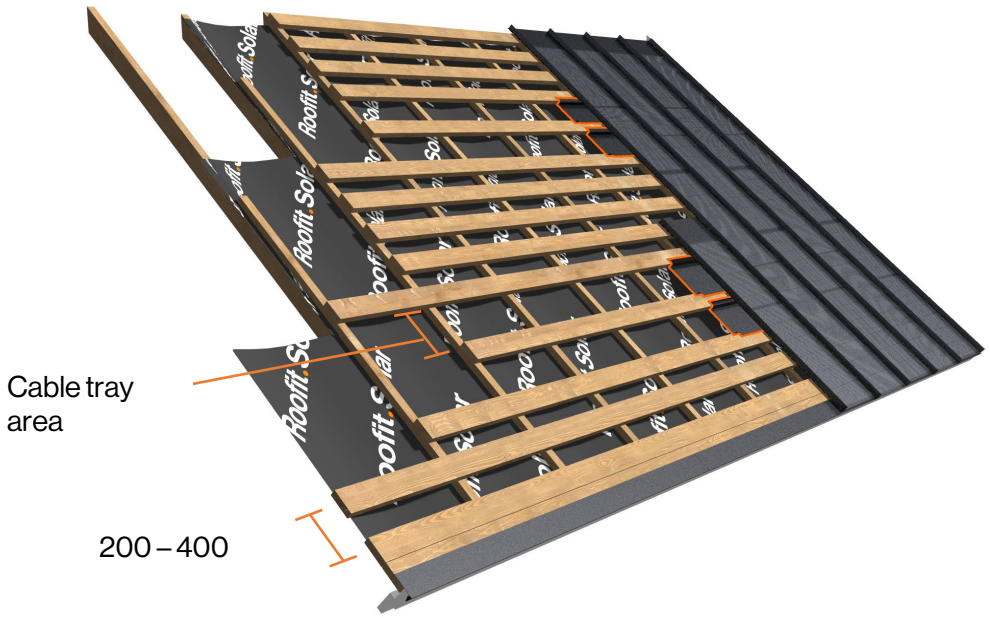
Roof support must be assessed by a qualified professional according to applicable local requirements and must be proved capable of supporting the load of the BIPV modules. The supporting system must be installed following local, national, or international standards. For the purposes of waterproofing as well as maintenance, the slope of the roof must be more than **10 degrees**.

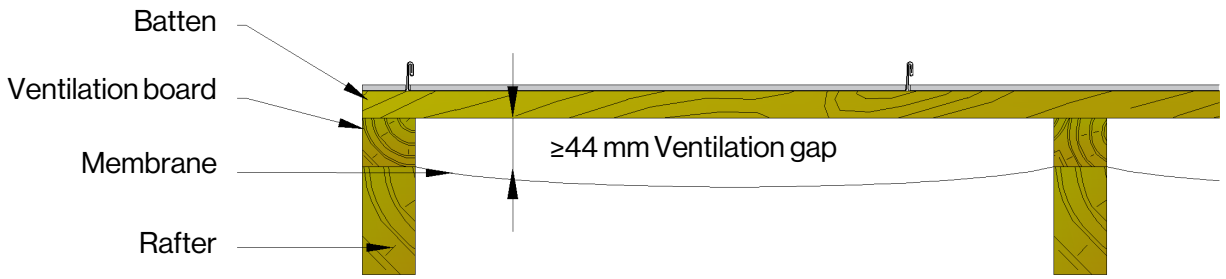


The use of an underlayer membrane under Roofit.Solar BIPV modules is mandatory. Any penetration (e.g. chimney, pipes etc.) to the roof must be adequately sealed to prevent leaks. The back of the module must be kept free of foreign objects that are not part of the support structure. A minimum allowed **ventilation gap of 44 mm** is required between the batten and the moisture barrier. Ventilation inlet and outlet dimensions must be determined by the roof system designer in strict accordance with local building codes. To ensure adequate BIPV cooling and prevent over-compression, the linear exhaust area at the ridge must be a minimum of 1.5 times the intake area at the eaves.

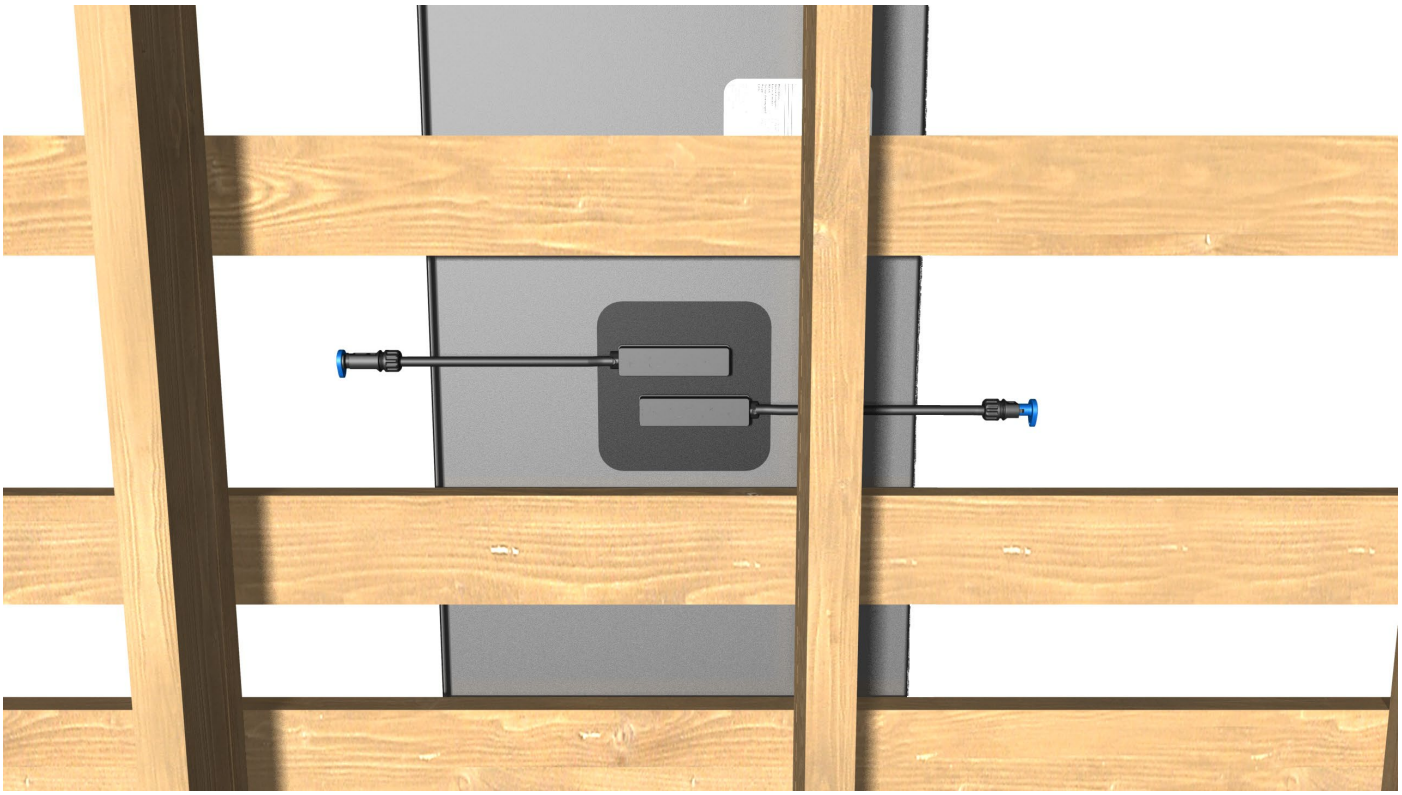
Battens must form a flat, planar surface to prevent BIPV module glass damage, seam distortion and oil canning. Global unevenness must not exceed **±15 mm over a 5 m** span in any direction. Localized unevenness between adjacent battens must be strictly limited to a maximum of **2 mm.** Levelled rafters and calibrated battens are recommended to achieve this.

