



THERMA-HEXX

Modular Heating and Cooling Systems

 THERMA
PANEL™

Changing the way the world heats and cools its environments





Solves exterior surface heating and cooling problems

ThermaPANEL is a patented modular hydronic heat exchange system that efficiently heats or cools pedestal and ground mounted pavers.

It is compatible with segmented pavers or stone of any type, pervious and impervious pavements, as well as all types of decking.

Full support of ground mounted pavers by the ThermaPANEL units prevents settling unlike PEX tube systems.

Ground mount installations require 1/2" - 1" of sand between the paver and panel. Pedestal mounted ThermaPANEL units are set in direct contact with the paver.

Snow and Ice Melting Radiant Heating and Cooling

In heating mode, warm fluid (glycol) from a boiler or heat pump is circulated through the system, providing efficient, even, snow and ice melting of pedestal or ground mounted pavements and surfaces.

Outdoor spaces can be radiantly heated or cooled for a comfortable and safe environment.

In cooling mode, fluid from a pool heat exchanger, geothermal loop or chiller is circulated through the panels thus collecting thermal solar energy.

Trimable panels can be cut to fit odd shaped areas.

Traditional boilers, modulating condensing boilers, geothermal heat pumps or captured waste heat and can be used to heat the fluid.

Each panel is permanently marked with its section, zone and row number, and installer contact number, for easy installation and system trouble shooting.

Panels can be easily replaced without shutting down the entire system.



Solar Thermal Pool Heating Patio Surface Cooling

Thermal solar energy collected in the pavement surface can be captured by the ThermaPANEL units located under the pavement and used to heat domestic or pool water. Removing the energy will cool the surface at the same time.

Residual energy in the pavement can be collected at night to provide additional heat for the pool or other uses.

As energy is removed from the pavement, the pavement cools to provide a comfortable patio environment and reduced urban heat island effect.

Chillers, pools or a ThermaPANEL geothermal array can provide additional cooling to the pavement surface.

Manual, automatic or integrated building management controls can be used for system operation.

Therma-HEXX engineers provide the system design, engineering, layout and installation training for the architect, engineer and installer.



Product Specifications

Dimensions:

23.375" x 23.375" x 1.375" Full Panel

23.375" x 23.375" x 1.375" Trimmable Panel
(Trimmable to 23.375" x 12.75" x 1.375")

23.5" x 11.5" x 1.375" Half Panel

23.5" x 23.5" x 1.375" Filler Panel

Panels are 3/8" thick when mounted on pedestals.

1" EPS insulation extends beneath top of pedestal.

Ground mounted Panels are 1.375" thick, edge to edge.

Material:

Bimodal Copolymer of LLDPE and HDPE PE-RT 2499

ASTM F2623

Fluid capacity:

Approximately 0.26 US gallons / full panel

Amount varies with interconnect configuration

Maximum operating temperature / pressure:

30 PSI @ 140 degrees F (or as marked on panels)

Recommended system static (resting) pressure:

10-15 psi

Maximum panels per row:

24 (48 lineal ft / 96 sq ft)

Connections:

Socket Fusion, Push on connectors, Crimp, Compression

ASTM F1807 - F2159 - D2683

25 year limited warranty

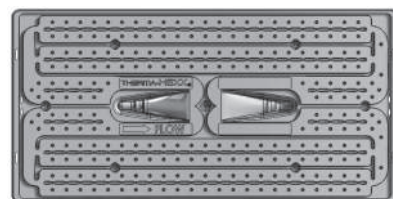
100% made in the U.S.A.

Recyclable

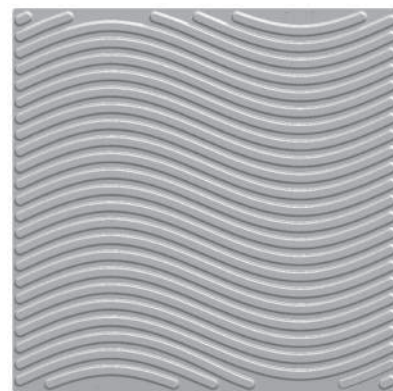
Master Spec Section 32-17-43 Pavement Snow Melting Systems



Full / Trimmable
Panel



Half Panel



Permeable
Protective
Panel

Installation Process - Pedestal and Ground Mount

1) Review the supplied plans.

