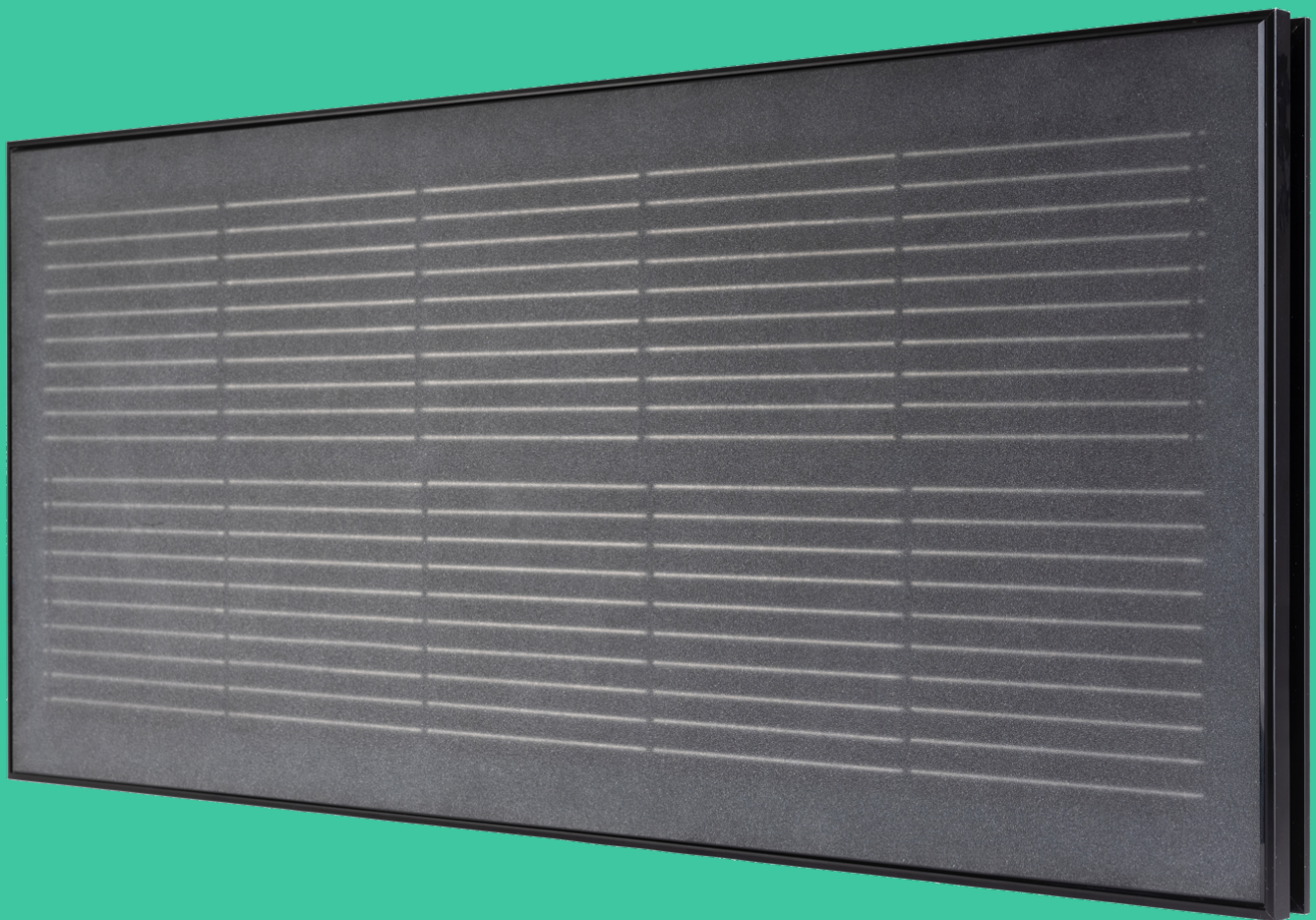


INSTALL MANUAL

Platio Solar Deck



V 1.2

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1. Important information

1.1. Disclaimer

This manual provides important safety instructions about the installation, maintenance, and handling of Platio Solar Deck (hereinafter referred as "the Unit"). Anyone installing the Unit must read these guidelines carefully and strictly follow the instructions. Not following these instructions may result in death, injury, or property damage. The installation and handling of Units require professional skills and should only be performed by qualified professionals. The installers must inform end-users (consumers) the information given in this material accordingly.

The information contained in this manual is subject to change by Innovatív Térburkolatfejlesztő Kft. (hereinafter referred as "the Manufacturer"), the owner of Platio brand without prior notice. The Manufacturer shall not be held responsible for damages of any kind, including – without limitation – bodily harm, injury, or damage to property, in connection with handling the Units, system installation, or compliance or non-compliance with the instructions given in this manual.

1.2. Safety precautions



Before installing, wire, operate and / or service the units and other electrical equipment, all instructions should be read and understood. **Connectors and cables pass direct current (DC) when exposed to sunlight or other light sources.**

Contact with electrically active parts of the Unit, such as connectors, can result in injury or death, not depending on whether the units and the other electrical equipment have been connected.



Any connection to the grid, batteries, any wiring, or connection to any device must be installed by licensed electricians in accordance with all applicable national or international electrical codes.

WHEN CONNECTING THE UNITS TOGETHER IN SERIES NEVER UNDER ANY CIRCUMSTANCES EXCEED THE SELV (SAFETY EXTRA LOW VOLTAGE) CODE APPLICABLE FOR DIRECT CURRENT IN YOUR AREA EVEN UNDER THE WORST LOCAL TEMPERATURE CONDITIONS!

Do not allow children or unauthorized persons near the installation site or storage area of Units.



Protective clothing as non-slip gloves, clothes, safety shoes and any other measures applicable in your area or required by code is a must during installation. Prevent direct contact with anything more than SELV (Safety Extra Low Voltage code applicable in your area), and to protect hands from sharp edges.



Never install units in rain or morning dew and always take appropriate measures to prevent any water ingress into the connectors. Water in connectors can cause serious malfunctions resulting failure in the Units and any other connected devices.



Use electrically insulated tools to reduce the risk of electric shock.

Do not use or install damaged units.

Contact with unit's surfaces may cause electric shock if the front glass is broken.



The Units do not contain any serviceable parts. Do not attempt to repair any part. Do not disassemble the Units or remove any part of it.

