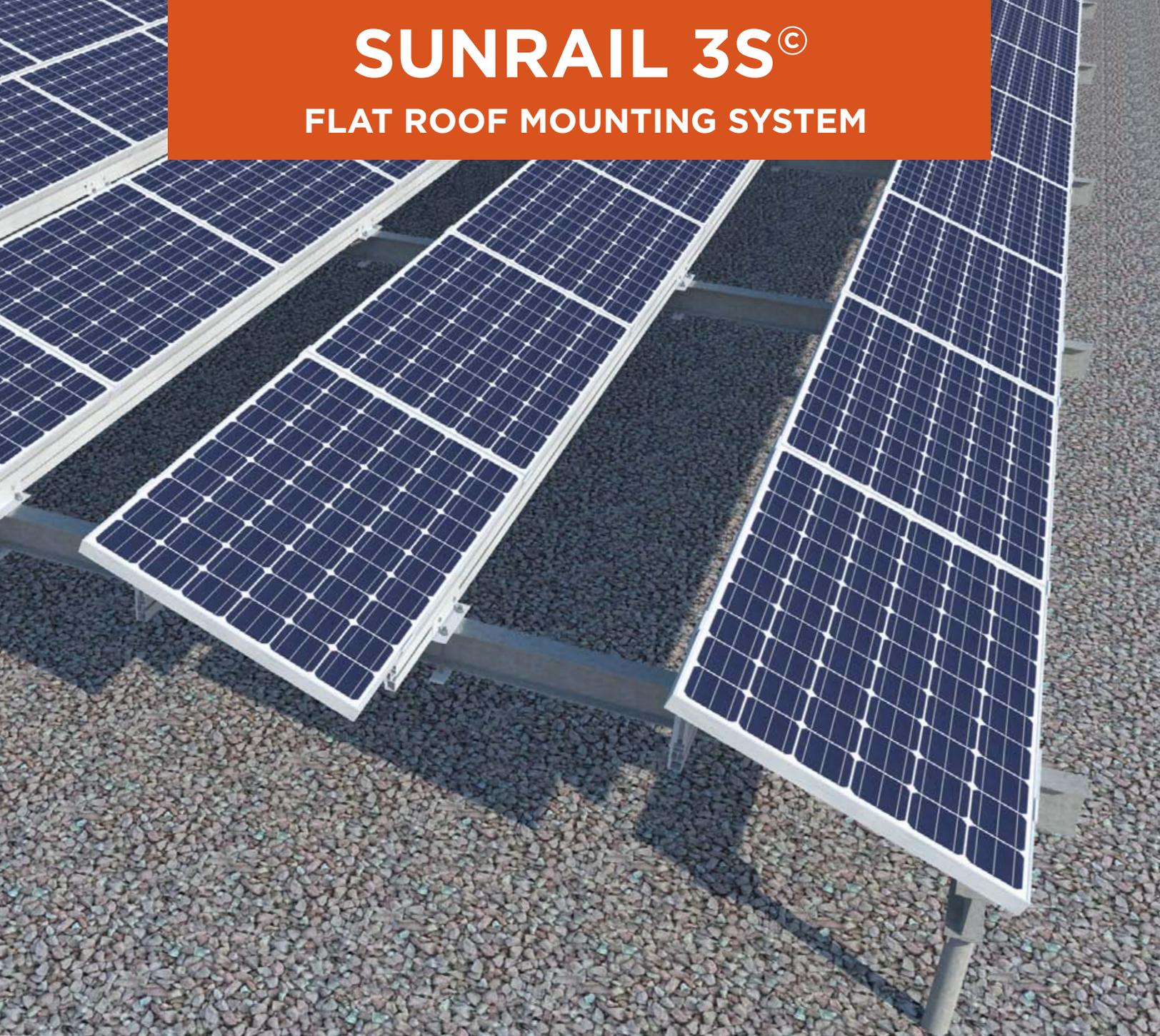