General practice recommends using a 100 mm battening board and a spacing of 200 mm to ensure adequate cooling and best compatibility with passive roof installation rules. The minimum and maximum allowed center-to-center **batten spacing is 200 and 400 mm**, respectively. Wider battening boards require larger spacing to ensure adequate cooling. A minimum of 200 mm from the bottom of the roof should be fully decked.





When installing the modules, pay attention to where the battens are placed in relation to the junction box. Each BIPV module has a junction box that needs to be placed between the battens. Consider **200 mm of free space** for the cable tray, junction box, wires and any potential misplacements. If the battens are in the way of the junction box, move them up or down before installing the module.

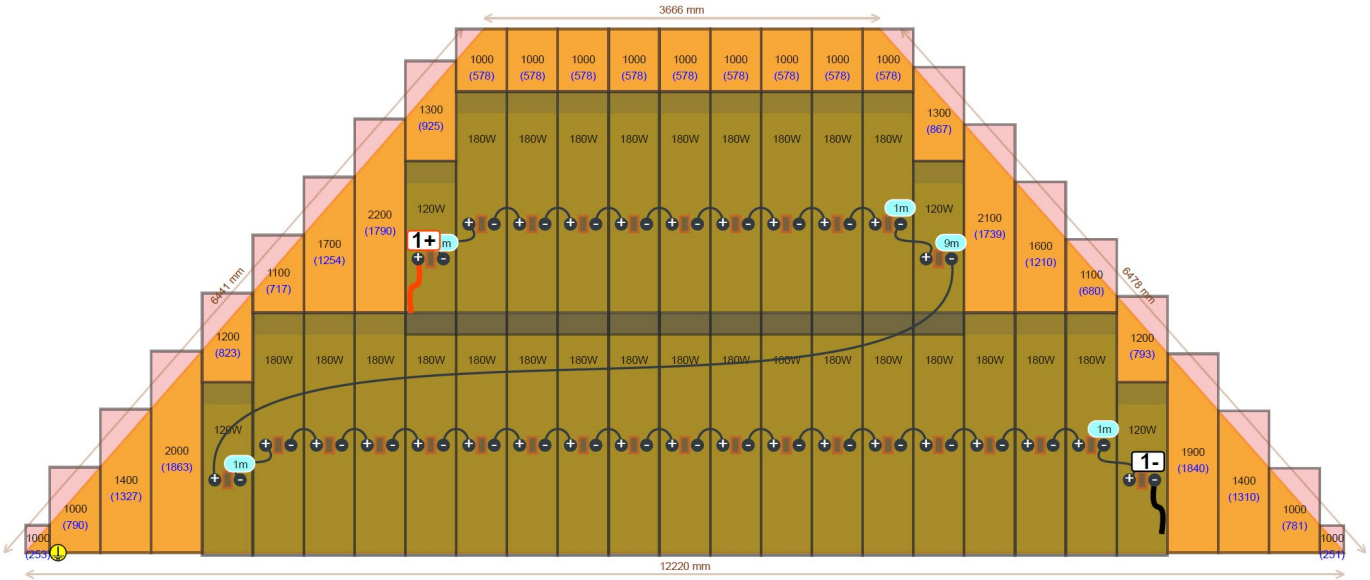


Prevention of the shadows

Prolonged or recurring shading of module cells, cell rows, or module sections can reduce energy yield and cause localized overheating (hot spots). This may accelerate ageing of module materials and increase thermal stress on bypass diodes. Installation layouts shall therefore be designed to minimize recurring shading throughout the service life of the system. Damage resulting from avoidable permanent shading may not be covered under warranty.

Planning the layout

The Roofit.App software is used for roof planning to determine the most effective solar module placement based on the complexity of each roof. Shadow analysis estimates potential power loss from trees, chimneys, dormers, and other structures and determines the best location for solar modules. Snow guards, passage ladders, skylights, and customer preferences are other factors influencing BIPV module layout. Roofit.Solar needs as much information about the roof as possible, including the estimated height of the chimneys, vent pipes, and nearby trees, to offer the most accurate design.



All penetrating roof elements (chimneys, skylights etc.), valleys, snow guards and ladders must be surrounded with standard metal sheets with a minimum of 300 mm from the element, as the BIPV layer of Roofit.solar modules must not be shaded, cut, bent or stressed.

Accessories

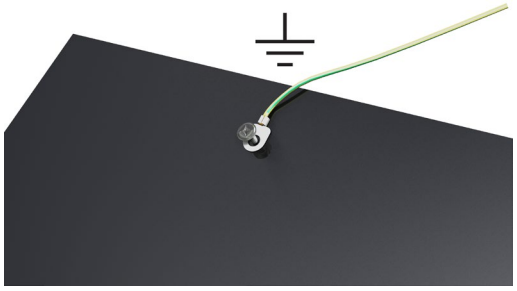
Extension cable with MC4-Evo 2 male/female connectors

Connection of two modules when their integrated cables do not reach.

Inverter cable

Connection of the PV system strings to the inverter.

Grounding cable



Spanner/unlocking tool

1. Tightening the connector nuts.
2. Disconnecting male-female connectors.

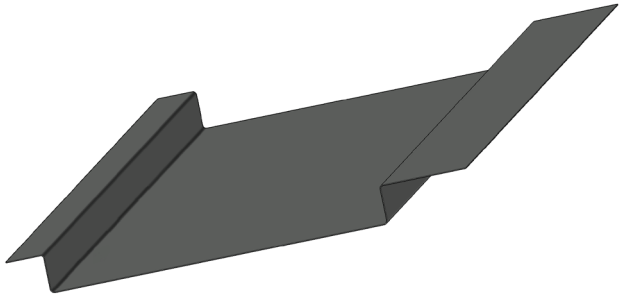
Crimping pliers

Attaching the connector to a bare DC cable.

Cable strippers

Removing the cable insulation.

Cable tray



Cable tray is a mandatory component designed to isolate module's junction box and connectors from the roof structure.