Do not immerse Units in water or constantly expose them to water either fresh or salt (for example from fountains, sea spray). Continuously exposing Units to salt or sulfur incurs the risk of corrosion in connectors. Do not use the Units in continuously acidic or alkaline environment.

ONLY USE MICROINVERTERS, CHARGE CONTROLLERS, BATTERIES AND ANY OTHER DEVICES THAT MEET ALL THE REQUIRED STANDARDS AND REQUIREMENTS IN YOUR REGION AND HAS BEEN APPROVED BY THE MANUFACTURER!

Only copper conductor material should be used. Select a suitable conductor gauge to minimize voltage drop and ensure that the conductor ampacity complies with local regulations.

1.3. Storage

Units should be stored in a dry and ventilated environment to avoid direct sunlight and moisture. If Units are stored outdoors (for example a construction site), the storage time should be less than 1 week, and extra precautions should be taken to prevent Units from being exposed to moisture or sunlight. **Storing the Units under unsatisfactory conditions may cause water infiltrate into the packaging, thus the stagnant water may cause permanent damage to the units due to water infiltration into the unmated connectors.**

Unpack the pallets carefully. Transport, unpack and store the Units with care. Percussion or shaking of the packed or unpacked units must be avoided. Keep all electrical contacts clean and dry at all times. When installing the Units, connectors should be connected to each other as soon as possible or appropriate measures should be taken to avoid moisture and dust penetrating into the unmated connectors.

Keep the Unit away from acids, alkalis or any corrosive material, fire, and extreme temperatures.

IF THE PLATIO SOAR DECK UNIT IS NOT INSTALLED AS DESCRIBED IN THIS INSTALLATION MANUAL, RESULTING IN FAILURE OF THE PRODUCT OR THE MALFUNCTION OF INSTALLED SYSTEM, THE MANUFACTURER WILL NOT BE LIABLE FOR ANY RESULTING DAMAGE AND THE WARRANTY PROVIDED WITH THE PRODUCT WILL BE VOID.

1.1. Before installation

Before installing the Units, please obtain information about any requirements and necessary approvals for the site, installation, and inspection from the relevant authorities. Consult your local authority for guidelines and requirements. Please see chapter 3.2 for the optimal placement of the installation.

2. Introduction

2.1. The product

PLATIO Solar Deck is an innovative solution that seamlessly integrates solar energy collection with walkable surfaces, allowing for the generation of clean, renewable energy in spaces that are typically underutilized for traditional solar panels. Designed for installation in pedestrian areas, such as rooftops, terraces, decks and even port infrastructures, PLATIO Solar Deck represent the future of sustainable urban design. By utilizing high-performance photovoltaic cells, Solar Deck not only offer energy efficiency but also maintain aesthetic, and durable structure that can withstand the demands of daily foot traffic and harsh weather conditions.

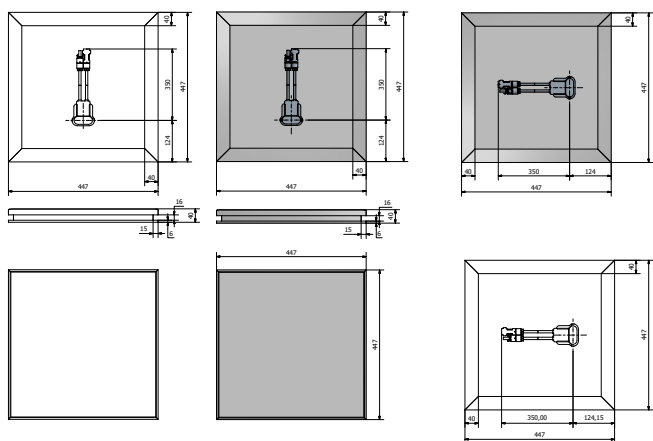
2.2. Product versions

PLATIO Solar Deck systems are available in two distinct product versions to cater to a variety of installation needs. These versions differ in size, offering flexibility in coverage, installation speed, and aesthetic preferences. Both versions utilize the same high-performance solar technology and durable construction, ensuring long-lasting functionality and energy generation, regardless of the size selected.

The two available product versions are as follows:

Product Version 1: Standard Square Version

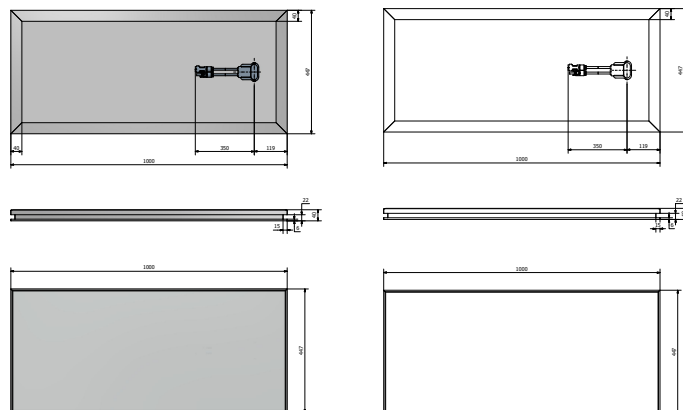
- **Dimensions:** 447 mm x 447 mm
- **Weight:** Approx. 5.5 kg per tile
- **Application:**
 - The Standard Square Version is ideal for smaller areas or installations where design symmetry and a uniform grid layout are essential.
 - Suitable for applications such as walkways, patios, and other pedestrian surfaces where compact size and modularity are advantageous, or to supplement the bigger variation in certain installations.
- **Advantages:**
 - The smaller size allows for easy handling and installation in intricate areas.
 - Ideal for installations where small spaces or tight layouts require flexibility in tile arrangement.
 - Faster installation for small surface areas and easier replacement or maintenance of individual tiles.



Product Version 2: Large Rectangular Version

- **Dimensions:** 447 mm x 1000 mm
- **Weight:** Approx. 11.5 kg per tile
- **Application:**
 - The Large Rectangular Version is designed for larger-scale installations where rapid coverage of extensive surfaces is desired.
 - Its rectangular shape makes it more suitable for elongated or larger surfaces.
 - This version offers greater coverage per tile, reducing the total number of tiles required, which minimizes installation time and cost.
- **Advantages:**
 - Provides a faster and more cost-effective installation for large surfaces due to its increased size.
 - Reduces the total number of tiles needed, which simplifies logistics, installation, and maintenance.

○ ROI is better.