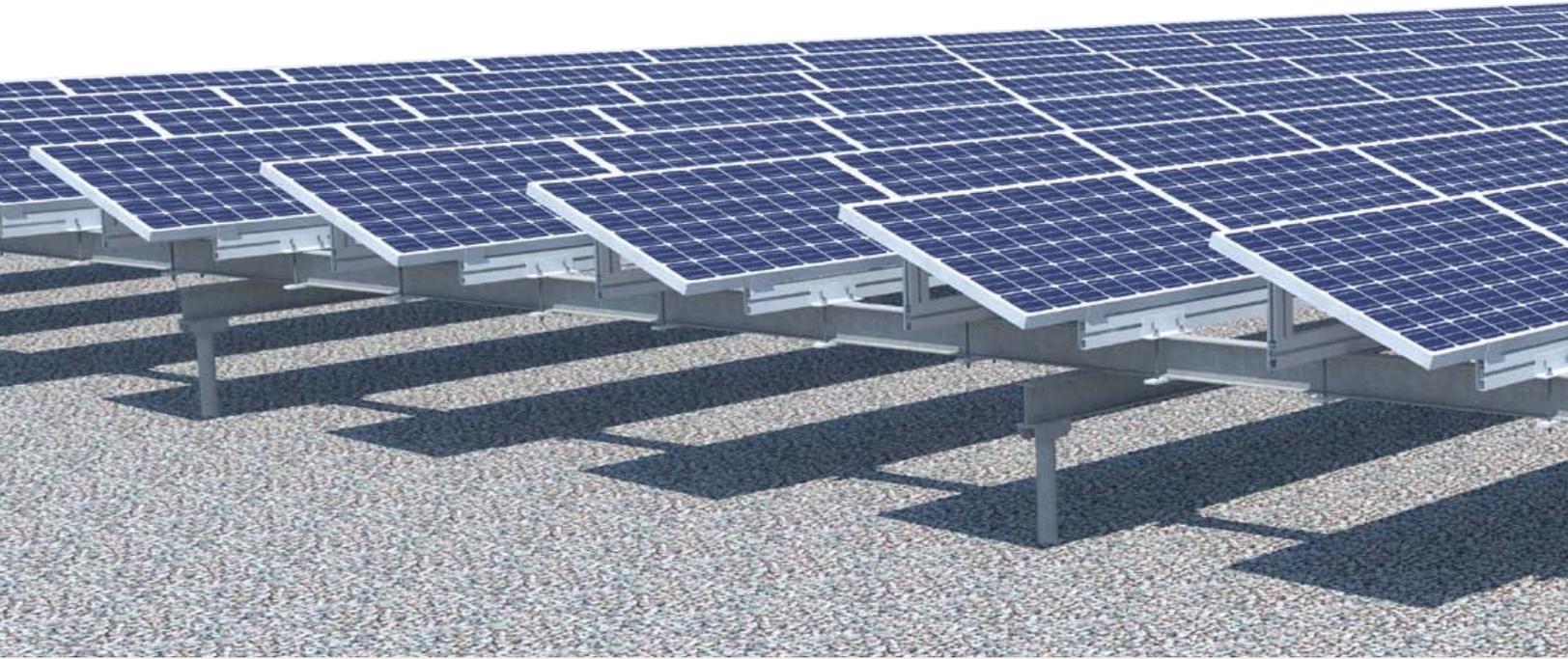