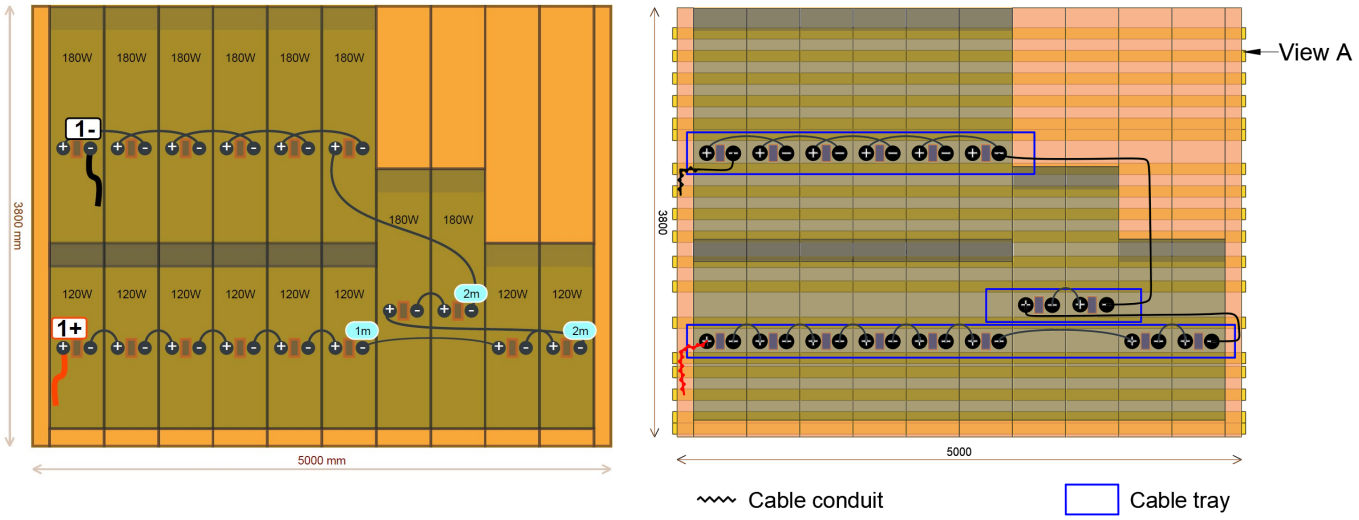
Cable conduit

For the protection of extension and inverter cables.

Wiring considerations

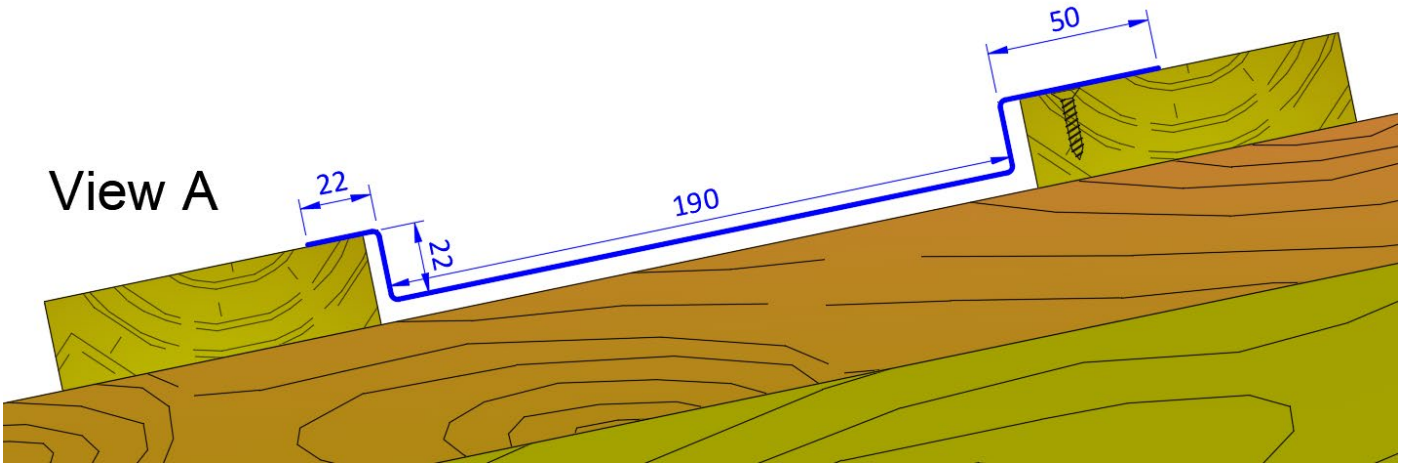
All wiring installations must be carried out by qualified installers in accordance with the requirements written in this manual as well as any local electrical construction codes, procedures and regulations. PV array design and installation shall comply with applicable national regulations and EN IEC 62548.

All cables that connect the DC system must use copper wires with a cross-section area of at least 4 mm², with double insulation and be certified according to IEC 62930. Cables must withstand temperatures of at least 90°C. The polarities of cables and terminals must be matched when making the connections; failure to do so may result in damage to the module and to a person. Ensure that all electrical connections are secure and tight – confirm that you hear a distinct *click* to indicate that the connection is successful.

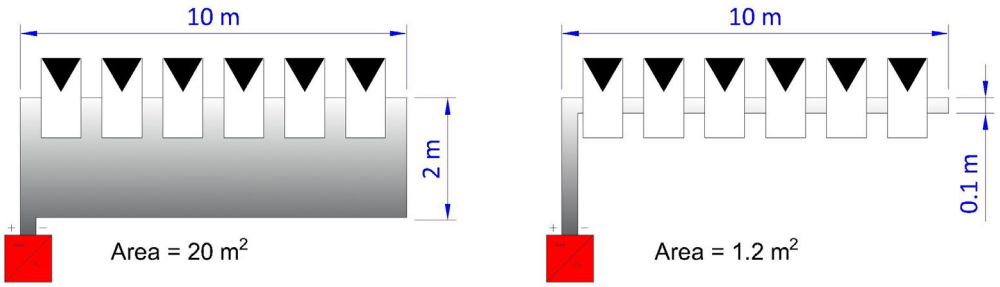


Cable trays, as well as inverter, extension and grounding cables should be positioned on site before the installation. To prevent long-term insulation damage from thermal friction, secure loose cables and apply durable mechanical edge protection (e.g., rubber seal, tape) to sharp metal, or route cables through conduits. Junction boxes and connectors must be placed inside the cable tray.

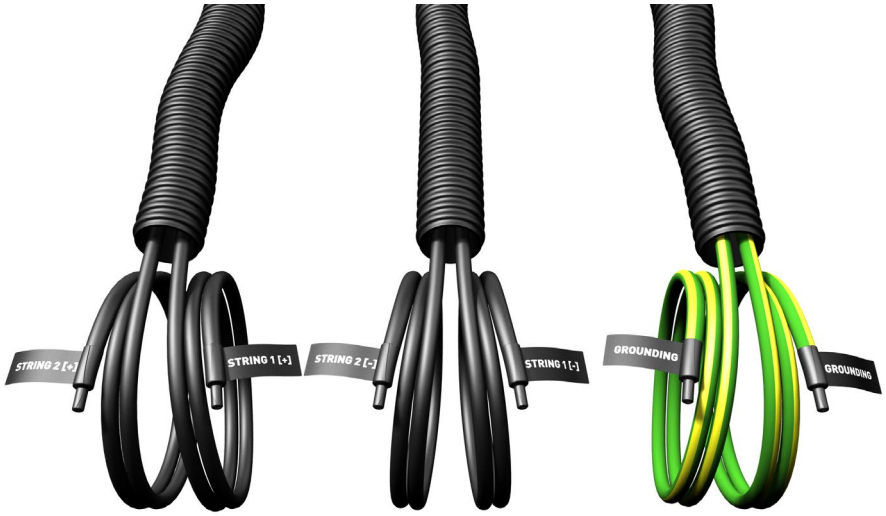
Metal cable trays can be pierced or cut to size, making sure to leave 250mm overhang from left and right side of the module if there are no roof obstacles. Fix the cable tray with a flat-head screw. To allow condensation drainage, leave a 5 mm gap between sections up to 2 m or drill holes if sections are longer. Recommended dimensions for cable tray below:



For the BIPV system to improve EMC (electromagnetic compatibility) and minimize the electromagnetic radiation, cabling should be positioned to minimize the area of the wiring loop.



DO NOT group positive, negative, and grounding cables together to avoid ground fault and short circuit. Each cable type should be separately routed to the cable conduit and taken to the technical room, where they will later be connected to the inverter. Insulate bare DC cables and mark them accordingly for the time between the BIPV system and inverter installation. Cables must be protected from any possible physical damage.



