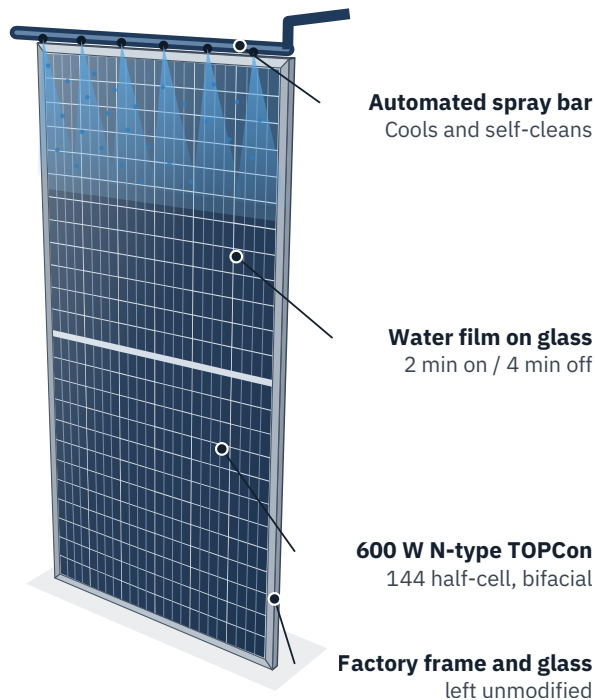


HYBRID PVT COOLING · 600 W BIFACIAL

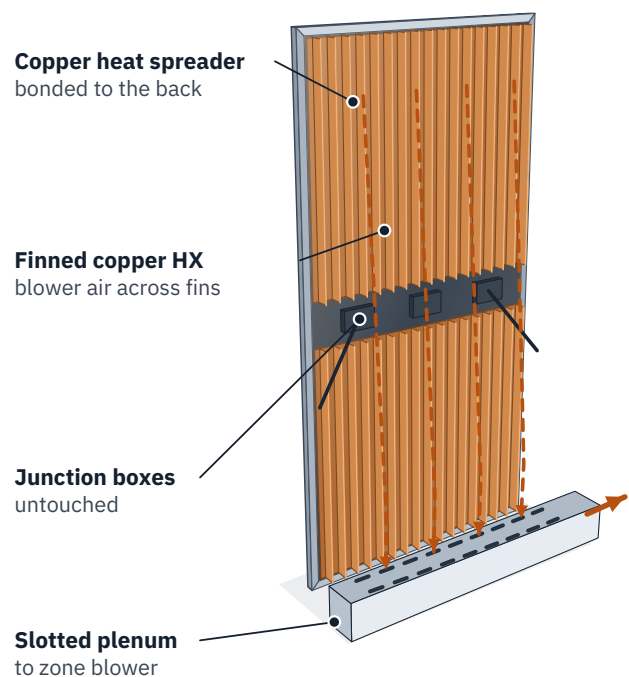
Cool the panel. Keep the heat.

A cooling package for 600 W bifacial arrays that sprays the glass clean and cool, draws heat off the back through a finned copper exchanger, and sends that heat where your facility can use it.

FRONT Spray cooling and self-cleaning



REAR Finned copper HX and forced-air heat recovery



14.7 °C

up to this much cooler per panel in field pilot¹

8.6%

up to this much DC voltage gain per panel¹

5,420

BTU/hr of heat per panel at peak sun, field-measured¹

25-40 W

blower draw for a 6 kW zone²

Built for hot, dusty sites.