SUNRAIL 3S[®]

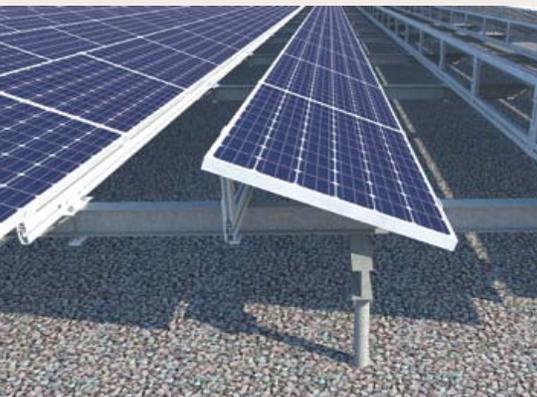
FLAT ROOF MOUNTING SYSTEM



SUNRAIL 3S[®] FLAT ROOF MOUNTING SYSTEM



COMPLETE SOLUTION



Perfect Fit

The SunRail 3S[®] (Super Steel Structure) is the perfect example of the flexibility you can achieve with the Opsun mounting system family.

The SunRail 3S[®] mounting system is specifically designed to fix itself to pre-existing structural steel beams (commonly known as “super structure” using I-beams / H-beams) on a flat roof surface.

Being ballast free, the SunRail 3S[®] is the perfect mounting system for regions with high wind areas.

Low or even zero load on roof.

SUNRAIL EXTRUSION



Only one extrusion does all

Opsun’s proprietary SunRail[®] extrusion composes the entire mounting system, giving contractors the same flexibility, on-site control and familiarity as wood construction beams.

Channels running along the full length of the rails leave a lot of room for adjustments in all axis.

The SunRail[®] rail is fully engineered to resist heavy snow and wind loads, as well as the passage of time.

Custom length pre-cut rails and stands and optional factory preassembly add convenience, reduce waste and minimize installation time.

WIND TUNNEL TESTED

- The SunRail 3S[®] flat roof mounting system is wind tunnel tested by a leading Ontario test facility.
- The SunRail Universal[®] mounting system is tested to minimize wind loads on roof.

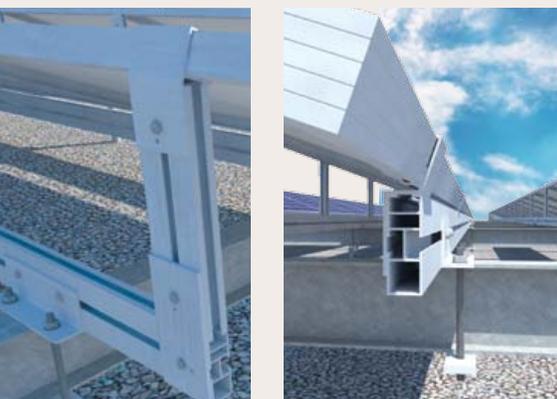
Opsun masters the element of wind

- Can resist heavy winds up to **150 MPH (241 km/h)**.
- Can be designed to be **hurricane-proof**.
- The SunRail 3S[®] flat roof mounting system’s load resistance is **verified by structural engineering** firms.

Conforms to most Building Codes.



STRUCTURAL SYSTEM



Structurally solid, engineered, elegant

The SunRail 3S® structural mounting system adapts to virtually any roof, constructing around obstacles a single, very solid structural system.

- Highest amount of aluminum per watt on the market.
- Long rails and structural design allows loads to be distributed on the whole surface of the system, eliminating risks of breakage.
- Uses very few pieces and aluminum rails, making SunRail 3S® mounting system one of the most simple on the market.

MINIMAL, FLEXIBLE AND INTELLIGENT



Flexible system design and layout

The innovative rail system allows complete freedom in design, allowing endless configurations for each project's specificities.

- The system can adapt to the most demanding structural situations : from old buildings to weakened roofs.
- Compatible with all different panel sizes.
- Wide range of tilt angles (0°-60°).
- Pitch between rows of panels, span between rails and elevation from roof are completely variable.
- Panels can easily be omitted from array to avoid roof obstacles without sacrificing the structural resistance of the system.

COMPLETE SOLUTION

Open array to reduce the operating temperature and allow easy movement throughout the system to facilitate snow clearing and electrical maintenance.