Modules can be wired in series to increase the voltage or in parallel to increase the current. BIPV circuits should be designed according to the applicable national regulations of the respective country. A maximum of 2 strings can be connected in parallel without using an over-current protection device incorporated in series within each string. It shall be ensured in the BIPV system design that the reverse current of any particular string is lower than the module's maximum fuse rating under any circumstances.

Modules must not be connected together to create a voltage higher than the maximum permitted system voltage stated by local regulations, the BIPV module nameplate, inverter input or all other DC components of the BIPV system. To ensure this, the open circuit voltage of an array needs to be calculated at the lowest expected local ambient temperature, which can be determined using the following formula:

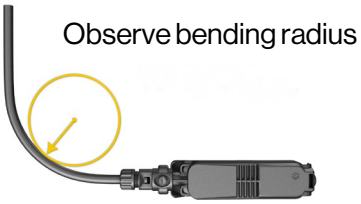
Max System Voltage ≥ N × Voc × [1 + β × ($Tmin$ − 25)]

Where

N	Number of modules in series
Voc	Open circuit voltage (refer to the datasheet)
β	Temperature coefficient (refer to the datasheet)
$Tmin$	The minimum ambient temperature in °C

Connectors

Roofit.Solar modules have 2 junction boxes with positive and negative connectors. The junction box has been designed to be electrically interconnected in series with IP68 (1m/1h) protection grade. Maintain a minimum cable bending radius of 45 mm.
Many connector brands state “compatible with MC4”; however, a reliable connection of different brands is not guaranteed and can therefore cause arcing, hot spots and fire that are not covered by warranty conditions. Therefore, the extension and inverter cables must only use original MC4, MC4-Evo 2 or MC4-Evo Ready connectors from Stäubli.



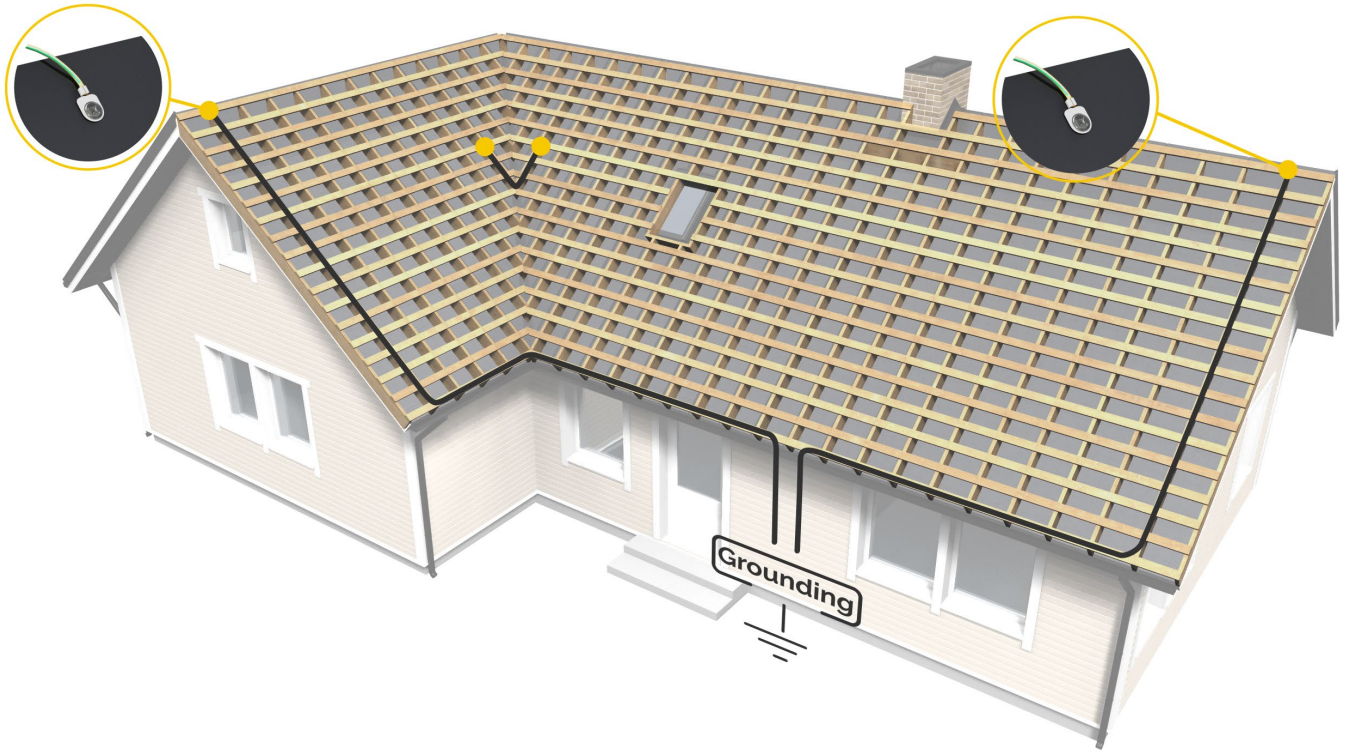
Type	Designation code	Compatible with
Stäubli MC4-Evo 2	PV-KST4-EVO 2/xy-UR (male) PV-KBT4-EVO 2/xy-UR (female)	MC4, MC4-Evo 2, MC4-Evo Ready

Bypass diodes

Each of the 2 junction boxes of the BIPV module contains 1 bypass diode wired in parallel with solar cell strings.
In the case of partial shading, the diodes bypass the current generated by the unshaded cells, thereby limiting excessive heating. BIPV modules must not be installed under constant shadows; bypass diodes only protect from partial shading. Bypass diodes are not overcurrent protection devices.
In the event of a known or suspected diode failure, installers or maintenance providers should contact the supplier.

Rated bypass current	Rated reverse current	Operating junction temperature
25 A	40 A	-55 to +200 °C

Grounding



Each BIPV system must be connected to the grounding cable to ensure electrical safety. All Roofit.Solar modules that are seamed with each other are galvanically connected. To ground the metal cable trays, fix at least one PV module fixation screw through cable tray. Use adequate grounding cables with a cross-section of at least 4 mm² and A2 or A4 stainless steel screw. The grounding cable is connected to the uppermost metal sheet of the roof under the ridge cap. The grounding is finalized by connecting the grounding conductors to the equipotential grounding.

Use 2 grounding cables per roof surface to provide the possibility to measure the ground connection quality. If the building has more than one roof surface with BIPV modules, they can be connected in one grounding circuit to minimize the number of grounding cables, as shown in the figure above. Double grounding of the BIPV system is recommended even when applicable regulations, code requirements and standards do not require any safety-related grounding.

