EXTERIOR

THERMA-HEXX



THERMA PANEL®

Snowmelt Perfected

Cover: Snowbird Summit Lodge, Hidden Peak, UT

The first pedestal paver snowmelt system

ThermaPANEL puts fluid under the entire surface of pavers, stone and decks, so snow and ice melt evenly from edge to edge. Snowmelt in winter, surface cooling in summer.



Snowbird Cliff Lodge, UT. 10th floor rooftop pool deck.

Clear, Safe, Dry Surfaces

- **Even Melt, Edge to Edge**

Fluid runs under the whole surface. No stripes over tubes, no frozen bands between them.

- **Any Paving, Any Deck**

Pedestal pavers and stone, sand or mortar set pavers, permeable pavers, toppings, decking and rubber surfaces.

- **Efficient Low Temp Fluid**

Fluid under the whole surface lets low temperatures do the work. A natural match for heat pumps.

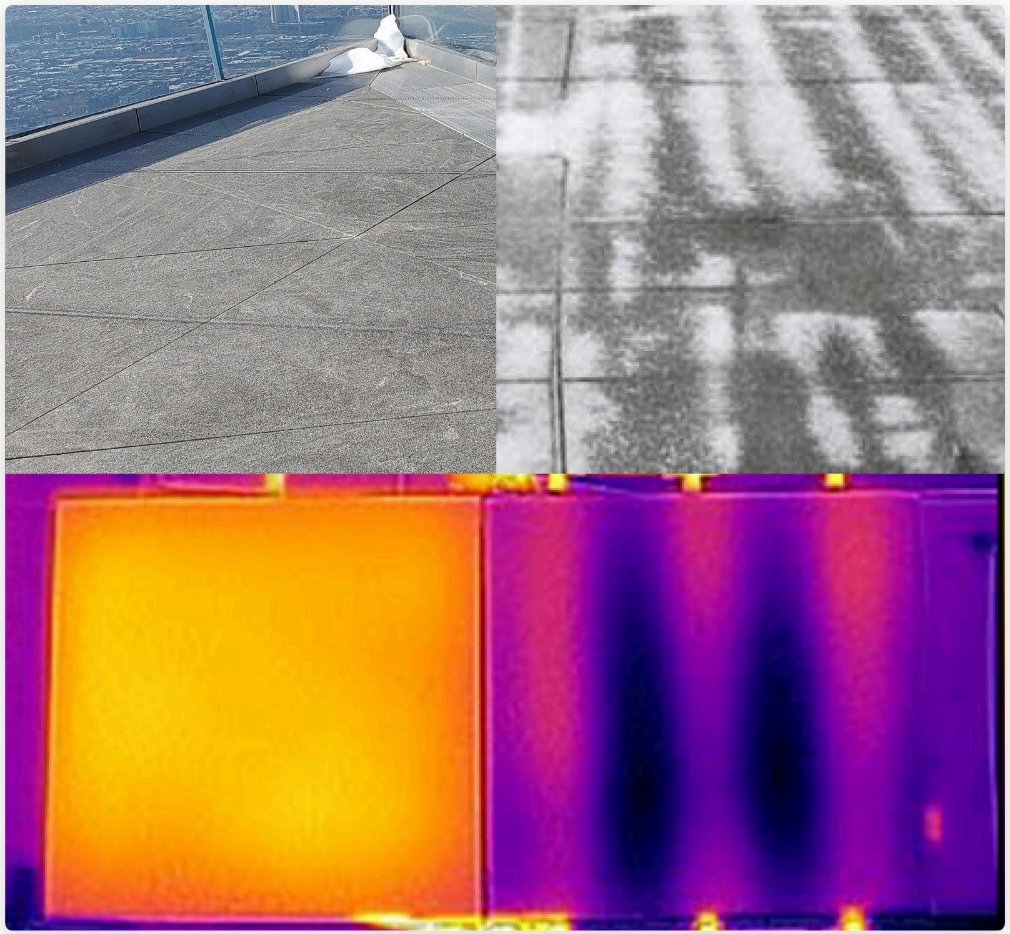
- **Surface Cooling in Summer**

The same system pulls solar heat out of the paving and sends it to a chiller, ground loop or pool.

- **Built for Sun**

UV reaches the system through the paver joints. PEX exposed to UV voids its warranty. Carbon black PE-RT is UV protected.

