QuadraSola

Solar Reinvented.
No Glass, More Power.
Unlimited Potential.

TECHNOLOGY OVERVIEW

Introducing Solar Structural Insulated Panels (SSIPs)

A Solar Structural Insulated Panel, or SSIP, is a revolutionary building material that combines two important functions into one: it provides structural support for walls, roofs, and other parts of a building, while also generating solar energy. Imagine your walls or roof not just holding up your house but also acting as a built-in solar panel to produce clean, renewable energy.

Here's how it works:

- Each panel has a tough, lightweight fiberglass outer layer and an energy-efficient foam core for insulation.
- Solar cells are seamlessly integrated into the panel, so there's no need for separate solar panels on your roof.

This means that SSIPs make buildings stronger, more energy-efficient, and capable of producing their own electricity—all in a single product. Whether it's a home, a school, a shelter, or even a small business, SSIPs are changing how we think about construction and energy.

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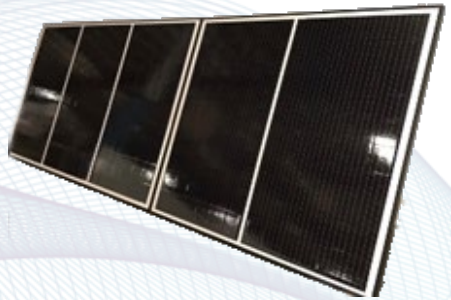
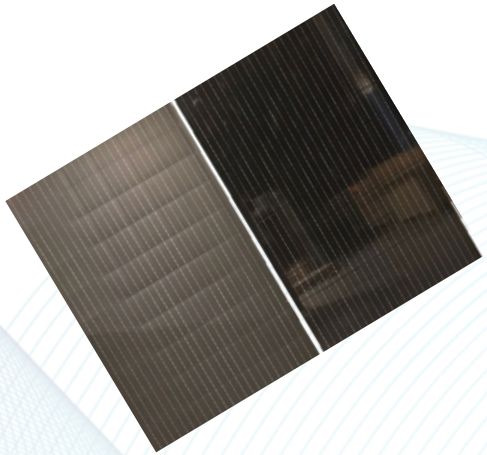
A Product that is Built to Last

- **SSIPs** consist of fiberglass skin and 2.5lb EPS foam, designed to last for decades.
- **SSIPs** systems significantly reduce, construction and future operating costs, including up to a **60%** reduction in heating and cooling costs.
- **SSIPs** are resistant to common environmental impact from rain, wind, snow temperature, fungi, and termites
- **SSIPs** are also Class A fire retardant, with a one-hour fire rating

After years of developing a unique top-coat and resin substrate for solar panels, our no-glass, light weight solar technology and fabrication system has exponential marketplace applications where traditional heavy glass solar panels are not limited.





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No-Glass Light Weight Solar Technology

1. **Integrated Solar Building Materials:** SSIPs revolutionise construction by embedding “no-glass” solar panels directly into the roof and walls, turning the structure itself into a powerful energy generator.
2. **Enhanced Thermal Performance:** The high-density EPS core increases insulation (R-value), delivering superior energy efficiency and reducing heating and cooling costs.
3. **Lightweight Construction:** SSIPs are up to 66% lighter than traditional systems, simplifying transportation, reducing structural load, and making handling more convenient.
4. **Higher Energy Output:** Advanced technology ensures SSIPs generate 3% more energy per square meter compared to traditional glass solar panels, maximising power output.
5. **Effortless Installation:** Lightweight and integrated design eliminates the need for heavy racking systems, streamlining installation and lowering labour costs.
6. **Minimal Support Infrastructure Required:** SSIPs require little to no traditional racking, saving additional costs and making them adaptable to diverse project needs
7. **Durability You Can Trust:** Unlike fragile glass panels, SSIPs are highly resistant to impact, breakage, and environmental stresses, offering unmatched reliability over time
8. **Customisable for Every Need:** SSIPs are scalable and available in custom sizes, ensuring compatibility with unique designs and applications without being confined to standard dimensions**:**

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Our Technology versus Traditional Glass Panels