Accessories

Flat head screw

Min. 5,2 x 25 mm, class C4

Butyl sealant

Non-curing sealant for waterproofing the overlapping area

Overlap element

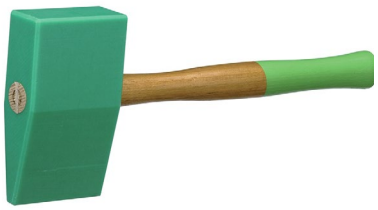
Used in case of BIPV to passive horizontal joints

Hand seaming tool

Preferably with plastic edges to prevent metal and glass damage

Low-speed circular saw (max. 3600 rpm)

Bumping mallet



Metal scissors

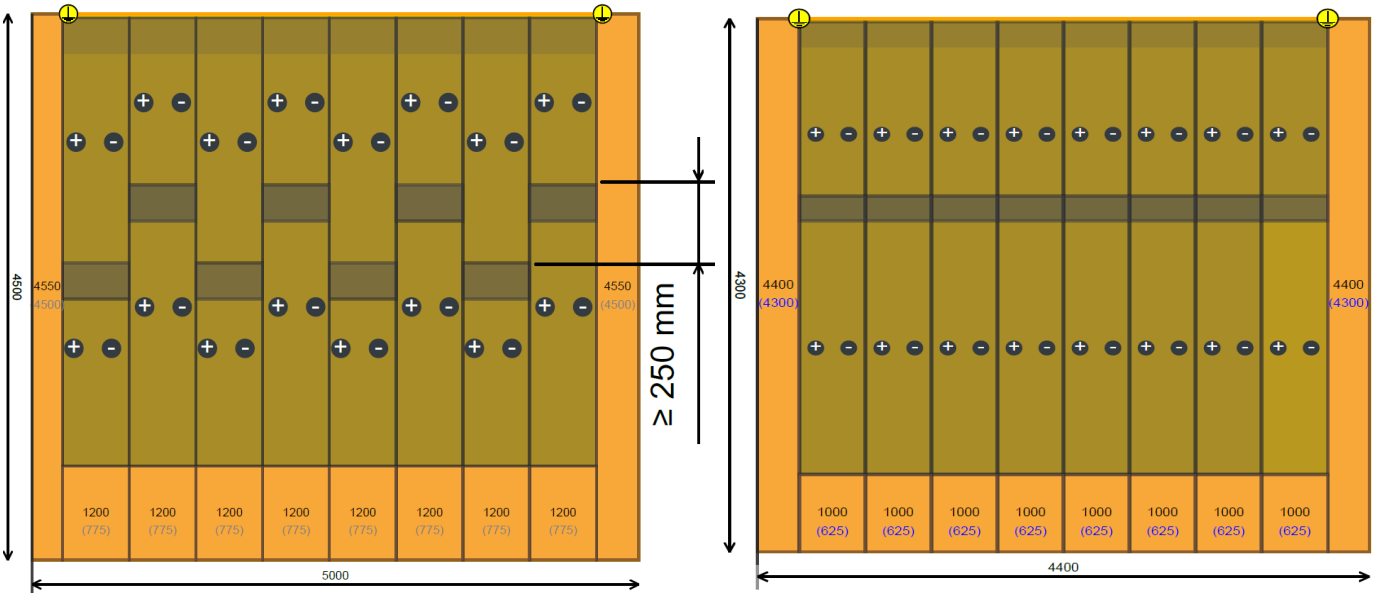
Seaming pliers

Fastening clip

Basic aspects

Depending on the roof dimensions, design or other needs, Roofit.Solar modules can either cover the entire roof or be used in combination with regular metal at the edges, eave or ridge. Modules can be installed in a chess-pattern or 1-line layout. In the brick-pattern layout the next column of the BIPV modules is shifted up or down. The minimum distance between 2 horizontal seams is 250 mm.

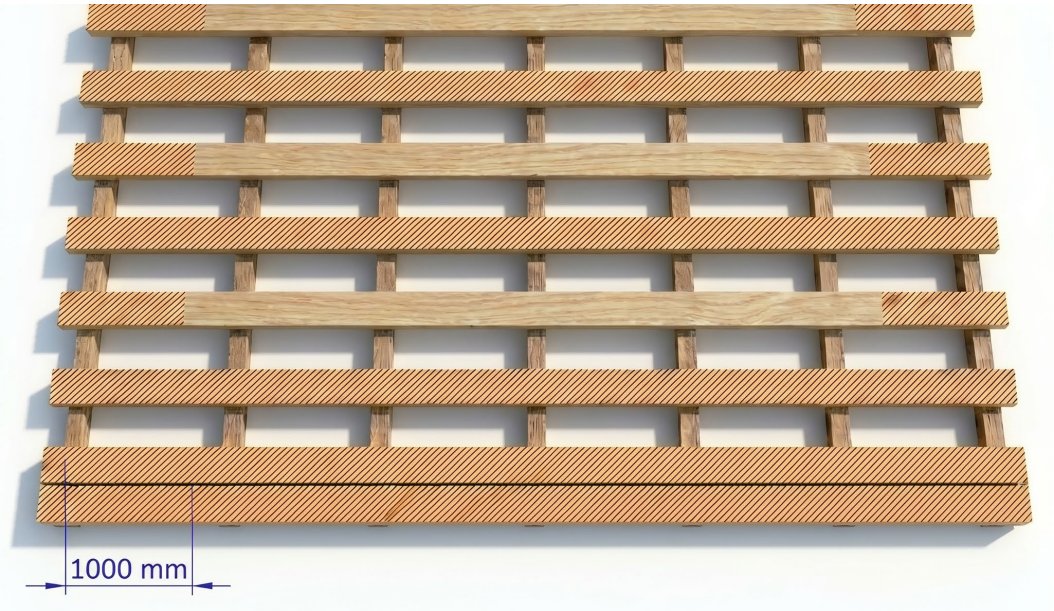
Standard passive roofing installation procedures are not covered in this manual.



The first roofing sheet dictates the array geometry. Verify it is exactly perpendicular (90°) to the eaves flashing to guarantee parallel alignment for all subsequent columns. 90° angle can be determined with a right-angled triangle equation $A^2 + B^2 = C^2$. (e.g. A=3 m; B=4 m; C=5 m). Mark measurement A on the roofing sheet and B on the eaves flashing. Adjust the roofing sheet around the fixing point to achieve a value of precisely 5 m for line C.

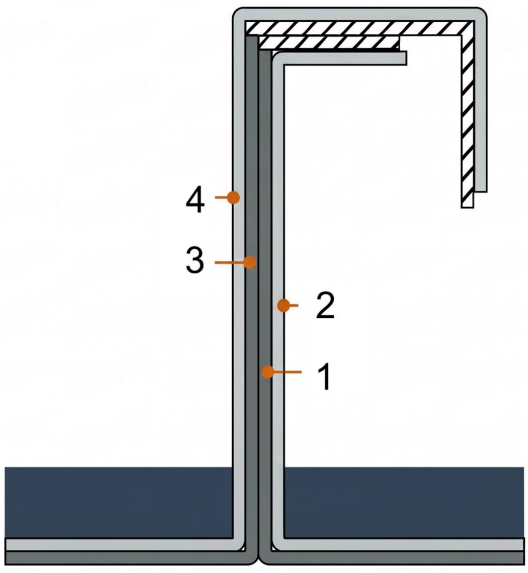
Fastening layout shall be determined by the roof system designer in accordance with local building regulations, environmental factors (e.g., wind loads, building height, roof geometry) and mechanical constraints (e.g., fastener pull-out resistance, timber density, clip type, and batten spacing).

For a recommended batten spacing of 200 mm, a **typical fastening arrangement** uses one screw at every second batten in the central roof area. At roof edges and corners (within approximately 1 m of the roof perimeters), fastening density is typically increased to one screw at every batten.

