

SUNRAIL LITE CLASSIC[®]

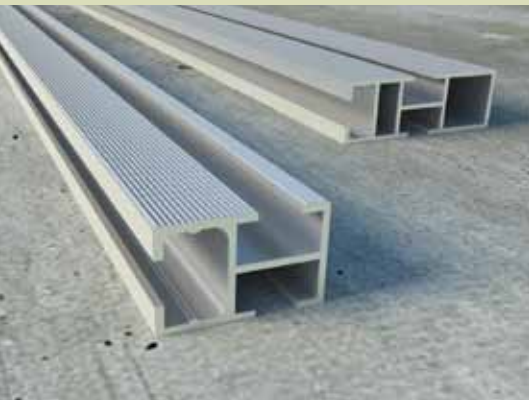
TILTED ROOF MOUNTING SYSTEM



SUNRAIL LITE ONE LAYER® TILTED ROOF MOUNTING SYSTEM



SUNRAIL LITE® EXTRUSION



Distinct, smaller extrusion

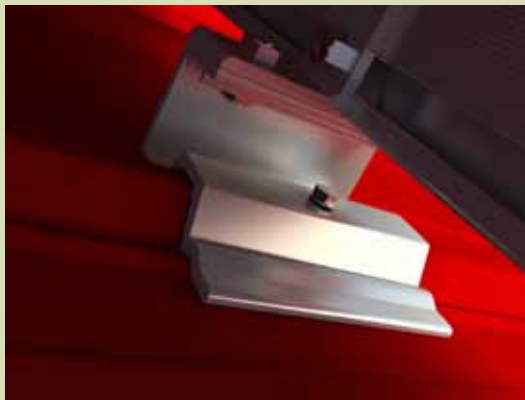
Opsun's proprietary SunRail Lite® extrusion composes the entire mounting system, giving contractors the same flexibility, on-site control and familiarity as wood construction beams.

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

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

*US Patent no. US 8387319 B1, and Canadian Patent no. CA 2751963.

PATENTED* SHEET METAL FIXTURE

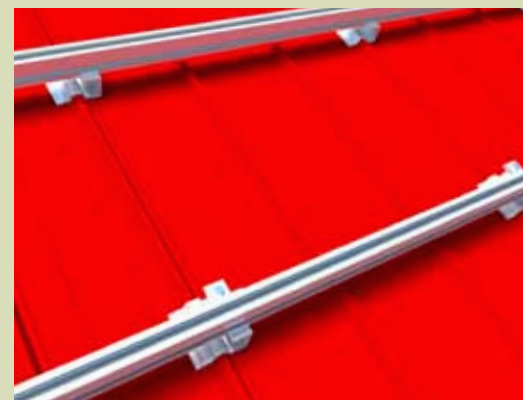


Patented* and tailored

To ensure maximum strength and roof sealing, Opsun provides patented* Sheet Metal Fixtures® that are extruded specifically to the shape of the sheet metal roof profile.

- The Opsun Sheet Metal Fixtures® can use existing screw holes on the ribs for fastening.
- The system's weight is distributed on the flat furring strips, diminishing stress on the screw and on the building structure.
- The fixture itself is designed to allow adjustments in all axis.
- Proper sealing on each Sheet Metal Fixture® is ensured by elevated screw hole and Opsun's adhesive membrane, or silicone caulking and self-sealing stainless steel washers with bonded EPDM rubber seals.

ENGINEERED SOLUTION



Wind tunnel tested

Data from wind tunnel tests and engineering calculations, in addition to the Building Code, help structural engineers determine the correct required amount of anchoring and streamline the stamping process.