Each panel's section, zone and row are permanently printed into the panel as well as the contact info of the installer and Therma-HEXX.

2) Stage the boxes onsite - Each box is labelled with section, zone and row numbers of the contents on each side for easy identification.

3) Layout a square grid with chalklines. Set and level the first row of pedestals.

4) Unpack the row and determine the supply and return ends of the row.

5) Orient and unfold panels in the proper direction of flow as noted on plans.

6) Clamp 1x3 strapping to each panel with one clamp at the panel corner.

7) Pick up and carefully place the row on the pedestals. Remove the clamps.

8) Re-adjust the pedestals on the grid lines.

9) Connect the supply and return to manifolds using the supplied tubing and connectors. Use PEX cinch, crimp, push on or fusion weldable fittings.

10) Pressure test each row to 30psi as they are installed.

11) Set the pavers on top of the panels, adjust spacing and level.

12) Set the next row of pedestals and level them.

13) Repeat 4 - 11 until complete.

Trimable panels are supplied and noted (T) where applicable. 10.5" of the panel can be trimmed to fit using any type of saw. No fusion welding is required. One half of the trimmable panels are inactive.

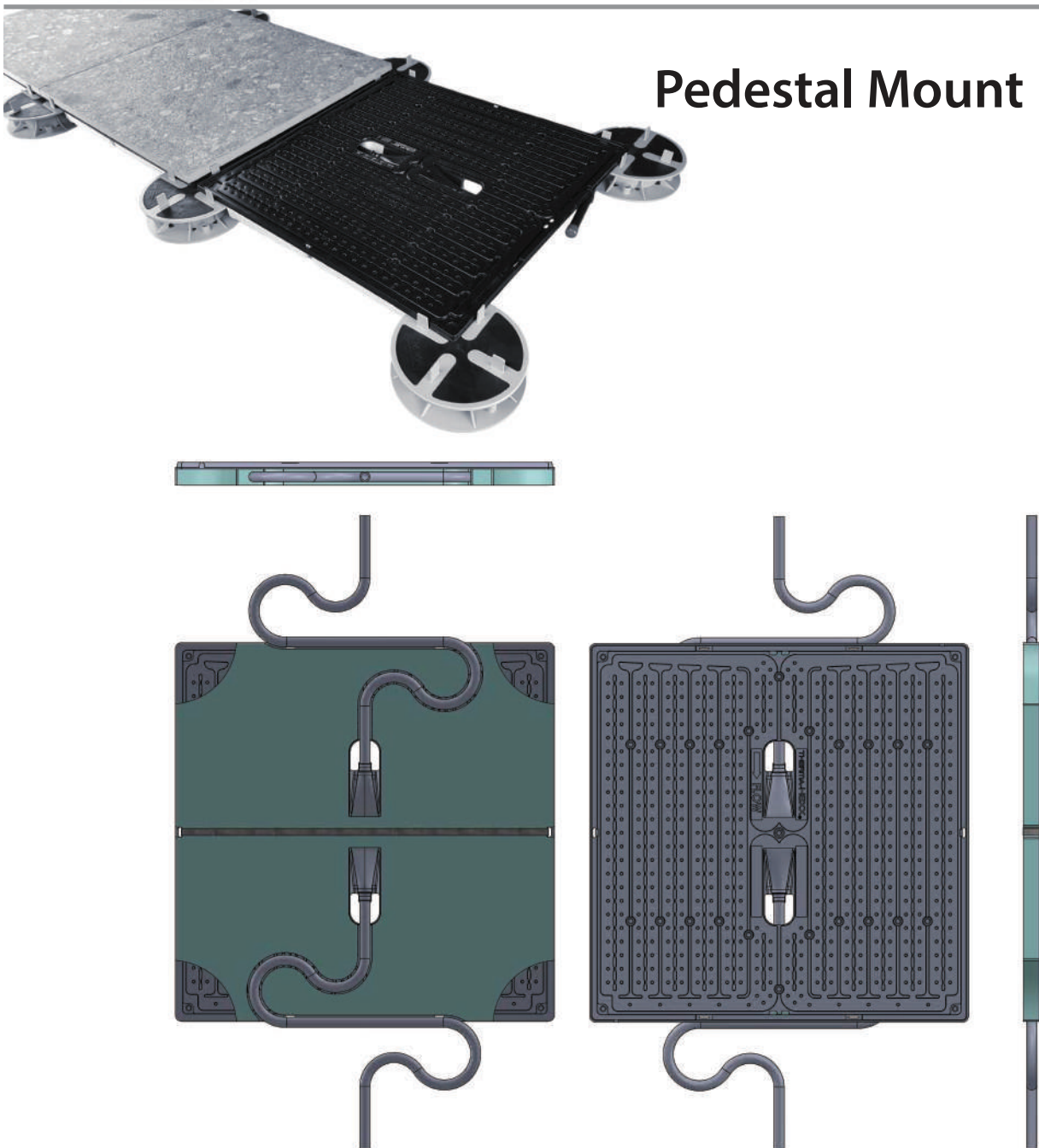
Insulated filler panels are supplied as noted (F) on plans where applicable and are inactive. They are supplied with 20" wide aluminum flashing which is to be trimmed onsite to cover the nearest active panel and the filler panel. The aluminum is placed on top of the panels before the pavers are set. This will provide heat transfer to or from the filler paver the nearest active panel.

