Westmont (16.4 MW) - San Pedro, CA

BREAKTHROUGH SOLAR FLAT ROOF TECHNOLOGY

Safe, Simple, Extreme Performance

INVENTED TO MEET PROPERTY OWNER AND LOS ANGELES CITY STANDARDS

SolarStrap™ is a natural choice for thousands of commercial buildings, providing a great opportunity for rooftop solar that makes a huge impact on the environment.

PermaCity and SolarStrap delivered to Los Angeles the world's most powerful solar roof in 2017, generating 45 percent more power over its system life than standard modules and roof mounting—while powering 5,000 Los Angeles homes. We are delighted to share our know-how and supply our technology to your projects.

Until now, it was nearly impossible to deploy solar solutions that would satisfy property owners while meeting local building and safety regulations. Solar installations must comply with wind and earthquake requirements, be suitable for very lightly constructed roofs, and withstand building thermal expansion and contraction. And they have to accommodate the Southland's heavy intermittent rains that exceeded four inches in one day in 2017.

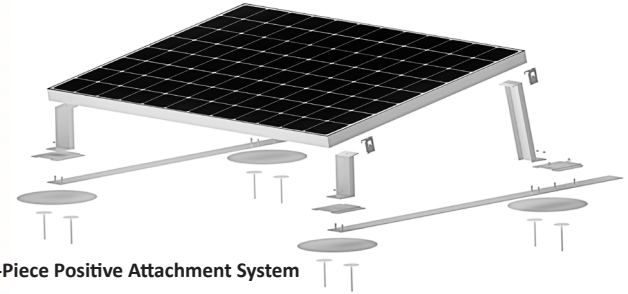
"Westmont Solar Energy Project is strong evidence of our commitment to a sustainable future."
- Eric Garcetti, Los Angeles Mayor

People love solar, but no one wants to risk roof damage with a heavy ballasted or penetrating installation. So PermaCity invented a unique technology that lets us build without a single roof penetration or ballast block. It's called SolarStrap, and it's unlike any other solar mounting solution on the market.

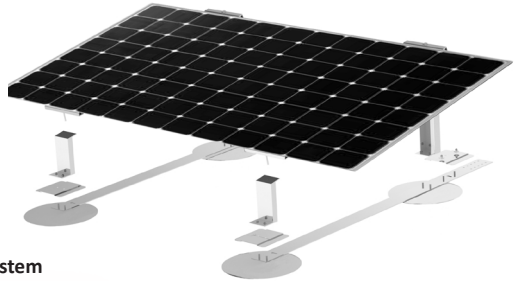
SolarStrap is a racking system that sits gently on your roof with a downforce of only 2.0 psf. For most new roofs, it never penetrates your building—and requires no heavy mounting structures that stress your roof. Its innovative, patented design employs heat sealing technology to secure the framework to the roof, enabling fast installation with minimal tools.

Designed and built in the U.S.A., the SolarStrap is pre-assembled to help installation and labor costs. It's compatible with most solar modules, and accommodates roof pitches ranging from zero to 15 degrees.

"Local solar systems are like mini power plants that generate power right where it is being used, saving on transmission costs and taking advantage of the city's abundant sunshine to help meet electrical demand." - David Wright, LADWP General Manager



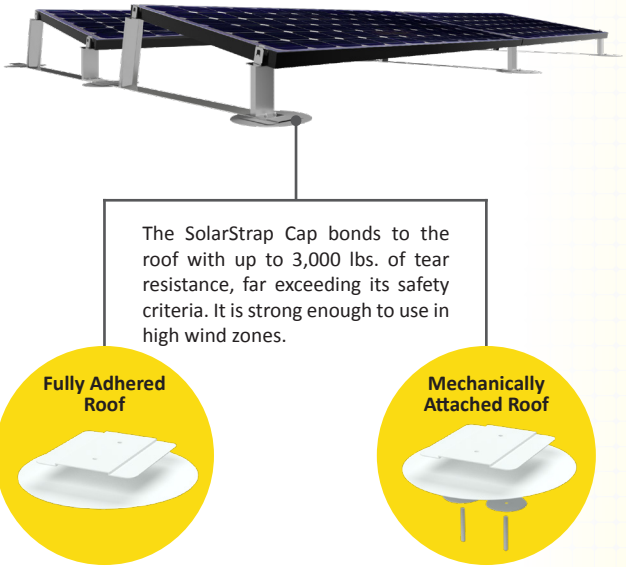
3-Piece Positive Attachment System



Frameless System

SOLARSTRAP: CHANGING THE WAY WE THINK ABOUT SOLAR ON THE ROOF

BREAKTHROUGH TECHNOLOGY FOR MEMBRANE ROOFS



"SolarStrap is a game changer for commercial solar installations."
- Joseph Desmond, Former California Energy Commission Chair