System conceals and protects electrical cabling in cavity along the side of the rails. Wire management solutions available.

Anodized aluminum available in clear, black or colour.

Plastic end caps are available as an option for a finished look.

Advanced grounding

WEEB-OSF grounding solution available.

Self-grounding solution available.

OPSUN CLICLOC[®]



SAVE MONEY AND TIME

Integrated grounding is the future. Opsun now has a fully custom ClicLoc that makes grounding a simple, easy task.

- **UL and CSA** approved
- **Clicks** on the rail and slides into place
- **Completely grounds** the panel to the rail
- **One piece** serves as both the clamp and the grounding solution
- **Fully tested** to be as strong as all other Opsun components
- **One tool** fixes into place
- **Requires less copper** conductor overall

OPSUN WEEBS ALSO AVAILABLE

The Opsun WEEB brings many benefits to a mounting system, while being low-cost:

- **UL and CSA** approved
- **Engineered** for outdoor use over long periods of time
- **Prevents** galvanic corrosion
- **Requires less copper** conductor overall
- **Easy to use**



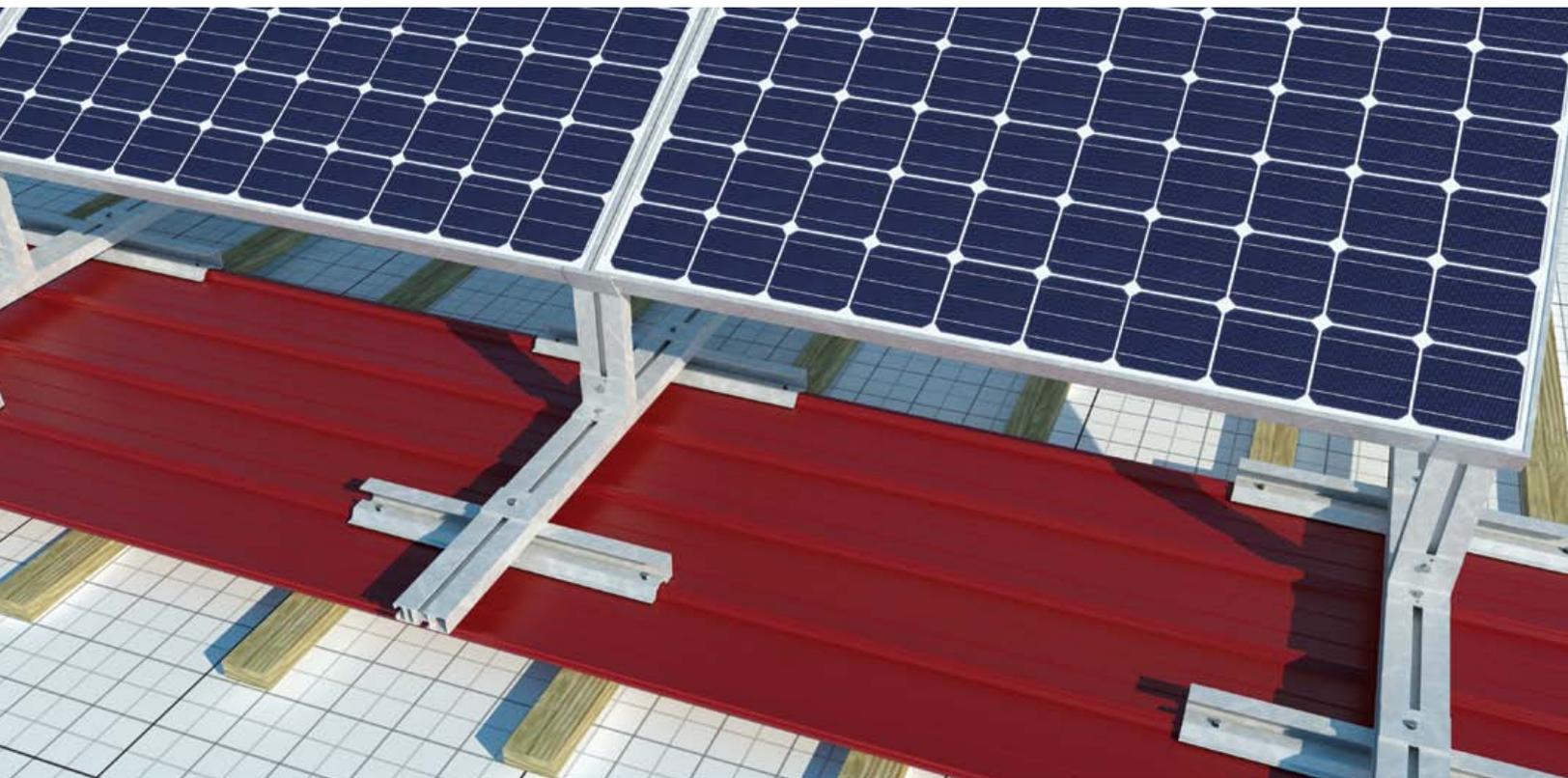
Project success with three simple steps.