4.4 Compatibility and Customization

Both product versions are fully compatible with standard decking systems such as WPC, wood, composite, ceramic, stone, plastic or steel, and are designed to integrate seamlessly into a variety of architectural environments. Depending on the specific requirements of the project, either the 447 or 1000 mm version may be selected, or a combination of both may be used to optimize coverage and energy production.

For customized projects or specific layout designs, both versions of the PLATIO Solar Deck can be configured in modular patterns to meet unique aesthetic and functional demands. Each tile version is equipped with the same durable flush-frame design, scratch-resistant surface, and enhanced load-bearing capacity.

2.3. Required Tools and Materials

Tools:

- Measuring tape or laser measure
- Spirit level
- Electric screwdriver/drill with appropriate bits
- Rubber mallet (for aligning panels)
- Wire stripper and cutter (for additional electrical connections)

Materials:

- Joists and decking pedestals (compatible with WPC, wood, or stone decking systems)
- Market-available WPC 'T' or 'L' clips
- Market available start / end clips
- Screws (preferably self-tapping, torx drive)
- EPDM tape for wood joists
- Decking pads or pad stripes
- Adjustable pedestals with all necessary substitute parts
- Dowels for fixing to ground layer

2.4. Site Evaluation

It is necessary to follow the instructions of the manufacturer of the surrounding decking system. Before beginning the installation, it is essential to thoroughly assess the installation site. This ensures that the area is suitable for both the structural integrity and optimal performance of the Untis.

The installation site must be relatively flat and stable. While the adjustable pedestals provide some flexibility in leveling, a severely uneven or unstable surface can compromise the final installation.

Acceptable surfaces include concrete, gravel, or other structurally sound platforms.

2.5. WARNING!

The installation of the Unit system (except the construction of the foundation and curbs; see below) must under all circumstances be completed by experts trained by the Manufacturer.

Always ensure that the wiring is correct before starting up the system. If the measured open circuit voltage (Voc) and short-circuit current (Isc) differ substantially from the specifications, this indicates that there is a wiring fault.

When the Units have been pre-installed, but the system has not been connected to the grid or charge controllers yet, each Solar Unit string should be kept under open-circuit conditions and proper actions should be taken to avoid dust and moisture penetration inside the open cable ends.

3. Planning of an installation

3.1. Drainage and water

The installation must not be placed in a low point where the water stops and does not leak or continue to drain away. The IP rating of the product is IP68 therefore it is capable to operate under shallow water coverage for an hour, but continuous operation under wet conditions will damage the system as water may seep into parts over time and cause corrosion, which will prevent electrical operation or dissolve the EVA adhesive and cause delamination in the units.

Prolonged underwater operation is not covered by the product warranty. The products contain indicator parts to detect soaking in water for a longer period of time.

The drainage around the product must be designed by a qualified person (architect, landscape architect, civil engineer) in accordance with local regulations.

3.2. Shade and sun exposure

Shaded Solar Deck units produce less power than those in direct sunlight. Exposure to less powerful sunlight is the obvious contributor to lowered efficiency, however all Units have bypass diodes in them helping to ensure that the shadow effects of possible environmental circumstances (falling leaves, dirt etc.) do not lead to significant production losses. By connecting 6-10 elements to microinverters, significant optimization can be achieved in MPPT (Maximum Power Point Tracking) as compared to regular solar installations installed with string inverters.

The Solar Solar Deck units' surface should preferably be laid on a well irradiated surface throughout the day for maximum energy yield. It is advisable to avoid applications where there is a shadow effect for a significant part of the day, for example furnitures or other objects. Make sure that microinverter or off-grid electronic cabinets placed outdoors are always in shaded areas and not exposed to direct sunlight.

3.3. Planning the electric connections

Installations must be designed in detail from an electrical point of view before installation as well.

In case of an Enphase microinverter project **the installation of Enphase microinverters must be compiled by an expert certified by Enphase as the 25-year product warranty is only valid if it is a registered system with all the necessary elements.** Usually when installing the

first few projects it is the most practical to contact a local distributor of Enphase who can install such systems as well. Later, one can obtain the certification and even install Enphase systems on its own.

In typical installations, microinverters are mounted directly beneath the units (see figure 5-7.). This placement is advantageous because it allows the microinverters to be located close to the photovoltaic cells, optimizing energy conversion by minimizing power loss through long DC cables. The microinverters are usually attached to the underside of the units, where they are protected from direct exposure to weather conditions while still benefiting from passive cooling due to air circulation around the units. This setup follows the standard practice in conventional solar panel installations, where the microinverter is securely mounted beneath the solar panel on the rail system.

However, in certain cases, it may be necessary to place the microinverters in a separate electrical box away from the panels. This is usually done when there is a risk of water accumulation, such as on flat or low-pitched surfaces where drainage is poor. In addition, if space beneath the panels is limited due to tight joist placement or other structural limitations, or if there are concerns about airflow for cooling, relocating the microinverters to an electrical box may provide better protection and longevity for the components. In such scenarios, the box should be installed in a location that allows adequate ventilation and easy access for maintenance while ensuring the microinverters remain safe from potential environmental hazards.

For optimal performance, make sure that the microinverters are not more than 10 meters away from the connected Platio Solar Deck unit's surface.

Enphase microinverters and typically other types of microinverters as well are IP rated for outdoor use therefore waterproof cabinets would not be necessary for them. However, it might be advantageous to place them in a dedicated waterproof cabinet outdoors or install the system on a wall of the suitable premises (garage, technical room etc.), because the accessories such as monitoring systems, relays etc. require protection anyway. In this case the cables connecting the strings of units to the microinverters should be selected according to local regulations, but generally, the preferred type is H07-RNF 2.5 rubber cable. The cables must run in conduits (flexible plastic protective tubes) or any other suitable solution (e.g. cable tunnel) for protecting the cables.