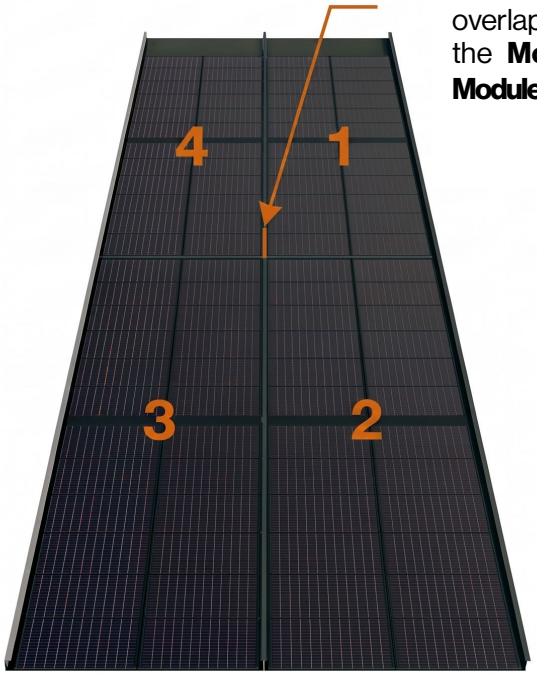


Before fixing the BIPV module, connect the cable with the previous module/inverter cable. Cables are secured for transport using either plastic cable ties or paper tape. Carefully cut the ties with pliers or tear the tape by hand. **NEVER pull on the cables** to break the bindings, as this will cause internal damage to the junction box or connector.

If more than 2 seams are overlapped, middle seams should be removed along the overlap area.

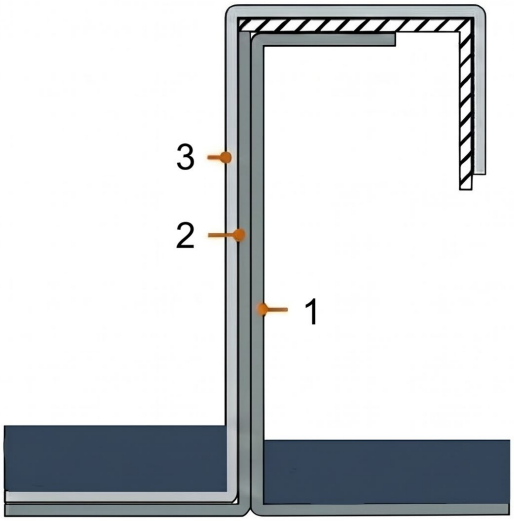


Part of the seams that should be cut

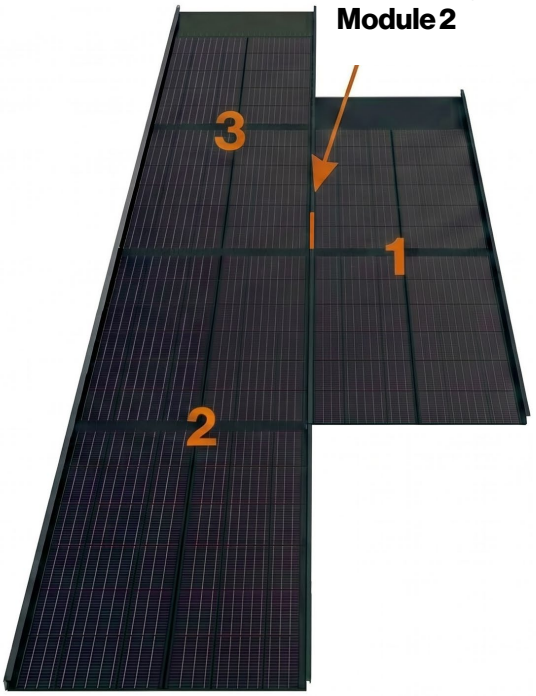


Cut seams in the overlapping area of the **Module 1** and **Module3**

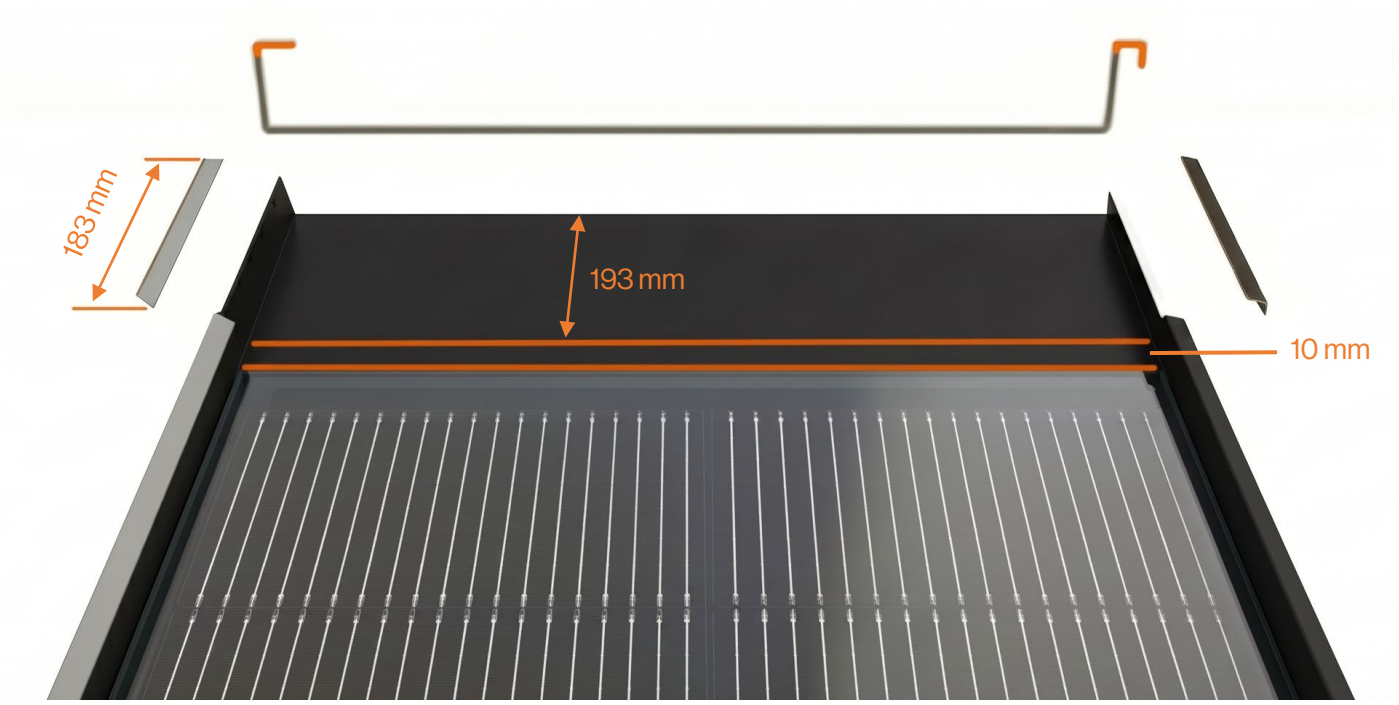
Cut seams in the overlapping area of the **Module 2**