1. Obtain full engineering support
2. Install solid, structural rails
3. Fasten panels with self grounding clamps

Accomplish reliable results fast and at a low cost

*ClicLoc is a Trademark from Fath PV Tech inc.

TOTAL ENGINEERING SUPPORT



FLEXIBLE DESIGN

Opsun does not only sell a product: each project is tailored to fit on the ground or on any structure perfectly. Optimal layout and configuration of the mounting system is determined by an engineer and a custom solution is proposed.

- **Engineers** are appointed to work on each design, customizing it to the needs of the client.
- **Electrical string design** can be done by our engineers to optimize electrical wiring.
- **Accurate configuration drawings** of the array are done and are supplied with each quote, assuring clear visual presentation of the custom design.

FULL ENGINEERING SUPPORT

Our engineers work extensively on each project to perform all the work required to certify that the system will meet any legal or engineering standards. Plans that Opsun supply are virtually the only ones required to construct a project.

- **Simulations and engineering calculations** are performed by engineers to verify the structural integrity of the system. Wind tunnel tests are used to validate that ballast calculation is compliant with the Building Code.
- **Supplied plans are ready for engineer stamping.** Opsun's plans contain almost every element required to obtain a building permit, streamlining the process, saving time and avoiding costs. Fully stamped plans can even be supplied upon request.
- **Project-specific technical drawings** with precise measurements to facilitate installation are supplied, reducing on-site costs, avoiding unexpected issues and limiting any risks to a minimum.
- Opsun's total service is a company vision, so its always **free!**

KNOWLEDGE IS POWER

Opsun's staff is comprised of solar energy experts. We can accompany any developer through the whole process of creating a solar power plant. Our team is skilled in:

- Rapid estimation of the PV potential of a site.
- 3D rendering for astonishing project presentations.
- PVSyst simulations and projections of electricity generation.
- Optimization of system efficiency.
- Geolocalization tools can be used to assess shading issues and to quickly determine building characteristics.
- Feasibility assesment.

TECHNICAL SOLUTIONS

Opsun's technological innovations are customer demand-driven. Opsun's well-developed solutions to structural challenges increase the range of feasible projects.

Ask us a custom solution, and we will design it for you!

Examples of specialized applications:

- Building Integrated Photovoltaics (BIPV).
- Tilt panels on a sloped roof.
- Installation of panels on a low-pitched East-West roof.
- Minimizing ballasting, but still avoid using anchors.

INSTALLATION SUPPORT

Opsun's engineering staff is expert on everything related to solar equipment and the installation of a solar power plant.

Call us and we will lend you a hand:

- Training of installation teams and maintenance staff.
- Coaching of early installations to ensure flawless execution.
- Expert, personalized phone support for technical assistance during installations to help resolve issues when they arise.