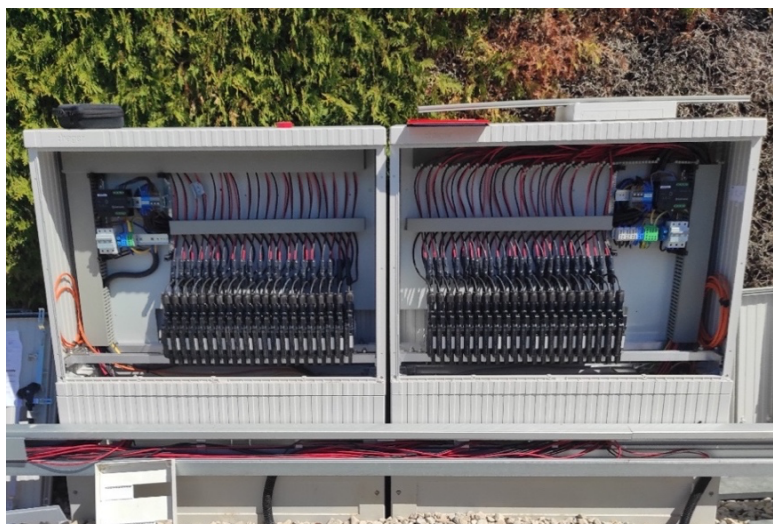


Figure 1: Example of the microinverters in a cabinet for a 100m² PLATIO system

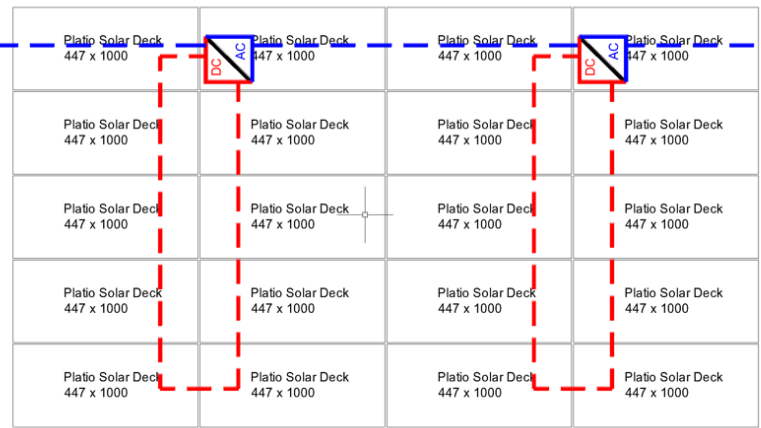


Figure 2: Example layout circuit of 447 x 1000 Solar Deck units

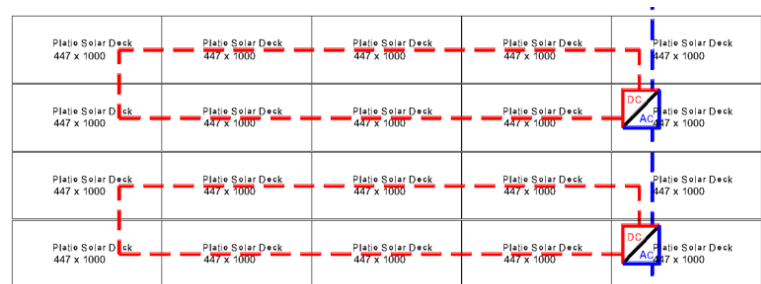


Figure 3: Example layout circuit of 447 x 1000 Solar Deck units in a longitudinal manner

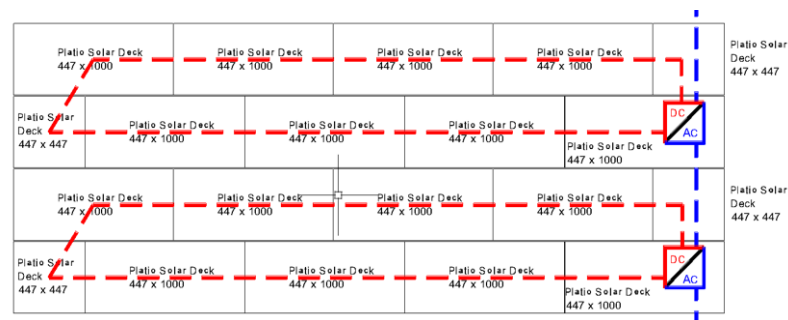


Figure 4: Example layout circuit of 447 x 1000 mixed with 447 x 447 Solar Deck units

3.4. Fixing the microinverters on the units

To mount the microinverters to the frames of Platio Solar Deck units, begin by drilling holes in the frame to secure the metric bolts required for installation. Ensure that the microinverter's plate does not exceed the outer perimeter of the frame to maintain proper alignment and avoid interference. Position the microinverters so they can be easily connected to the factory cable of the Platio Solar Deck. Use the metal part of the microinverter as a protective barrier to prevent accidental damage to the Solar Deck while drilling (see Figure 5.). If grounding is necessary, remember that anodized aluminum is not conductive. Employ appropriate methods, such as using a 'toothed nut,' to ensure proper grounding. Carefully secure the microinverter to the frame without applying excessive force to avoid potential microcracks in the Solar Deck units.



Figure 5: Drill a hole in the frame to accommodate the metric bolts. Use the metal component of the microinverter as a protective shield to prevent drilling into the Solar Deck. Avoid applying excessive force to the Solar Deck units, as this may cause microcracks.



Figure 6: Tighten the bolts in the right position as pictured.



Figure 7: The fixed microinverter on the back of the Solar Deck

4. Laying the Units

According to the above, under all circumstances must this process be completed by experts trained by the Manufacturer as the developer of the PLATIO Systems, so that the following is of informative nature only. To become a trained installer, one must first sign a distribution or other special contract, depending on the market. Following this, the individual receives training from the manufacturer's experts, culminating in an installation project supervised by these experts.

6-10 pcs of Unit element form a string/DC system.

WHEN CONNECTING UNITS TOGETHER IN SERIES, NEVER UNDER ANY CIRCUMSTANCES EXCEED THE SELV (SAFETY EXTRA LOW VOLTAGE) CODE APPLICABLE FOR DIRECT CURRENT IN YOUR REGION!

NEVER USE DAMAGED UNITS FOR INSTALLATION AS THIS MAY SHORTEN THE LIFE OF THE SYSTEM!

4.1. Surface preparation

Once the site has been evaluated and confirmed as suitable, proceed with preparing the surface for installation:

Concrete or Solid Surfaces

If installing on concrete or a similar surface, ensure that the area is clean, dry, and free of any debris that could interfere with the installation or long-term stability of the decking system. Repair any cracks or uneven sections of the concrete to create a stable base for the units and decking pedestals.

Gravel Surfaces

If installing on gravel, ensure the surface is compact and level. A compacted base layer will provide a firm foundation for the adjustable pedestals and joists. In areas with soft or shifting ground, add a sub-base of compacted gravel to improve stability.