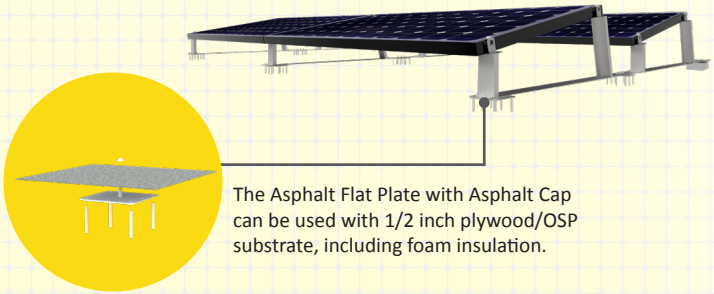
SolarStrap provides a universal technology that's suitable for flat roofs of all sizes—whether you're deploying one module or 60,000. It's specifically designed for modern roofs, and it doesn't depend on ballast and seismic anchors that aren't suitable for lightweight materials. Instead, our patented connection "Cap" on membrane roofs secures each installation without penetrations that cause leaks.

OUR TECHNOLOGY IS ICC APPROVED AND UL CERTIFIED

PermaCity applies its own proprietary International Code Council (ICC) test criteria to SolarStrap installations, making building permits fast and simple. We ensure that our system clears maximum uplift forces and naturally provides extreme safety for earthquake bracing.
Our installations comply with International Code Council (ICC) to a minimum safety factor of five. This means that we test our system to withstand five times the maximum expected wind and earthquake pressure. The result is a uniquely strong yet flexible solar deployment that actually helps protect the roof and maintain its warranty.

Designed for tough conditions, SolarStrap is also suitable for all types of asphalt roofs and can be installed in minutes with no wasted parts. For asphalt roof installations, we employ a flat stanchion instead of the Cap and Tie to secure the solar panels. This approach is ideal for asphalt roof materials that are not as strong as membrane roofs. The flat stanchion screws into the roof membrane, providing high safety thanks to SolarStrap's trusted design.

The Cap sheet is then heat welded over the stanchion, bonding with the roof. Screws are fully covered and bonded to the roof to eliminate leakage, streamline permit processes, and minimize owner concerns.



The Asphalt Flat Plate with Asphalt Cap can be used with 1/2 inch plywood/OSP substrate, including foam insulation.

STABLE YET GENTLE FOR ASPHALT ROOFS

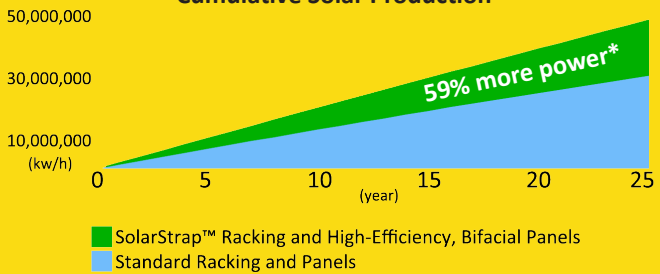
Crafted (1.2 MW) - San Pedro, CA

Dynamic Spectrum (786 kW) - Los Angeles, CA

GENERATING MORE POWER THAN ANY OTHER MOUNTING SYSTEM

Only SolarStrap provides for full harvest of rooftop energy: modules are kept cool from thermally assisted aeration, a higher tilt than ballasted systems, unencumbered bifacial reflected sunlight, and a Class A Fire Rating.

100 k SF Roof, Southern California
Cumulative Solar Production



*SolarStrap and high-efficiency, bifacial panels produce 51% more power at Year 1 and 59% more power over a 25-year term (based on PVsyst comparative analysis) when compared to standard racking and panels. Because SolarStrap does not require a wind deflector, more air and light can flow beneath panels, reducing heat loss and increasing albedo gain.

