

Replace your roof shingles with our system and start saving on electricity bills today!

CHE Solar Roof

Founded in 2016, CHE is the exclusive Canadian partner of IRFTS, now part of Edilians Group, and Europe's leading building integrated solar-PV (BIPV) provider.

Simple Solar is an experienced solar solutions company with an impressive portfolio of successfully completed projects.

Your CHE Solar Roof will generate ~1,200k kilowatts-hour (kWh) of clean electricity per year for every kW of installed capacity (South-facing orientation - Calgary, AB).

Visit us at:

www.chepowerstructures.com
for a free estimate.

Claim your \$5,000 grant and apply for a zero-interest loan from the federal government.

Visit Canada Greener Homes Grant at:

<https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-initiative/canada-greener-homes-grant/canada-greener-homes-grant/23441>

Visit Canada Greener Homes Loan at:

<https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-initiative/canada-greener-homes-loan/24286>





Adjustable frames that can accommodate different PV-panel sizes.



Parts act independently to ensure WATERTIGHTNESS and MECHANICAL function.

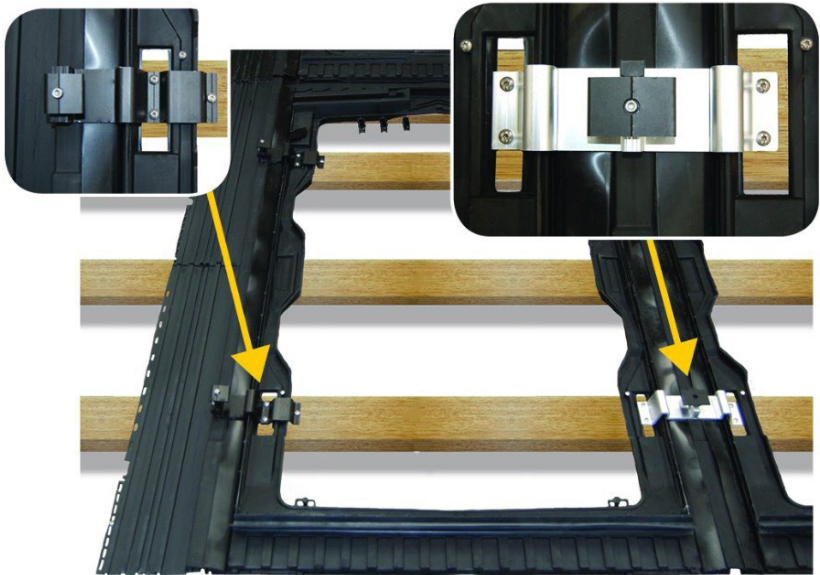
Universal Fixing parts



Watertightness guaranteed



This is achieved by keeping the thermal expansion unlocked.

