

SolarWall® PV/T Solar Air Heating & Electricity

SolarWall® PV/T™ system at the LEED® Silver John Molson School of Business at Concordia University in Montreal



A Total Energy Solution

SolarWall® PV/T™ cogeneration system produces both heated air & electricity. It combines the high-efficiency SolarWall® air heating technology with photovoltaics to create a total energy solution with a payback period that is substantially less than a typical PV installation.

A PV/T system will generate 200-300% more energy (in the form of heat and electricity) than a standalone PV system. The patented combination of the two solar technologies in one footprint offsets both heating and electricity costs, and addresses the two main energy requirements in the building sector. This helps to reduce operating costs and maximize CO₂ displacement.

Features & Advantages

- Accelerates PV system ROI
- Cools the PV cells to reduce heat-related energy drop in output
Performance gain up to 10%
- Captures PV heat energy for ventilation heating
- PV/T system has a total operating efficiency above 50%
- Maximizes usable roof space
- Huge reduction in CO₂ emissions

PV/T Value Proposition

Technology	Watt / m ²
PV Electrical Output	100 Watts/m ² (10 Watts/ft ²)
Hybrid SolarWall® PV/T	300-400 Watts/m ² (30-40 Watts/ft ²)



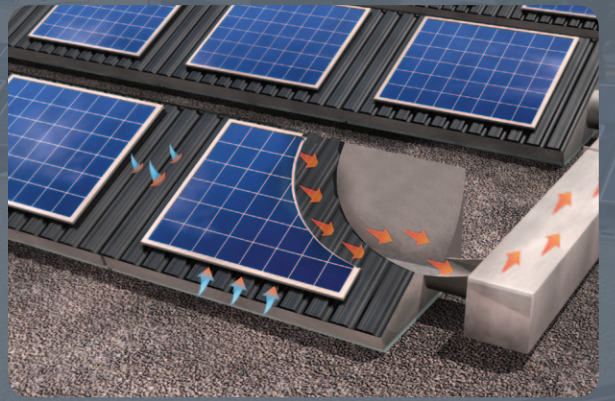
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SolarDuct™ PV/T Solar Air Heating & Electricity



Capturing the Heat



PV module efficiency is typically between 8-15%. What happens to the rest of the sun's energy that shines on the panels? Most of it is converted into heat energy, which normally is lost and provides no value to the system owner. As well, the heat build-up behind PV modules reduces the electrical output by 0.4-0.5% for every 1°C above its rated output temperature (which is 25°C). Given that roofs can reach temperatures as high as 90°C, the actual operating efficiency of PV systems is often significantly less than the rated output.

For standalone PV systems, high capital costs and low energy production result in very long paybacks. The PV/T cogeneration technology offers a solution that actually makes PV systems financially feasible in standard commercial, industrial, and institutional applications.



SolarWall PV/T™ rooftop system installed in the Beijing Olympic Village.

SolarDuct™ PV/T is a modular rooftop application of the PV/thermal technology. The heat is drawn off the back of the PV modules and is ducted to the

nearest rooftop air handler. The 'excess heat' is then channeled into the building's HVAC system where it is used to offset the heating load.

The SolarWall® air heating system serves as the racking system needed to mount the PV modules. This also contributes to the cost-effectiveness of the cogeneration system.

The modular units are easy to install and are angled at an ideal orientation for maximum solar gain.

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