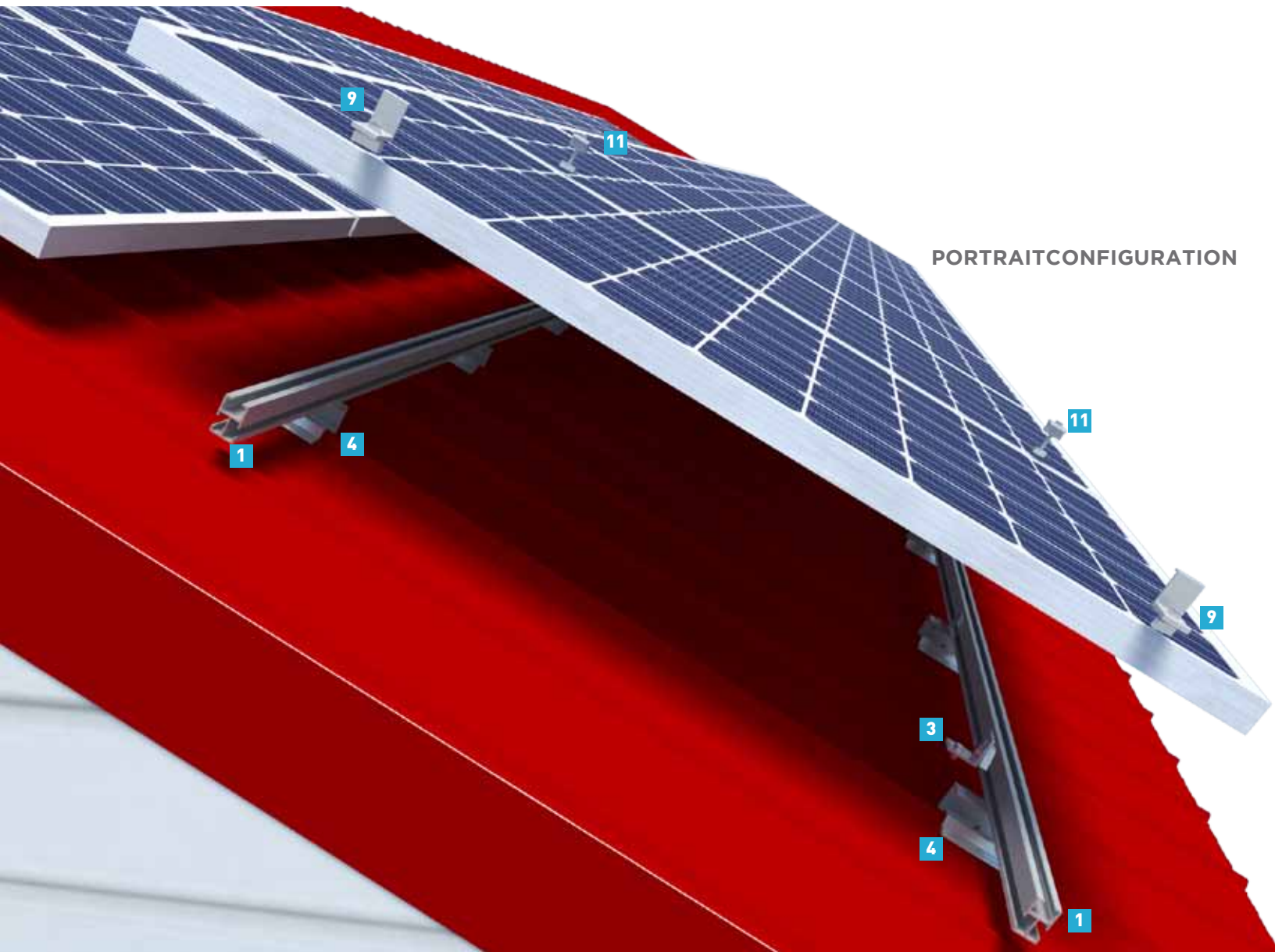
Fast, convenient assembly

One tool is sufficient for the whole installation. Clamps are fully engineered and strongly built, for fast installations that will not loosen in time.

Structural Integrity

Rails design creates a light-weight structure on the roof, minimizing structural stress and distributing point loads on all connected fixtures of a rail.

Conforms to most Building Codes.



PORTRAIT CONFIGURATION

SPECIFICATIONS

- Structural engineer stamped.
- Made in Ontario to meet OPA domestic content requirement.

Typical weight per surface: Mounting only: 2.61 kg/m² (0.53 lb/ft²)
With PV: 14.8 kg/m² (3.03 lb/ft²)

Rail weight: 1.335 kg per meter

Panel layout: Landscape or portrait

PV panel compatibility: Any panel with a 35-50mm frame

Maximum rail length: 24ft

Rail material: 6005-T5 aluminium with mill finish

Clamp material: 6005-T5 and 6061-T6 aluminium

Bolt material: Stainless steel

Finish: Mill finish or anodised (black or color)

Maximum wind load: 130mph

Panel height from roof : 8.5" air gap

Contact Surface: Patented roof fixtures* are installed with adhesive membrane

Required Tools

- 9/16 socket wrench
- Impact drill
- 5/16 socket wrench for drill
- Number 19 drill bit
- Heavy duty cutter
- Trestles
- Chopsaw with aluminum blade

*US Patent US8387319

COMPONENT LIST



OPSUN SUNRAIL LITE™

All ordered clamps come with their respective bolts and locks.
 Roof fixtures come with pre-applied adhesive membrane.