See the Difference



- **ThermaPANEL, left**

The Edge NYC, 1,100 ft above the street, under 4 in granite. 4 in of heavy wet snow melted in 30 minutes, clear edge to edge.

- **Tube and plate, right**

Snow melts in strips over the tubes. The bands between them refreeze, a real safety problem.

- **Thermal images, bottom**

ThermaPANEL reads one even temperature. Tube and plate shows warm stripes and cold bands.

- **250 percent more energy**

Side by side under identical 2 in concrete pavers, same source, flow and temperature. Measured by fluid delta T against tube and plate at 9 in on center.

ThermaPANEL Innovation

- **24 Turbulent Flow Channels in Each Panel**

Each 23.375 in panel spreads fluid through 24 thermoformed channels across its whole face. No tubes and no aluminum plates.

- **Turbulent at Any Flow**

Offset stanchions every 2 in keep flow turbulent from 0.25 to 1.5 gpm per row and purge trapped air from each channel.

- **Balanced Headers**

A tapered inlet header and a constant area outlet header balance flow across all 24 channels.

- **Factory Assembled Rows up to 14 Panels**

Panels are tested to 50 psi in an oven at 150 F, fusion welded into rows, then tested to 50 psi again.

- **Durable and Made in the USA**

Dow HYPERTHERM 2399 NT PE-RT, formed in Portsmouth, NH. Listed under ICC-ES PMG-1788, with a 25 year limited warranty.



Edition Hotel, Times Square, NYC. Rows set on pedestals before the pavers.

Three Ways to Mount

- **Pedestal Mounted**

Rooftops, terraces and decks. The panel sits 3/8 in above the pedestal head, in direct contact with the paver, with 1 in of insulation below. Only the supply and return mains penetrate the roof or deck.

- **Surface Mounted**

Driveways, walkways and plazas. Panels lay on the prepared base under sand set or mortar set pavers, a poured topping or permeable paving. 1.375 in thick, on 3 lb, 60 psi EPS.

- **Grating Mounted**

Grating on pedestals or deck framing carries the panels where pavers or stone are odd sized, or too weak to be supported at the corners by pedestals.

- **Permeable Paving**

A permeable protective panel covers ground mounted panels under gravel grids and permeable pavers. The paving module does not need to match the panel grid.



Missoula, MT. Aging cedar replaced with composite decking over ThermaPANEL, on the original framing.

Heat Sources and Controls

- **Any Hydronic Source**

Condensing boilers, air to water heat pumps, geothermal, solar thermal and captured waste heat.

- **One Plant for the House and the Drive**

A lake house in Jaffrey, NH and an oceanfront house in Rye, NH run Chiltrix air to water heat pumps that heat and cool the interior and melt the exterior surfaces from the same plant.

- **Snowmelt Controls**

Slab or paver sensor and outdoor sensor, with idle and melt setpoints. Tekmar or OJ Electronics controls. Therma-HEXX can supply OJ Electronics units.

- **Non Ferrous by Design**

Panels and tubing are non barrier PE-RT. A heat exchanger is needed only where ferrous components are used or the boiler maker requires one.



Finished, and melted clear

L.L.Bean entry drive. ThermaPANEL in place, ready for permeable pavers.

Dependable Components

- **Mechanical Component Partners**

Therma-HEXX is an OEM partner of the leading makers of hydronic components.

- **Caleffi Manifolds**

1 in brass manifolds, the Therma-HEXX standard.

- **Taco and Grundfos Circulators**

Sized for each section of the system.

- **Spirotherm, Axiom and Amtrol**

Air and dirt separation, glycol feeders and bladder type expansion tanks.

- **Chiltrix Air to Water Heat Pumps**

Heat and cool the house and melt the drive from one plant.

Engineered, Start to Finish

- **Engineered for the Site**

Snowmelt load is set from the site location, exposure and the owner's snow and ice class. Glycol concentration follows ASHRAE data for the address.

- **Detailed Plans**

Panel layout, circuit schedule and headloss calculations, mechanical schematic and an itemized bill of materials for every job.

- **Full Submittal Set**

Issued for review before production, so the architect, engineer and installer work from the same drawings.

- **Labeled for Easy Installation**

Each panel carries its section, zone and row. Each carton is labeled with its contents.