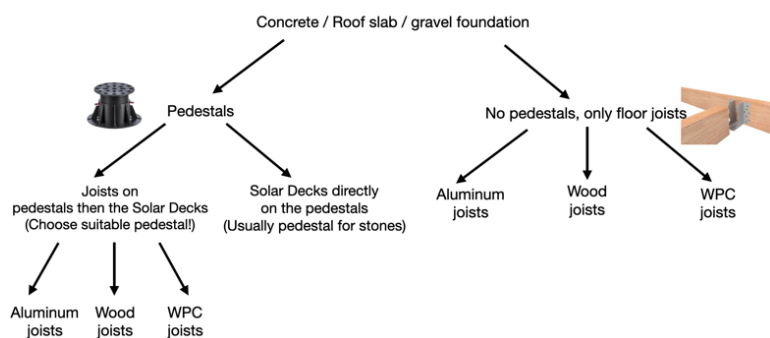


Figure 8: Decision tree for designing foundations for Solar Deck installations

4.2. Adjustable pedestals

Place the adjustable decking pedestals on the prepared, level surface. The spacing between the pedestals should follow the recommended distance provided by PLATIO, typically 50-60 cm apart, depending on the load-bearing requirements of the installation. Please follow the instructions of the decking system manufacturer. These pedestals will provide the foundational support for the joists and ensure that the entire system is stable and level.

Height Adjustment Mechanism:

- Each adjustable pedestal comes equipped with a **threaded central shaft** that allows for precise height adjustment. You

can adjust the height by rotating the pedestal's base or top part, depending on the design.

- To raise the pedestal**, rotate the base or the adjustment ring **clockwise**. This will extend the threaded shaft, increasing the height.
- To lower the pedestal**, rotate the base or ring **counterclockwise**, retracting the shaft to decrease the height.
- Continue adjusting the height until the top of the pedestal is aligned with the desired level for the joist placement.

Fix the Pedestals in Place:

- Once the height is adjusted and verified, lock the pedestal's height if applicable (some pedestals may feature locking mechanisms to prevent further movement).
- Ensure all pedestals are secure and stable on the surface. If necessary, use spacer blocks to further support or elevate any areas that require additional height.
- After all pedestals have been adjusted and aligned, perform a final check with a spirit level across the entire grid of pedestals to confirm consistent height and leveling before proceeding to the next step.



Figure 9: Example of placing Solar Deck units directly on pedestals.



Figure 10: Example of placing multiple Solar Deck units directly on pedestals

4.3. If joists are applied

In cases where only joists are applied without pedestals, slight leveling adjustments can be made using rubber pads placed beneath the joists. These pads help compensate for minor surface irregularities, ensuring that the joists lie evenly across the installation area. Rubber pads are ideal for providing stability and minimizing vibration, contributing to the long-term durability of the structure.

For installations on surfaces with a slope greater than 1.5%, adjustable tiltable pedestals should be used. These pedestals allow precise adjustments to accommodate uneven terrain or inclined surfaces. The tiltable feature enables the joists to remain perfectly level, regardless of the underlying slope, which is critical for the structural integrity and functionality of the system. Proper leveling ensures optimal load distribution and reduces the risk of stress on the units and framing system.

The joists must be aligned and secured to ensure a stable base for the Solar Deck units.

- Place the joists (wood, WPC, or aluminum) onto the pedestals or foundation, ensuring that they are straight and aligned properly. The joists should be spaced to correspond with the length and width of the units, typically at 30-40 cm intervals for optimal support.
- Adjust the height of the pedestals as needed using the built-in adjustment feature, ensuring the joists are level using a spirit level.
- If below the joists pedestals are utilized secure the joists to the pedestals using the appropriate screws or fasteners. Ensure the joists are tightly fixed and stable before proceeding to the next step.

When combining Solar Deck units with regular WPC or wood deck, the height difference should be accounted for.

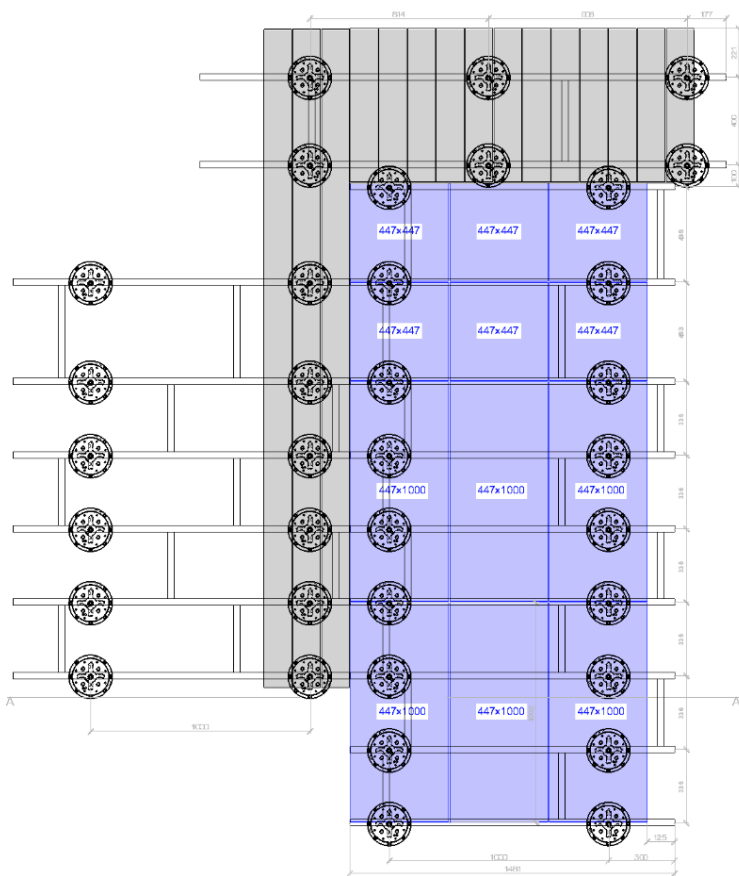


Figure 11: Drawing of an example deck where Solar Deck units are combined with wood

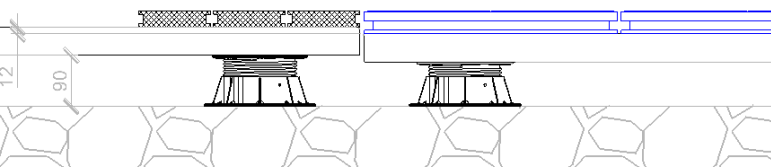


Figure 12: Cross section of figure 14 where Solar Deck units are combined with wood



Figure 13: Example of a deck where Solar Deck units are combined with wood



Figure 14: Side view of the method of wood or WPC combined Solar Deck installation