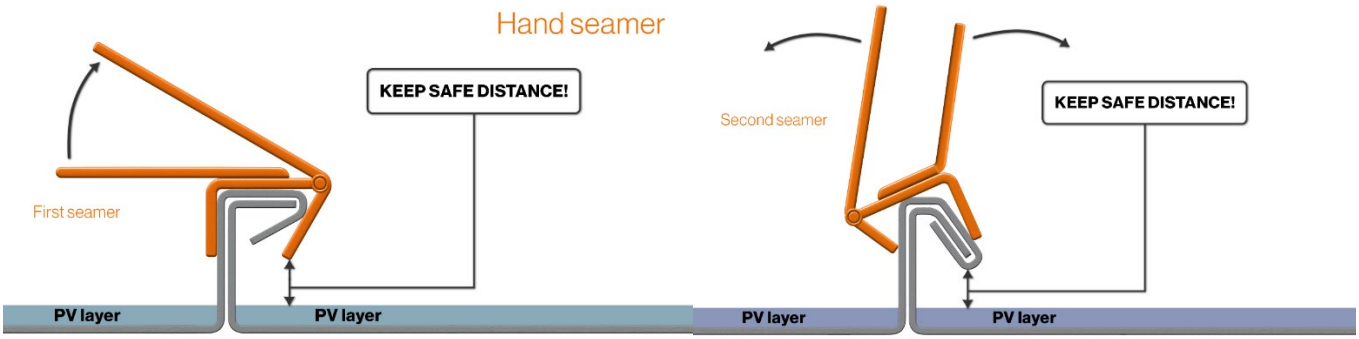
Part of the seams that should be cut

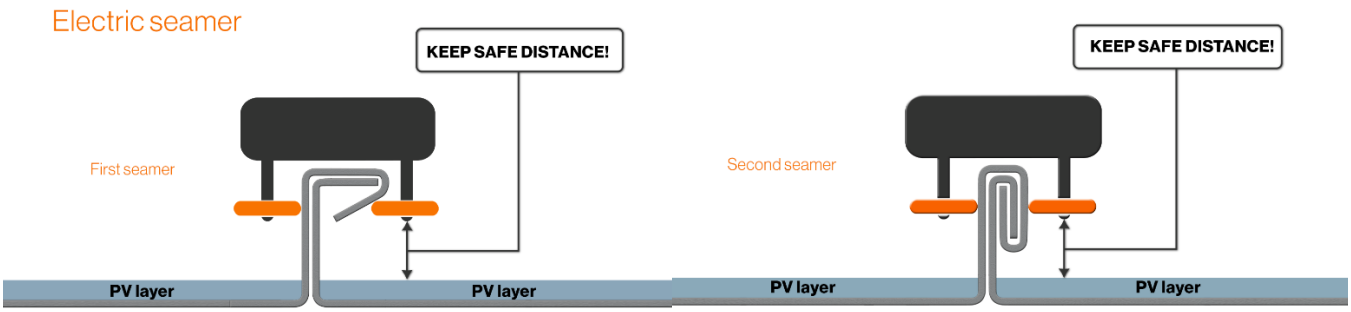


A 10 mm gap between active PV layers yields a ~193 mm baseline overlap, allowing minimal shifting for roof alignment. The majority of overlap seams require angled cuts approximately 10 mm shorter than the final applied overlap. Angled geometry ensures watertightness.

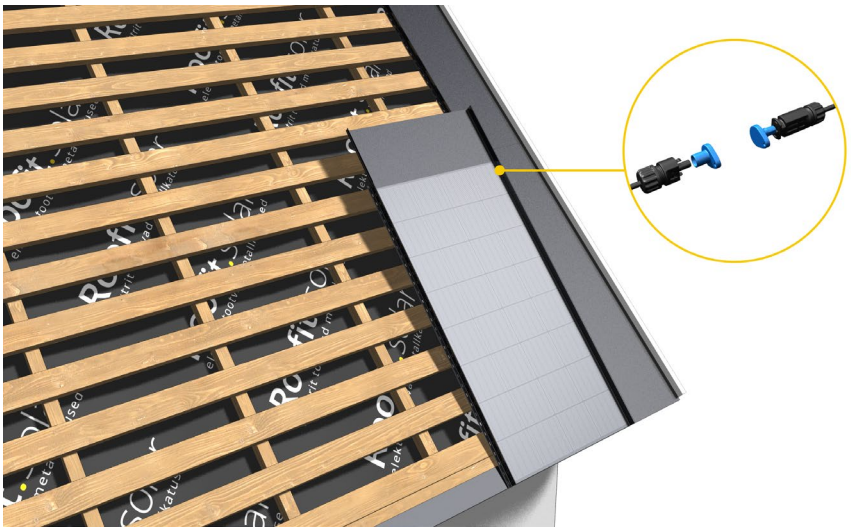


Special attention is required during the seaming process of the BIPV module with hand seaming tools or an electric seamer. Make sure the hand seaming tools or the rollers of the electric seamer do not touch the BIPV module glass. It is recommended not to perform seaming below 10°C metal temperature to prevent coating stress and micro-cracking. Seams can be heated with hot air before bending.



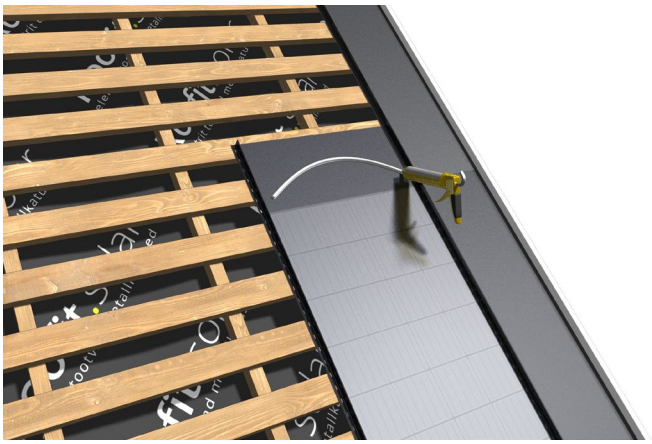


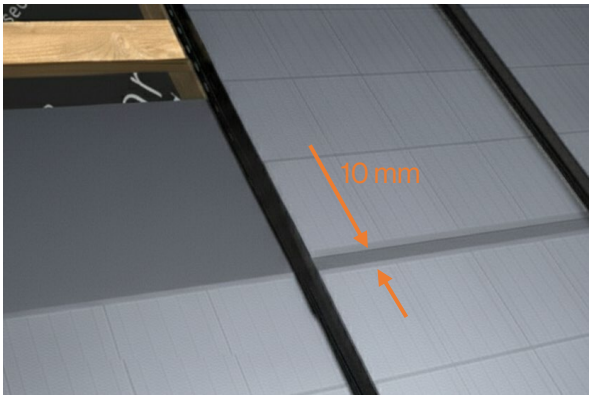
Remove the dust caps and push the connectors together until you hear a *click*. Bring the second cable of the BIPV module out from the side to ease the connection of the next module afterwards.



Butyl sealant is applied in a curved line in the middle of the overlap section, leaving a few centimeters' gap on the sides for condensation water drainage.

Place the top module between the seams of the bottom module. The overlap area of the lower module may require manual widening with pliers. While placing the next module on top, leave a 10 mm gap between the two glass surfaces.

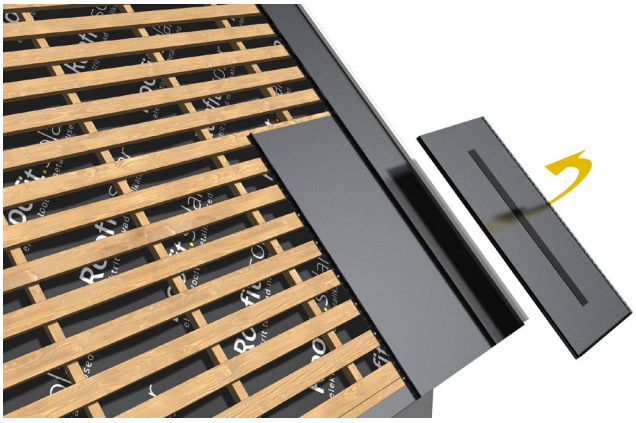




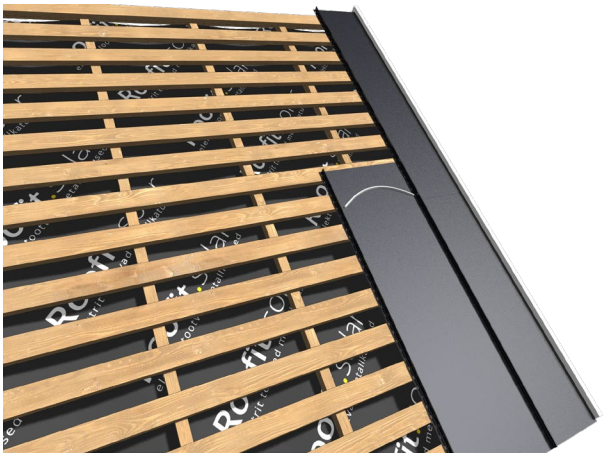
For high-pitched roofs (>60°) and façade applications, the structural fixation must support the module's static dead load. Seam cuts above every double-seam clip are required to support module weight.