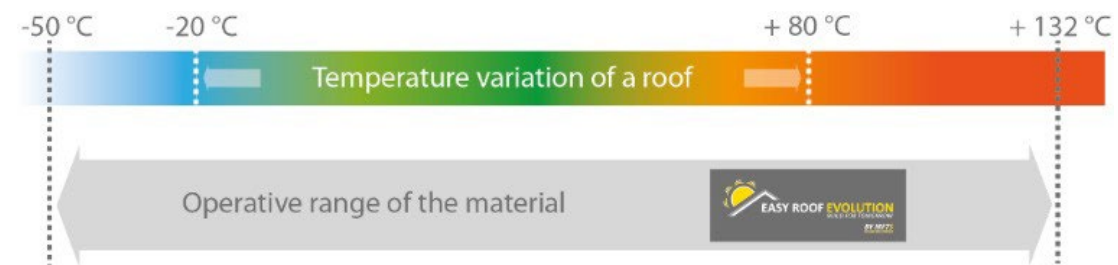


durability



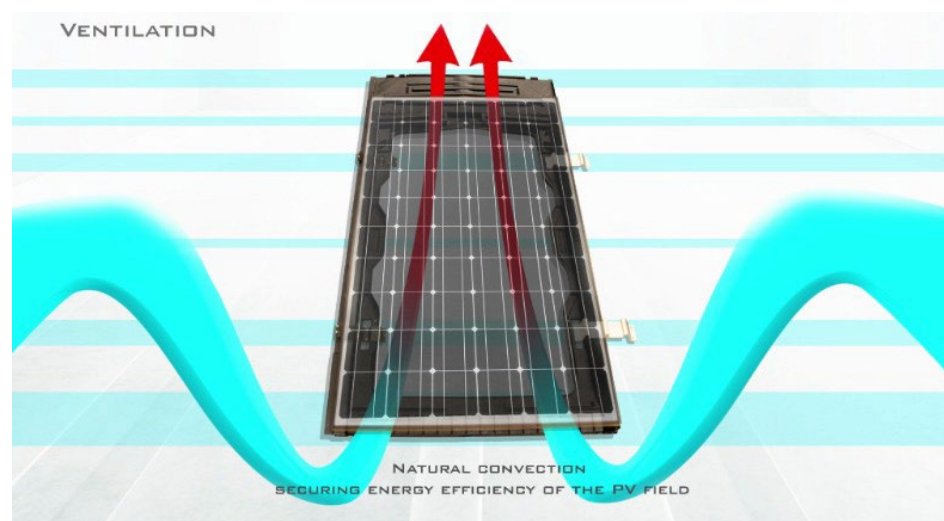
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A highly resistant material



Optimised ventilation

EASY ROOF EVOLUTION is fully ventilated to maximize the efficiency of the solar-PV array.



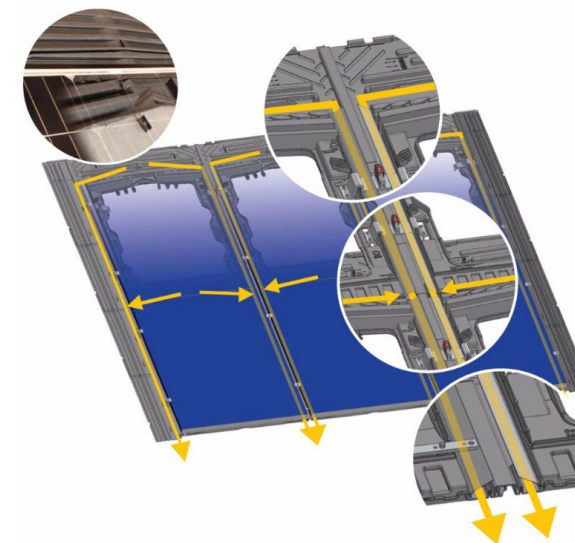
reliability



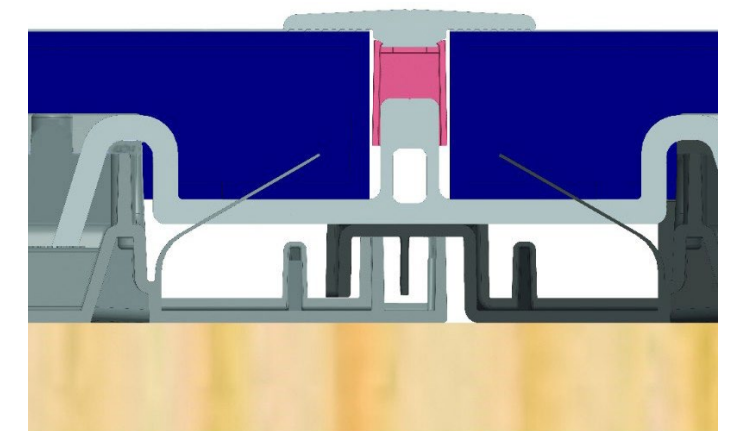
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POWER STRUCTURES

Rainwater management

Walls and water channels provide perfect water drainage for highest levels of rainwater.