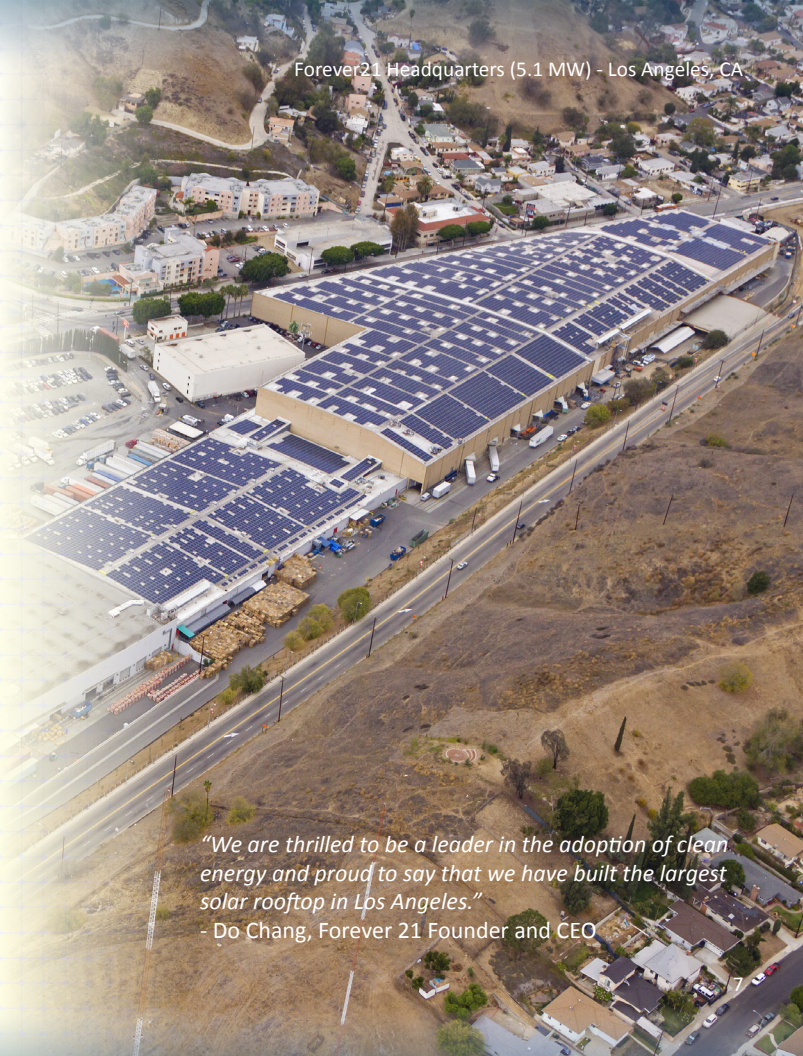
Since 2003, PermaCity has been a leader in solar innovation across the United States. We have maintained steady growth, with more than 8 million square feet and 70 MW of installed roof projects. Our SolarStrap product works seamlessly with leading roof products while yielding world record performance. It's also labor friendly. Unions are being trained in SolarStrap, creating a large, skilled, highly efficient local labor force.

At the heart of our company is our culture of experience, execution, and delivery. Our dedicated local teams of engineers work closely with veteran project managers. Together, we deliver superior results on complex projects.

Our CEO Jonathan Port invented SolarStrap to solve the solar-roof integration problem. He is an expert in sustainable development and serves as a Board Member and Co-Chairman of the Los Angeles Business Council, and for the City of Los Angeles as a Board Member of the Work Investment Board, the largest in the United States.

Our dedication is to a carbon-free economy for all to benefit.

LEADERS IN QUALITY AND INNOVATION



Forever21 Headquarters (5.1 MW) - Los Angeles, CA

"We are thrilled to be a leader in the adoption of clean energy and proud to say that we have built the largest solar rooftop in Los Angeles."
- Do Chang, Forever 21 Founder and CEO

SolarStrap™
Patented

TECHNICAL SPECIFICATIONS

Material	Aluminium, Stainless Steel, Polymer
Array Weight (with panels)	1.4 - 2.0 lbs./s.f.
Wind Loading	150 MPH
Seismic	All classification
Ground Plane	Up to 360 modules
Warranty	20 years material defects

The SolarStrap™ roof attachment system offers a revolutionary advancement in mounting technology for PV system on flat roofs.
The SolarStrap™ requires neither penetrations nor ballasts, while being both easy to install and attractively priced. A proprietary design employs heat sealing technology to secure the framework to the roof and allows for rapid installation with minimal tools. The system hardware is also available coupled with design and installation services.

CERTIFICATIONS

UL2703 Certificate of Compliance	20140820 – E356152
LADBS (Structural)	RR No. 26108
UL1703	Class A fire rating Type 1, Type 2, Type 3 modules
ICCESR	3839 SolarStrap™ Attachment System CBC, OSHPD, DSA

COMPLIES WITH

ICC Test Criteria	AC 467*
SEAOC PV-1	Guidance for seismic loading
SEAOC PV-2	Guidance for wind tunnel tested arrays
SEAOC PV-2 and ASCE 7	Wind Tunnel Tested in L.A. City-Approved Test Facility
RWDI Report#	1803163

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