- **The Complete Mechanical System**

Therma-HEXX supplies everything the design calls for, not panels alone. Mains are specified by Therma-HEXX and supplied by others, in the pipe type the installer prefers.

Delivery and Installation

- **Factory Tested**

Every panel is tested to 50 psi in an oven at 150 F. Every row is tested to 50 psi again after assembly.

- **Packed to Unfold**

Rows fold at the S tube into 3 panel lengths and ship in 6.5 ft cartons. On site they unfold into place in their marked flow direction.

- **Simple Connections**

Rows connect to the manifolds with ASTM F1807 copper crimp fittings and stainless crimp rings. No field fusion.

- **Test Before the Finish**

Air test, then fluid test, to 50 psi maximum, before the pavers or decking go down.

- **Fill, Purge, Commission**

Each circuit is filled and purged on its own, then the controls are commissioned. Training is available for first time installers.

Birth of an Idea





The pedestal paver terrace on the Carbondale house, and its view of Mount Sopris.

Robert Barmore was designing and building houses in Aspen when he put a pedestal paver roof terrace on his own home. On an 85 F day those pavers reached 155 F.

The snowmelt systems of the day were antiquated, and none were made for pavers on pedestals. So he built one that was.

ThermaPANEL was the first pedestal paver snowmelt system in the world, and it is still the only modular hydronic one made for pavers.

Today it is installed coast to coast in North America and in most of the major ski resorts, from Aspen and Telluride to Whistler.

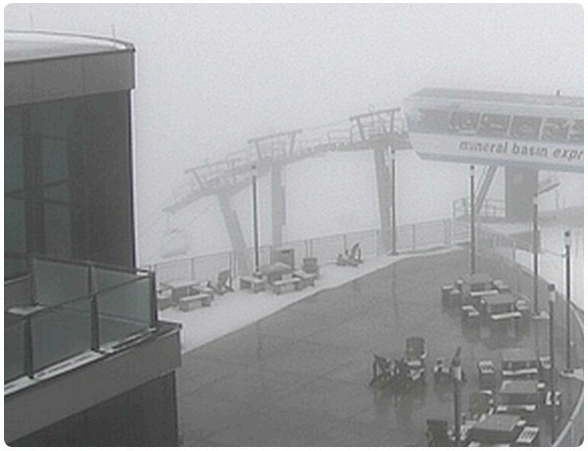


Robert Barmore
Founder and inventor, Therma-HEXX

Projects



The Edge NYC, Hudson Yards
Under 4 in granite, 1,100 ft up



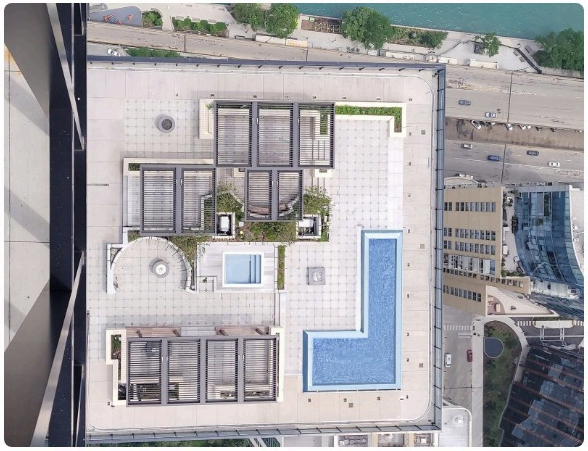
Snowbird Summit Lodge, UT
Terrace at Hidden Peak, top of the tram