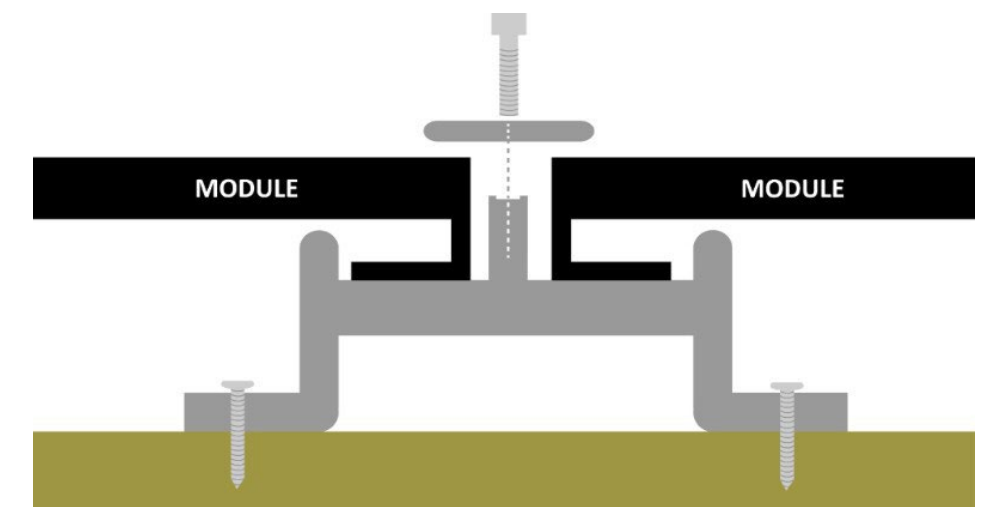


Unequalled interlocking and overlapping frameworks provide 100% watertightness.



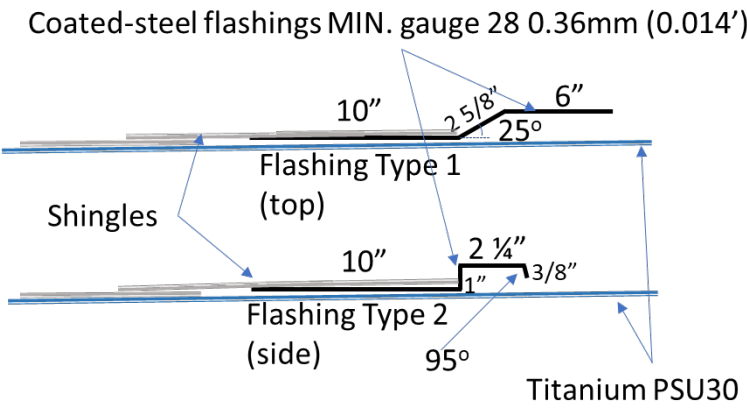
Ease of maintenance

Each solar-PV module is interchangeable throughout the life of the installation without upsetting or removing the strong aluminum brackets.



System Technical Requirements

- The CHE BIPV system must be installed on a roof deck sheathed with plywood/OSB (Oriented Strand Board) with a minimum thickness of 9mm (3/8”). A thickness of 12-15mm (1/2”- 5/8”) is preferred.
- The distributed load of the CHE BIPV system is 0.1915kPa (4lb/ft²).
- The maximum point load of the system is 0.0445kN (10lb).
- The permitted roof pitch is between 10 and 50°.
- The roof surface must be protected by non-slippery, peel & stick, self-healing underlayment Titanium PSU30, or similar.
- Steel-coated flashings must be installed on the top and on both sides of the system. (min. gauge 28, 0.014’, or 0.36mm). See images below.



Snow and Wind Load Compliance

In Canada, the CHE BIPV system must be mechanically attached to the roofing deck by six (6) brackets per frame/solar-PV module and must use locking bars parallel to the slope of the roof and snow deflectors installed perpendicular to the slope of the roof.