Figure 15: View of the method of wood or WPC combined Solar Deck installation

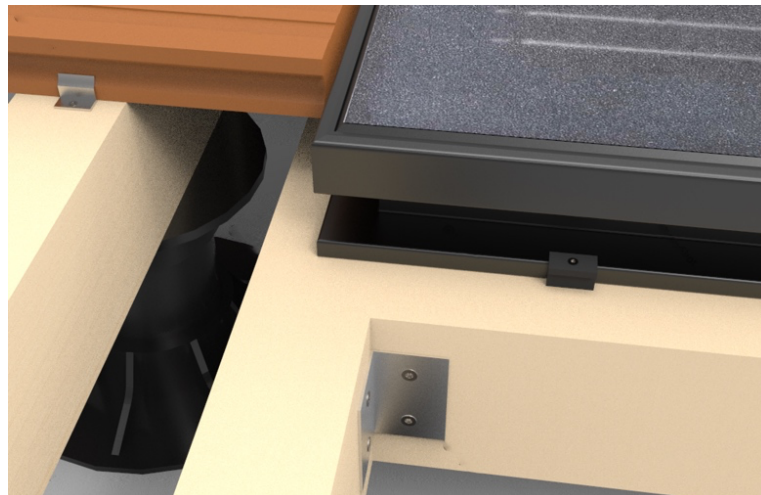


Figure 16: The fastening elements of an installation (corner profile, T clip, WPC or wood clip).

4.4. Things to consider before installation

Platio Solar Deck surfaces always must be planned beforehand the installation, so that the layout of the units, the cabling routing and connecting points of the conduits are known. When using microinverters, usually 6-10 pieces of units are creating a string. See chapter 3.3.

The fastest way to install Solar Deck units is to work in teams of two people, especially when in the case of not too experienced installers. It is advantageous if one member of the team is an experienced in decking and the other has some experience with electrical equipment, but it is not necessary to employ a qualified electrician at this stage of the installation.

After laying each row of Units, check the voltage on the system with a regular multimeter. If the voltage measurement is showing the voltage suitable for the number of elements, the connections are fine. Otherwise check the connectors if those have been properly mated. **As it is checked in every row, if a fault in connecting the connectors occurs, it can be fixed easily.**

During the process, excessive contamination of the elements should be avoided by, for example, soil, sand, mortar etc. can damage the top surface of the elements. Keep in mind that unmated connectors are not watertight.

Do not subject the cables coming out of the Unit to excessive force as this may damage them! Do not lift the Unit by grabbing the cables! Carefully place the cable in the correct position without subjecting it to excessive force. Be careful not to cut the cables, as this may damage the units!

Do not cut the length of the cables.

4.5. Installing the Solar Deck units

Once the joists are in place, you can begin mounting the PLATIO Solar Decks onto the prepared foundation.

Step 1: Position the First Solar Deck

- Begin at one corner of the installation area. Place the first PLATIO Solar Deck onto the joists, ensuring the unit is aligned properly with the joist structure below.
- Ensure the light-transmitting layer is facing up, and the frame of the unit aligns with the joist supports.

Step 2: Connector mating

- Have the next Solar Deck near its final place
- Every unit has two cables (+ and -). Connect the cables equipped with MC4 connectors to the neighboring element according to the plan.
- Repeat above steps till the first line of Solar Decks are connected.
- Use an extension cable if necessary.
- Check the voltage on the system with a regular multimeter or any other suitable device. If the voltage measurement is showing the voltage suitable for the number of elements, the connections are fine. Otherwise check the connectors if those have been properly mated. **If checked in every row, if a fault in connecting the connectors occurs, it can be fixed easily.**

Step 3: Secure the Solar Deck units with WPC Clips

- Use standard market-available WPC clips to fix the unit to the joists. Insert the clips into the edge of the frame, positioning them over the clamping surface of the joists.
- Fasten the clips securely using self-tapping screws, ensuring the unit is tightly held in place but not over-tightened, which may damage the frame or light-transmitting surface.

Step 4: Continue Laying Additional Solar Decks

- Proceed to the next line of units, placing it adjacent to the first. Leave a gap of 2-4 mm between the panels, depending on the size of the WPC clips being used.
- Repeat the process of securing each panel with WPC clips and screws, ensuring consistent spacing and alignment across the entire row.
- Ensure that the units are level as you proceed, making necessary adjustments to the pedestals or joists if any unevenness is observed.

Step 5: Final steps

- Inspect the entire installation to ensure that all units are level and aligned properly. Use a spirit level to check for any unevenness and adjust the pedestals if necessary.
- Once all connections are complete, test the electrical output of the units to ensure that each panel is functioning correctly. Use a multimeter to measure the voltage and confirm the system is generating power as expected.
- Perform a final check to ensure that all clips, screws, and connections are securely fastened. Confirm that the units are properly fixed to the joists, with no loose components that could cause instability.

5. Installing the microinverters

It is important to note that the installation instructions published by the microinverter's manufacturer must be followed in all cases, this chapter is for general information only.

5.1. General install method

Tools and materials usually needed:

- Microinverters
- Mounting brackets or bolts (often provided with the microinverter)
- Screws or bolts compatible with the racking system
- Wrench or socket set
- Drill (optional, depending on the racking system)
- Cable management materials (zip ties, clips)
- Microinverter communication gateway (if applicable)
- Personal protective equipment (PPE) including gloves and safety glasses

Attach the Microinverter to the frame

- Identify the correct mounting location on the units. It is recommended to mount the microinverter in a position to be able to connect it to the Solar Deck unit's factory cable.
- Attach the microinverter to the frame. Most microinverters have integrated brackets that allow for easy attachment to standard racking systems.
- Secure the microinverter tightly using screws or bolts. Most manufacturers recommend using bolts compatible with the mounting rail material (usually stainless-steel bolts for aluminum rails).
- Tip: Ensure the microinverter is securely fastened and does not shift or rattle.

DC Cable Management

- Route the DC cables from the Solar Deck junction box to the input connectors of the microinverter. Ensure these cables are kept tidy and secure to avoid tension or strain.

- Solar Decks have pre-installed MC4 connectors, simply plug them into the DC input of the microinverter.
- Ensure all connections are firmly clicked in and properly sealed to prevent moisture ingress.

AC Cable Connection

- Route the AC cable from the microinverter to the electrical distribution box where it will be connected to the main power grid.
- Microinverters usually come with daisy-chaining connectors to easily link multiple units.
- Pay close attention to cable management to avoid sharp bends or points that could stress or damage the wiring.