Ritz-Carlton Lake Club, Lake Tahoe
Pedestal paver lakeside terrace



Martis Camp, Lake Tahoe, CA
Paver driveway and terrace

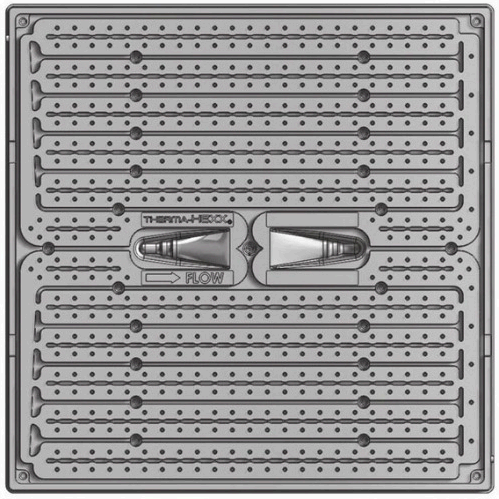


St. Regis Chicago, IL
Pedestal paver amenity deck



Coastal Maine residence
Paver driveway, clear after the storm

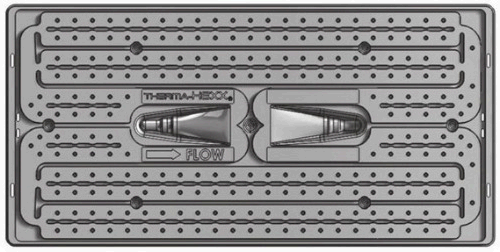
Panel Types



Full and Trimmable Panel

23.375 x 23.375 in

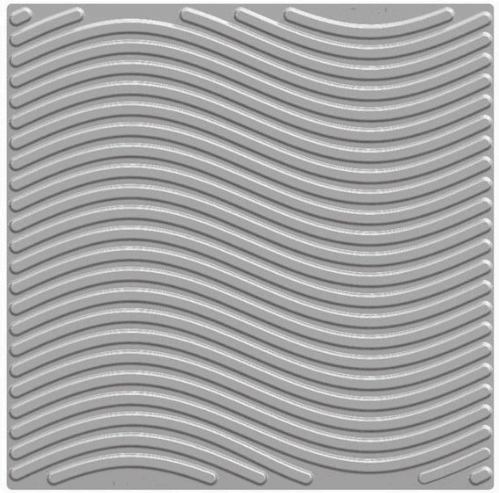
The standard panel. The trimmable version cuts down to 12.75 in to fit edges and penetrations.



Half Panel

23.375 x 11.5 in

Fills out a row. The half trimmable version cuts down to 7.5 in.



Permeable Protective Panel

23.375 x 23.375 in

A protective sheet that covers ground mounted panels under permeable paving.

Filler panels are the same 23.375 x 23.375 in panel, left inactive. They support the heat transfer metal that carries heat to small decoupled pavers.

Specifications

Full panel	23.375 x 23.375 in
Trimmable panel	23.375 x 23.375 in, trims to 23.375 x 12.75 in
Half panel	23.375 x 11.5 in, half trimmable trims to 7.5 in
Filler panel	23.375 x 23.375 in, the same panel, inactive
Thickness	Pedestal: 3/8 in above the head, 1 in EPS below. Surface: 1.375 in
Material	Dow HYPERTHERM 2399 NT PE-RT, carbon black filled. ASTM F2623, F2769
Insulation	1 in EPS, ASTM C578. Type XV, 3 lb, 60 psi for driveways, walks and grating
Channels and fluid	24 channels, 1 quart of fluid per panel

Flow per row	0.25 to 1.5 gpm
Row length	Factory assembled rows up to 14 panels, 28 ft
Row spacing	23.5 to 24 in on center, custom available
Pressure	37 psi operating, 50 psi maximum test and relief
Temperature	130 F recommended supply, 140 F maximum. 165 F summer stagnation acceptable
Fluid	Propylene glycol, concentration per site ASHRAE data
Field joints	ASTM F1807 copper crimp fittings, stainless crimp rings
Listing and warranty	ICC-ES PMG-1788. 25 year limited warranty. Made in the USA

Patents US 8,944,146 and US 9,683,756, CA 2,837,373, MX 365404, DE 21 2012 000 104. Full specifications, CSI section, CAD details and the installation manual at therma-hexx.com.

Let's Get Started

- **Call or Email Us**

Talk through your project or pre-design questions.
(603) 319-8815 contact@therma-hexx.com
199 Constitution Ave, Suite 7, Portsmouth, NH 03801

- **Send Your Plans**

Site plan, paving details and the planned heat source, as .dwg or .pdf. We will lay out a preliminary system.

- **Budgetary Estimate**

A preliminary layout and estimate come first. Final engineering and the full submittal set follow acceptance.

- **Specifications Online**

CSI section, CAD details and the installation manual are at therma-hexx.com.

Watch the project reel

ICC-ES listing PMG-1788

Specs and details on ARCAT



The Edge NYC. A granite slab lifted to show the manifolds and ThermaPANEL below.



THERMA PANEL®

Hydronic Snowmelt and Surface Cooling

Back cover: Aspen Elementary School entry, Aspen, CO

www.therma-hexx.com

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