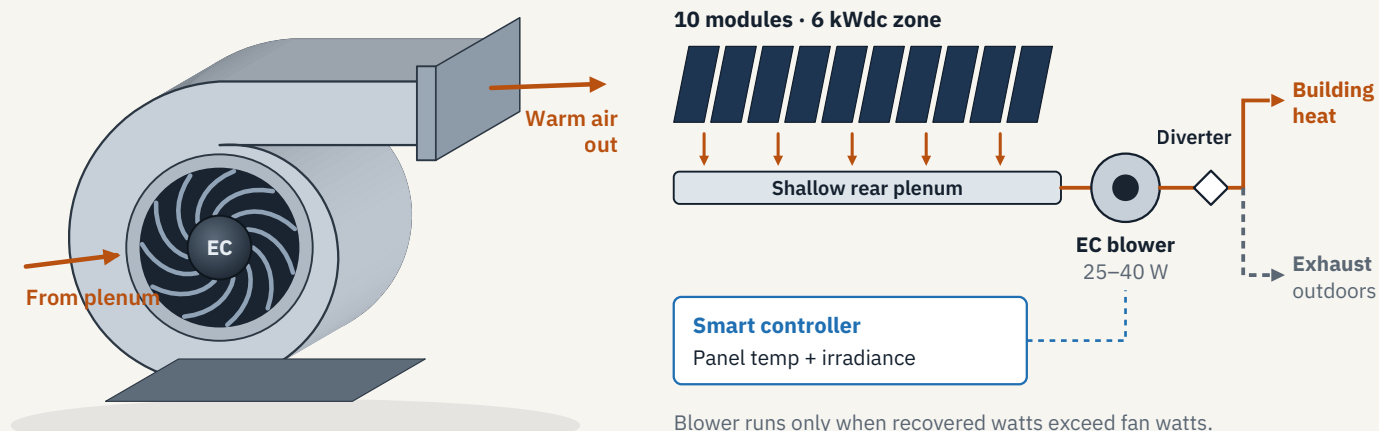
Warehouses · agriculture · greenhouses · C&I rooftops · heat-pump facilities

317-505-9200

modernthermaldesign.com

¹ Field pilot by Modern Thermal Design Pakistan Office and R&D, 625 W-class module. Heat: 5,420 BTU/hr per panel measured at peak sun with full-coverage copper HX. Voltage: up to 8.6% projected for full rear coverage.

² Engineering design targets at 500 CFM and a 10 °F air rise. Annual results vary by location; see page 2. Your site is modeled from its GPS coordinates.


01 · FRONT
Spray and self-clean

A timed spray (2 min on, 4 off) cools the glass and washes off dust, worth about 1% more yield with no manual cleaning.

02 · REAR
Finned copper HX

A copper heat spreader bonded to the back carries heat into copper fins, where zone airflow sweeps it away.

03 · AIR
Smart zone blower

One variable-speed EC blower draws air behind 10 modules and runs only when the watts it recovers beat the watts it uses.

04 · HEAT
Deliver or exhaust

A diverter feeds warm air to make-up air, shop heat, drying or a heat-pump coil, and vents it outdoors when not needed.

Up to, by location · per 100 panels³

Site	Cooling h/yr	Extra kWh/yr	Heat MMBtu/yr
Riyadh, Saudi Arabia	1,660	2,300 (+2.1%)	901
Karachi, Pakistan	1,500	2,000 (+2.1%)	816
Phoenix, Arizona	1,510	2,000 (+2.0%)	816
Houston, Texas	900	1,300 (+1.5%)	491
San Diego, California	710	1,100 (+1.2%)	386
Indianapolis, Indiana	490	700 (+0.9%)	263
Toronto, Ontario	290	400 (+0.6%)	154
Syracuse, New York	260	380 (+0.6%)	140

Pilot¹: panel 57.0 → 42.3 °C; up to 8.6% DC voltage gain.

Zone specification

Module	600 W TOPCon bifacial
Eff. / bifaciality	23.3% / 80% ±5%
Temp. coefficient	-0.29 %/°C
Modules per zone	10 (6.0 kWdc)
Airflow	300-600 CFM
EC blower	25-40 W
Rear clearance	150-200 mm
Rear HX	Finned copper

The heat is the business case.

Best fit: sites that buy electric heat or run heat pumps. 100-panel illustration at measured heat².

542,000

BTU/hr peak heat from 100 panels

≈\$23,800

a year when displacing electric heat

≈\$6,800

a year when displacing natural gas

New solar may qualify for the \$48E credit if placed in service by the end of 2027. Confirm with your tax adviser.

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¹ Field pilot by Modern Thermal Design Pakistan Office and R&D, 625 W-class module, front spray plus copper HX. ² 5,420 BTU/hr per panel, 1,000 full-sun h/yr, \$0.15/kWh or \$10/MMBtu gas at 80% efficiency. ³ Climate-normal screening model, net of blower energy, before spray-pump energy; heat is an upper bound. Sites modeled from GPS coordinates. Illustrative, not guaranteed. U.S. patent pending.