Perform Electrical Checks

- Once all microinverters are installed, verify that the DC and AC wiring is correctly connected and securely fastened.
- Perform a continuity test on the grounding wire (if applicable) and ensure there are no loose or exposed cables.
- Double-check polarity and voltage on the DC side to ensure the units are correctly feeding into the microinverters.

Microinverter Communication Setup (if applicable)

- Some microinverters come with communication systems, such as a data monitoring gateway that allows for real-time monitoring of power production.
- If your system includes a communication gateway, connect it to the microinverters as per the manufacturer's instructions. This may involve connecting an Ethernet cable or wireless transmitter.

Final Inspection

- Ensure that all microinverters are securely mounted, and there is no excessive cable slack that could interfere with the system's performance.
- Verify that the system is properly grounded and that all electrical connections are tight and free of debris.
- Power on the system and verify that each microinverter is functioning correctly by checking the system's monitoring portal or testing the AC output.

Important Considerations:

- **Clearance and Ventilation:** Ensure microinverters have adequate ventilation to avoid overheating. Never mount them in a way obstructing the airflow.
- **Waterproofing:** Use watertight connectors and protective enclosures where necessary to avoid any moisture ingress, especially in wet climates.
- **Accessibility:** Position the microinverters in such a way that they are accessible for future maintenance but protected from direct exposure to harsh elements.

HAZARD OF ELECTRIC SHOCK AND FIRE!

KEEP IN MIND THAT ONLY CERTIFIED PERSONNEL IS ALLOWED TO INSTALL THE MICROINVERTERS! DO NOT ATTEMPT TO INSTALL THE MICROINVERTER CABINETS WITHOUT QUALIFICATION AS AN ELECTRICIAN AND A TRAINING PROVIDED BY ENPHASE!

ALWAYS FOLLOW THE LOCAL APPLICABLE CODE FOR GRID CONNECTION!

MICROINVERTER SYSTEMS MUST BE APPROVED BY THE NETWORK OPERATOR!

5.2. Enphase microinverter systems

The Enphase IQ System includes:

- **Enphase IQ7+, IQ7X or IQ7A, IQ8MC Microinverters:** the smart grid ready IQ Series Micros convert the DC output of the PV modules into grid-compliant AC power.
- **Enphase IQ Envoy** is a communication device that provides network access to the PV array. The IQ Envoy collects production and performance data from the Enphase IQ Microinverters over on-site AC power lines and transmits the data to Enlighten through an Internet or cellular modem connection. The IQ Envoy is capable of monitoring up to 600 Enphase IQ Microinverters and up to 39 Enphase IQ Batteries. For details, refer to *Enphase IQ Envoy Installation and Operations Manual*.
- **Enphase Enlighten** is a web-based monitoring and management software. Installers can use Enlighten Manager to view detailed performance data, manage multiple PV systems, and remotely resolve issues that might impact system performance. Find out more at enphase.com/enlighten.
- **Enphase Installer Toolkit** mobile app for iOS and Android devices. It allows installers to configure the system while onsite, eliminating the need for a laptop and improving installation efficiency. You can use the app to:
 - Connect to the IQ Envoy over a wireless network for faster system setup and verification
 - View and email a summary report that confirms a successful installation
 - Scan device serial numbers and sync system information with Enlighten monitoring software

The Enphase Microinverter maximizes energy production by using a sophisticated Maximum Power Point Tracking (MPPT) algorithm. Each Enphase Microinverter individually connects to one PLATIO string. This configuration enables an individual MPPT to control each string, ensuring that maximum power available from each string exported to the utility grid regardless of the performance of the other strings in the array. While an individual string in the array may be affected by shading, soiling, orientation, each Enphase Microinverter ensures top performance for its associated string.

Step 1: Mount the Microinverters

Step 2: Create an Installation Map

Step 3: Manage the Cabling

Step 4: Connect the Microinverters, listen for a click as the connectors engage

Step 5: Terminate the Unused End of the Cable

Step 8: Connect the strings

6. System inspection

6.1. Step 1: Visual Inspection

1. **Inspect Connections:**
 - Carefully examine all electrical connections between the units when they are installed.
 - Ensure all connectors are properly mated, and products are not sitting on cables.
2. **Check for Physical Damage:**
 - Look for any signs of physical damage on the solar units, such as cracks, chips, or discoloration, which could indicate a compromised module.
 - Ensure that the surface of each solar unit is clean and free from dirt, debris, or shading that could affect performance.
3. **Verify System Layout:**
 - Confirm that the strings are connected in the correct sequence as per the installation plan.
 - Ensure that the string configuration matches the system design and that the micro inverters are properly integrated.

6.2. Step 2: Pre-Testing Measurements

1. **Open-Circuit Voltage Check:**
 - Ensure the inspection and testing are conducted under appropriate weather conditions. Extreme temperatures or rain can affect the reliability of the tests and the safety of the procedure.
 - Measure the open-circuit voltage (Voc) of the string to ensure it aligns with the expected values based on the number of modules connected.
 - Compare the readings with the datasheet to identify any inconsistencies.
2. **Short-Circuit Current Check:**
 - Measure the short-circuit current (Isc) of the string to confirm it is within the expected range.
 - Note that significant deviations from the expected current could indicate a partial shading issue, a faulty module, or a poor connection.
3. **Review Inverter and System Readouts:**
 - Check the system monitoring interface or micro inverter LEDs for any error codes, warnings, or abnormal operational data.
 - Review any historical data or logs if available, which can provide insights into intermittent issues or performance trends.

6.3. Step 3: System Setup Verification

- Ensure each micro inverter is properly installed and receiving adequate power.
- Confirm that the inverters are properly grounded and that no installation errors are evident.

6.4. Auditory Check

When stepping on the system, listen carefully for any creaking, squeaking, or cracking noises. These sounds may indicate loose connections, frame movement, or insufficient support from the joists.

- If you hear any of these sounds, it is recommended to immediately inspect the affected area to determine the source of the noise and make necessary adjustments.
- Pay particular attention to areas where joists may not be providing adequate support, as this can lead to noise and reduced stability.