When fully locked in place with solar-PV modules, the IRFTS Easy Roof Evolution system can withstand a snow load of between 3.0 and 7.5kPa (from most unfavourable to most favourable bracket location).

Example based on NBC 2015 for Vancouver, BC:

For the ultimate snow load of 2.7kPa and using the average system capacity of 5.25kPa yields 5.25kPa>2.7kPa and a resulting in an average safety factor of 1.94.

When fully locked in place with solar-PV modules, the IRFTS Roof Evolution system can withstand a wind load [downward (+) / uplift (-)] of between 3.8 and 9.75kPa (from most unfavourable to most favourable bracket location).

Example based on NBC 2015 for Vancouver, BC:

For the ultimate wind load of 1.0kPa and using the average system capacity of 6.8kPa yields 6.78Pa>1.0kPa and the resulting in an average safety factor of 6.8.

Extensive testing has been undertaken by IRFTS to confirm the strength of the support bracket connection to the underlying roof deck. The table below shows the ultimate downward (snow/wind) and upward (wind) resistance of individual bracket connections to the roof deck.

Roof Deck		Ultimate Downward Force on the Most Susceptible Bracket Before Failure (kPa)	Ultimate Upward Force on the Most Susceptible Bracket Before Failure (kPa)
OSB	9mm	3.00	3.86
	12mm	3.17	6.29
	15mm	3.32	6.80
Plywood	9mm	3.74	5.89
	12mm	5.80	7.63

	15mm	7.57	9.75
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Modern PV modules are made with strong anodized aluminum alloys and impact-resistant 3mm clear glass and are designed for 5.0kPa snow loads and a 2.5kPa wind loads. PV modules sold in North America are tested against hail in accordance with UL 1703 and UL 61703 standards. Lab technicians drop a two-inch (50mm) solid steel sphere from a height of 51 inches (1295mm) onto the surface of the PV module, the energy equivalent of a hail stone measured at one inch and three-eighths in diameter (35mm) falling at terminal velocity through the sky.

Warranties

- Titanium PSU 30 roofing underlayment: Lifetime limited warranty
- IRFTS Easy Roof Evolution PV support frames: 10 years
- PV modules (materials and workmanship): 10 years
- PV modules (linear performance warranty): 25 years

Product Certifications

Product	Manufacturer/Model	Certification
Roof Underlayment	Titanium PSU30	ASTM D1970, ICC ES, ASTM E108, CAN/CSA A220.1
PV Support Frames	IRFTS Easy Roof Evolution	ANSI/UL2703. TÜV Rheinland, MCS012, Avis Technique N° 21/14-48 V4, BRE and Green Book Line
PV Module (*shown as an example*)	Canadian Solar HiDM High Density Mono Perc Module Perc 320W ~ 345W CS1H	IEC 61215 / IEC 61730: VDE / CE / MCS / JET / INMETRO UL 1703 / IEC 61215 performance: CEC listed (US) / FSEC (US Florida) UL 1703: CSA / IEC 61701 ED2: VDE / IEC 62716: VDE UNI 9177 Reaction to Fire: Class 1 / Take-e-way.

CHE BIPV System - CSA/UL Compliance Tests by Intertek Labs

Test	Standard	Result
Bonding Path Resistance Test	UL 2703 Ed. 1	Pass
Humidity Freeze Test	UL 2703 Ed. 1	Pass
Bonding Conductor Test	UL 2703 Ed. 1	Pass
Mechanical Load Test	CSA LTR AE-001:2012	Pass
Fire Test	UL 2703 Ed. 1	Pass

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www.chepowerstructures.com
www.simplesolar.ca

Performance and Installation Videos:

<https://youtu.be/dtHDKewrxQo>

<https://youtu.be/eQIPIAdRlEA>

<https://youtu.be/5bFC4lbSOGs>

<https://youtu.be/uVK5FOcKY2U>

https://youtu.be/c_ModzV4jcc

<https://youtu.be/EVRY0aXSsZg>