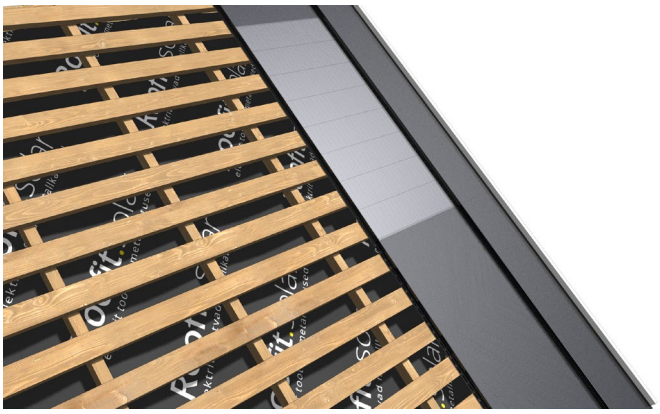
Eave: transition from passive to BIPV

Use acoustic tape or felt under the regular metal sheet to reduce wind noise and oil canning. Be careful when handling the metal sheet and place it on a soft surface to prevent scratches on the paint or zinc coating. When gluing the acoustic tape, apply 1-2 strips, leaving 300 mm clear from the top and bottom. There must not be any sound insulation under the metal sheet in the area that overlaps with the module, as this can cause tension to the glass.



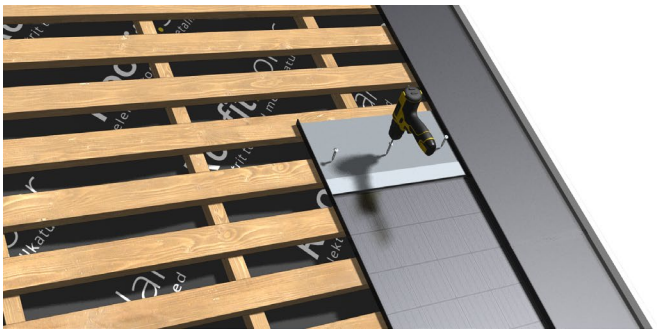
Attach the sealant to the upper edge of the standard metal sheet, where approximately 200 mm overlap will be. Install the next BIPV module on top with approximately 200 mm overlap to ensure adequate water resistance.



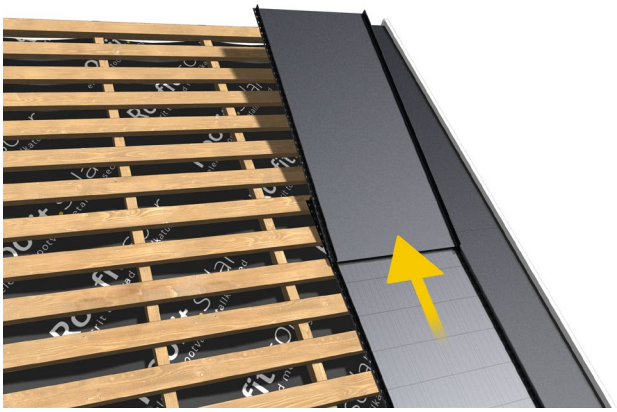


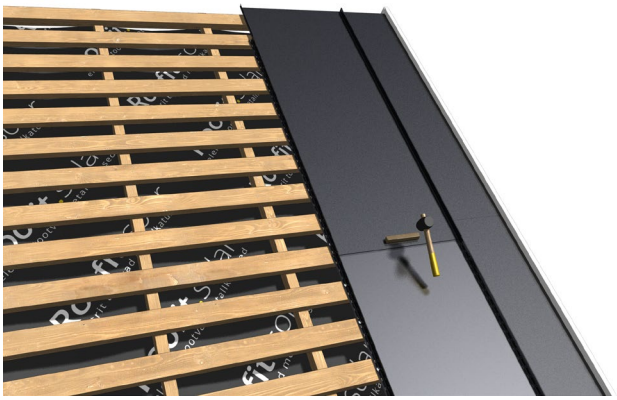
Ridge: transition from BIPV to passive

To install a regular metal sheet on top of the BIPV module, an overlap element is placed on the lower BIPV module. The overlap element is attached with 3 flat-head screws. If there is no batten underneath the overlap area, install an additional batten. Bending the lower side of the overlap element upwards also enables an easier installation in the next step.



The folded backbend of the metal sheet must be inserted under the overlap element and then pulled toward the ridge to fix it into place. The backbend of the regular metal can be flattened with a wooden board and bumping mallet. Pay attention not to hit the glass of the lower BIPV module.





→ Maintenance

Regular inspection and maintenance of the BIPV system is required throughout the service life. For detailed maintenance actions, the **Roofit.Solar Building Integrated Photovoltaic Products Maintenance Manual** must be followed.

Visual inspection
An annual visual inspection is required to identify any possible issues. Check the modules for:

- Any visible signs of damage to the PV part (glass shattering, discoloration, other visual abnormalities).
- Physical damage of the metal sheet and paint coating (scratches, peeling, uneven fading, blistering and cracking).
- New shading obstacles (e.g., vegetation growth).
- Accumulated contamination (dirt, leaves, or debris in valleys/eaves).

Cleaning
Dust accumulation and foreign objects (e.g., leaves, branches, and bird droppings) may reduce energy yield and cause localized hot-spots that can damage the module. Natural rainfall is typically sufficient to clean the array from dust accumulation. If manual cleaning is necessary, observe the following constraints as damages caused by insufficient or incorrect cleaning can lead to withdrawal of the warranty conditions of Roofit Solar Energy OÜ:

- Before cleaning, make sure the BIPV system is switched off from the inverter's DC isolator switch.
- **Safety hazard:** Cracked or damaged modules present a severe electric shock risk, especially when wet. Visually inspect the array for damage before cleaning.
- **Dry cleaning:** Remove light debris (e.g., leaves, loose dust) using a leaf blower or a dry, soft-bristle broom.
- **Wet cleaning:** If more effective cleaning is required use a soft cloth, sponge, or brush.
- **Thermal shock:** Only clean modules during cooler periods (early morning or late evening). Applying cold water to hot glass will cause thermal shock and shatter the module.
- Prohibited Methods: **DO NOT** use high-pressure power washers and abrasive tools, acidic, alkaline, or degreasing chemical agents.

Decommissioning and disposal

Roofit.Solar is firmly committed to protecting the environment. BIPV modules are designed for long service life and should be disposed of in accordance with local regulations governing photovoltaic and electronic equipment. Do not dispose of modules in regular household waste.

→ Customer support

Technical support shall be provided to the owner of the BIPV system by Roofit.Solar. For more information, please visit Roofit.Solar website https://roofit.solar/