6.5. Visual Check

- **Check for Visible Gaps or Misalignment:** Ensure that the units are properly aligned and there are no large gaps between the modules, unless designed as part of the system (e.g., clip gaps). Misalignment or irregular gaps can compromise the integrity of the system and lead to movement under load.
- **Inspect the Frame for Deflection or Bending:** Look closely at the frame edges, especially where the units meet the joists. There should be no visible bending or warping when the system is unweighted. Any visible deflection could indicate that the joists are not supporting the load correctly.
- If deflection is observed when the system is weighted (e.g., when someone walks on it), check the underlying joist structure for adequate support and spacing.
- **Examine the Surface for Cracks or Scratches:** Ensure that the light-transmitting glass layer is free from cracks, chips, or significant scratches. These surface imperfections can compromise both the aesthetic and functional properties of the units, reducing energy efficiency and potentially causing safety hazards.

6.6. Joist and Fastener Check

- **Examine Joist Stability:** Inspect the joists beneath the system for signs of bending, warping, or movement when weight is applied. The joists should remain level and stable under the load of a person or other weighted object. If any bending occurs, you may need to reinforce or adjust the joists.
- **Check WPC Clips and Fasteners:** Ensure that the WPC clips securing the units to the joists are firmly in place and not showing signs of loosening. Loose clips or fasteners can cause the system to shift, which may lead to noises or compromised stability.
- **Inspect Pedestals and Spacer Blocks:** If adjustable decking pedestals are used, ensure that they remain at the correct height and haven't settled or shifted since installation. Spacer blocks should be evenly distributed and secure.

7. Troubleshooting guide

This troubleshooting guide will assist you in identifying and resolving faults within a series-connected batch of 6-10 Platio Solar Deck units, typically connected to a micro inverter. The process involves systematically isolating the faulty module by testing sections of the string.

7.1. Step 1: Preliminary Checks

1. Visual Inspection:
 - Ensure all connections are secure and free from any visible damage.
 - Check for any obvious signs of physical damage, dirt, or debris on the solar products.
2. Safety Precautions:
 - Ensure the system is disconnected before conducting any tests.
 - Use appropriate personal protective equipment (PPE) and follow all safety guidelines.

7.2. Step 2: Initial System Testing

1. Verify Inverter Operation:
 - Confirm that the micro inverter is operating correctly and receiving power.
 - Check if the inverter displays any error messages or abnormal readings. Please see microinverter manual for more details. Usually, error messages are displayed through LED blinking.
2. Measure String Voltage:

- Measure the output voltage of the entire string to determine if it is within the expected range.
- If the voltage is significantly lower than expected, proceed with the following steps to locate the fault.

7.3. Step 3: Isolating Faulty Module / Connector

1. Select a Module in the Middle:
 - Choose a module approximately in the middle of the 6-10-piece string (e.g., the 3rd or 5th module).
2. Test the Selected Module:
 - Disconnect the module from the string and measure its output voltage and current.
 - Do the same with the now two separate strings of Platio Solar Deck units.
 - This will determine whether the error is before or after the module in the string.

7.4. Step 4: Re-test the System

1. Reconnect the System:
 - Once the faulty module is repaired or replaced, reconnect all modules in the string.
 - Measure the overall string voltage and ensure it is within the expected range.
2. Check Inverter Output:
 - Verify that the micro inverter is now operating correctly without any error messages.
 - Measure the AC output from the inverter to ensure the system is functioning properly.
3. Final Inspection:
 - Perform a final visual inspection to ensure all connections are secure and there is no physical damage.
 - Clean any modules if necessary to ensure optimal performance.

7.5. Step 5: Document the Process

- Record the results of each test and the actions taken to resolve the issue.
- Note down the serial number or identifier of the faulty module for future reference.
- Ensure all documentation is up to date for maintenance and warranty purposes.

8. Cleaning and maintenance

8.1. Cleaning

Clean the surface using a high-pressure cleaner set to a low power level (around 1000 psi) with 65-degree spray and clean water. (Industrial-grade high-pressure cleaners can reach very high pressures, but this is unnecessary—use the lowest pressure setting, sometimes you can only do this by adjusting or changing the head.) Continuous use of high-pressure water cleaning may damage the products, which is not covered by the product warranty. Begin the cleaning at one side of the installation and move smoothly in the opposite direction with the high-pressure washer, keeping the spray head angled slightly away from the surface. The goal is to direct the dust in the direction you are moving.

Over time, the surfaces may become stained. To restore them, you can use a surface treatment agent like Bohle Surface Sealer Pro, following the manufacturer's instructions. Generally, apply the surface treatment

agent with a hand spray bottle during the cooler morning hours, and then wipe the surface dry with a cloth.

8.2. Best Practices for Snow Removal

Snow removal is only required when electrical energy production is needed, as the system cannot generate energy while covered with snow. It is not necessary to remove snow for technical reasons or to preserve the system's lifetime; if energy production is not needed, snow removal can be omitted. Note that Solar Deck units are constructed from glass and anodized aluminum, and cleaning of the field occurs at low temperatures when plastic materials are more rigid. Therefore, caution must be exercised during cleaning to prevent the risk of scratches.

If there is only a light dusting of snow, one of the easiest ways to clear your field is with a leaf blower. Never use metal or metal cutting-edge shovels or sharp-edge tools when removing snow or ice from your field. Even the most resilient surface could be scratched or gouged. Plastic, rubber-edged shovels or plastic/nylon bristled deck brooms should be used to easily remove snow from the field and will limit the risk of scratches to the surface.

An ice chipper — even a plastic one — should never be used on your Solar Deck field, at the risk of permanent damage.

An electric snow shovel, snow thrower or snow blower can be used to remove snow from the field by considering the load limit values of the Unit and the following conditions:

- Keep 2 cm clearance from the surface of the field, leaving a thin layer of snow on it that can be removed by a leaf-blower or plastic shovel.
- Used equipment must be installed with plastic or hard rubber paddles, augers, skids, and scraper bars only, metal parts that may get in contact with the surface of the field are not allowed.

To make the Solar Deck field less slippery, use sand or other mineral-based anti-slip agents as natural abrasive. Avoid ice melt with calcium chloride-based sodium chloride-based "ice melt" or with added colorant as these dyes can stain the glass or the composite part.

8.3. Maintenance

To lift and remove an individual unit for maintenance, start by removing the screws securing the WPC mounting clips. Once the screws are removed, use a narrow tool to carefully push the clips into another element or out of the installation if the unit in question is on the edge. This will release the securing mechanism, allowing the unit to be lifted from its position without disturbing the surrounding units. By following this method, any specific panel can be accessed and removed, enabling efficient maintenance or replacement without compromising the integrity of the overall installation.