Feature	No Glass Technology	Traditional Glass Panels
Design Integration	Solar panels seamlessly integrated into the roof and walls of SSIPs, making the structure itself a solar panel.	Installed as standalone units on rooftops, requiring additional mounting systems.
Thermal Performance	High-density EPS core adds significant thermal insulation (R-value), reducing heating and cooling costs by up to 60%.	Offers no insulation value, contributing nothing to the building's energy efficiency.
Weight	Up to 66% lighter than traditional glass panels, reducing transportation costs and easy installation	Heavy and cumbersome, increasing transport costs and structural load.
Energy Efficiency	Generates 3% more energy per square meter due to advanced IBC solar cell technology and better heat dissipation.	Bus-bar technology reduces efficiency, with hotspots affecting performance over time.
Durability	Highly impact-resistant, resistant to shattering, cracking, or environmental stress.	Fragile and prone to shattering during transport or upon impact.
Degradation Rate	Degradation rate: 0.005% over 20 years—best in class.	Degradation rate: 0.5% over 20 years, reducing output.
Installation	Requires little to no racking systems, simplifying installation and lowering costs.	Requires traditional racking systems, increasing installation time and expenses.
Customisation	Fully scalable and customisable sizes for various applications, including non-standard designs.	Limited to standardised panel sizes, reducing flexibility in applications.
Environmental Collaboration	Developed through Canadian and European collaboration, leveraging cutting-edge solar technology and advanced materials.	Based on older designs with limited adaptability.
Additional Building Benefits	Enhances energy efficiency, contributing to building resilience with integrated solar generation.	Adds no value to the building's structure beyond energy generation.
Fragility	Durable, highly resistant to damage during transport and installation.	Glass is prone to damage, increasing maintenance and replacement costs.

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Product Specifications

- Constructed from Fiberglass Reinforced Fire Retardant Structural Insulated Panel or FRSIP.
- Creates wall/floor panels of ultra-high energy efficiency to minimise energy consumption in low cost, rapid erection building/housing units.
- Panel consists of a thin fiberglass skin used to encase and expanded polystyrene insulation core.
- 40% lighter than a rough traditional panel and up to 70% lighter than a finished traditional panel.
- Available in standard thicknesses of 1, 4, and 6 inches, custom up to 12 inches are available.
- Section dimensions up to 40 feet in length and up to 10 feet in width.

Table 1 Test Results

Description		Load	
		Ultimate	Average
Transverse Load	1	330.8	335.2 psf
	2	334.5	
	3	340.2	
Racking Shear Load	1	5,000	5921 lbs
	2	6,098	
	3	6,664	
Axial Load	1	18,000	14,767 lbs
	2	14,300	
	3	12,000	

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Product Applications

Limitless Possibilities: We can design and build virtually any structure, seamlessly combining our proprietary Structural Insulated Panels with the revolutionary Solar Structural Insulated Panels for unmatched versatility and sustainability

Solar-Powered Fiberglass SIP Homes & ADUs Create scalable, durable, and functional living spaces fully integrated with solar technology for energy independence and sustainability.

Flat-Packed Emergency Shelters Rapidly deployable shelters, erected in minutes, offering durable accommodations for 2-8 people, equipped with solar power for lighting and essential needs.

Compact and Specialty Structures Ideal for tiny homes, mining shelters, telecommunications shelters, and other rapid deployment scenarios where speed and resilience are critical.

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Off-Grid Agricultural Facilities Design controlled growing environments powered entirely by integrated solar panels, ensuring efficiency and sustainability for remote or rural applications.

Community and Educational Structures Build small businesses, cold storage units, school classrooms, and community buildings, with on-site solar power to lower operating costs and carbon footprints.

Solar-Enabled Wagons, Trailers, and EV Charging Stations Equip mobile structures like powered wagons and trailers with durable solar panels to support off-grid operations, including EV charging, refrigeration, or remote workspace functionality.

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The QuadraSola Team

Solagenica TECHNOLOGIES INC.	**Solagenica** Experts in solar technology and renewable energy solutions, ensuring SSIPs deliver maximum efficiency and performance.
OCTES	**Octes** Leaders in emissions-negative solutions and energy transition, ensuring that QuadraSola's innovations contribute to effective decarbonisation and carbon offset strategies.
GreenRen Power	**GreenRen Power** At the forefront of renewable energy projects, GreenRen is committed to creating energy solutions that are both environmentally friendly and economically viable.
DECON CORPORATION	**Decon Corporation** A leading manufacturer of electrical switchboards, clean energy solutions, and power generation systems, Decon is at the heart of SSIP production in Scoresby, Victoria.

Fun Fact: The name 'QuadraSola' is derived from the 'quad'—representing the four founding partner companies that make up this innovative collaboration.

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