| | | | | | |
|-----------|--------------------|--|-----------|--------------------|--|
| 1 | SRL-18ft | SRL (SunRail Lite) extrusion | 11 | SRL-UC2 | U-clamp; type 2 |
| 2 | SRL-CC-A1 | SRL corner clamp; Assembly 1 | 12 | SRL-UC1 | U-clamp; type 1 |
| 3 | SRL-CC-A2 | SRL corner clamp; Assembly 2 | 13 | SRL-RL5 | SRL rail link; type 5 |
| 4 | SRL-SMC1 | Sheet metal fixture; type 1 | 14 | SDS-SS-12-1 | Stainless self drilling screw 12-1" |
| 5 | SRL-SMC2 | Sheet metal fixture; type 2 | 15 | LB-SS-1/4-3 | Lag bolt with self-sealing washer |
| 6 | SRL-SMC3 | Sheet metal fixture; type 3 | 16 | BL-SS-0.75 | Stainless steel 3/4" bolt with Loctite |
| 7 | SRL-SMC4 | Sheet metal fixture; type 4 | 17 | BL-SS-2.5 | Stainless steel 2-1/2" bolt with Loctite |
| 8 | SRL-SMC5 | Sheet metal fixture; type 5 | 18 | LN1-JS | JS500 lock nut |
| 9 | SRL-ZC50-ER | Z-clamp End-row (38, 40, 42, 45 or 50mm) | 19 | OPS-M | Opsun Sealing Membrane |
| 10 | SRL-ZC50 | Z-clamp (38, 40, 42, 45 or 50mm) | 20 | WCC | Wiley cable clip |

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**



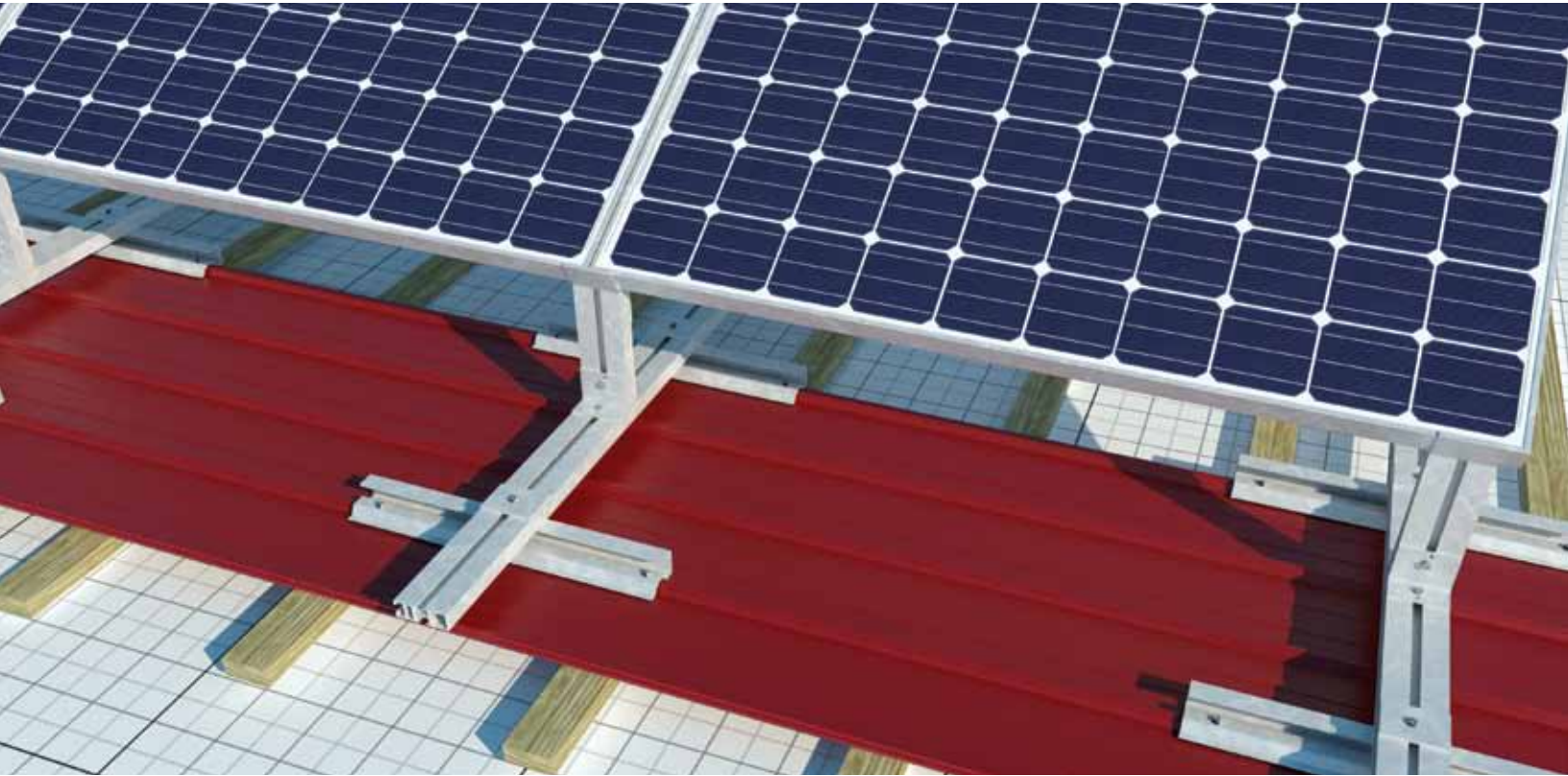
Project success with three simple steps.

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.