For ground mount, simply unfold rows in the appropriate location making sure to maintain proper flow direction and orientation.

Unpacking and Placement - Pedestal Mount



Pedestal Mount Details

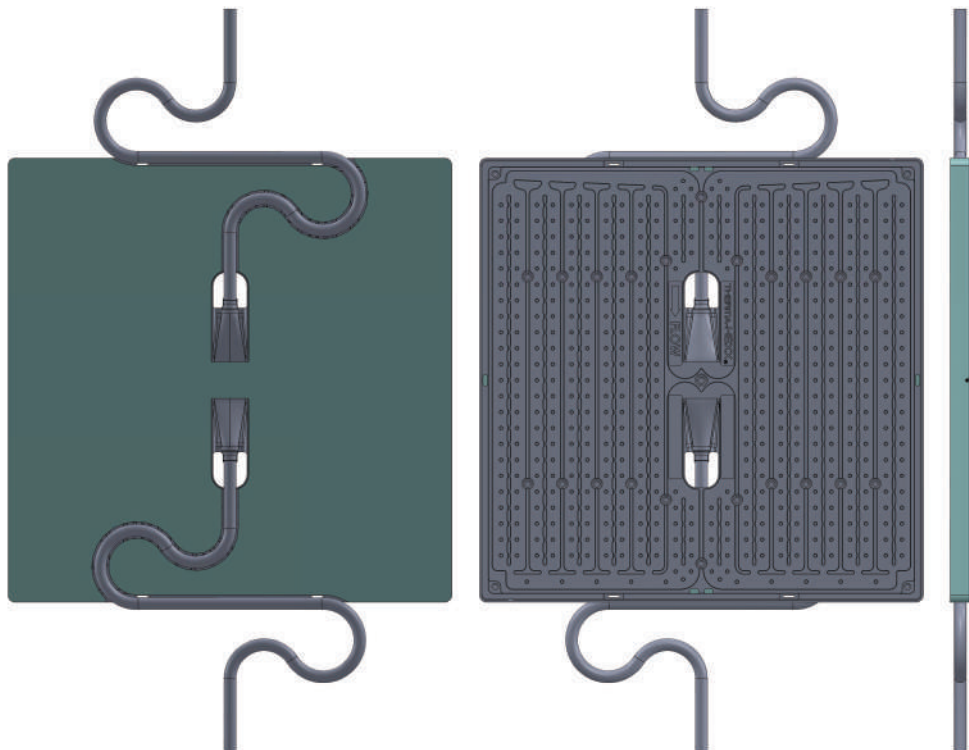
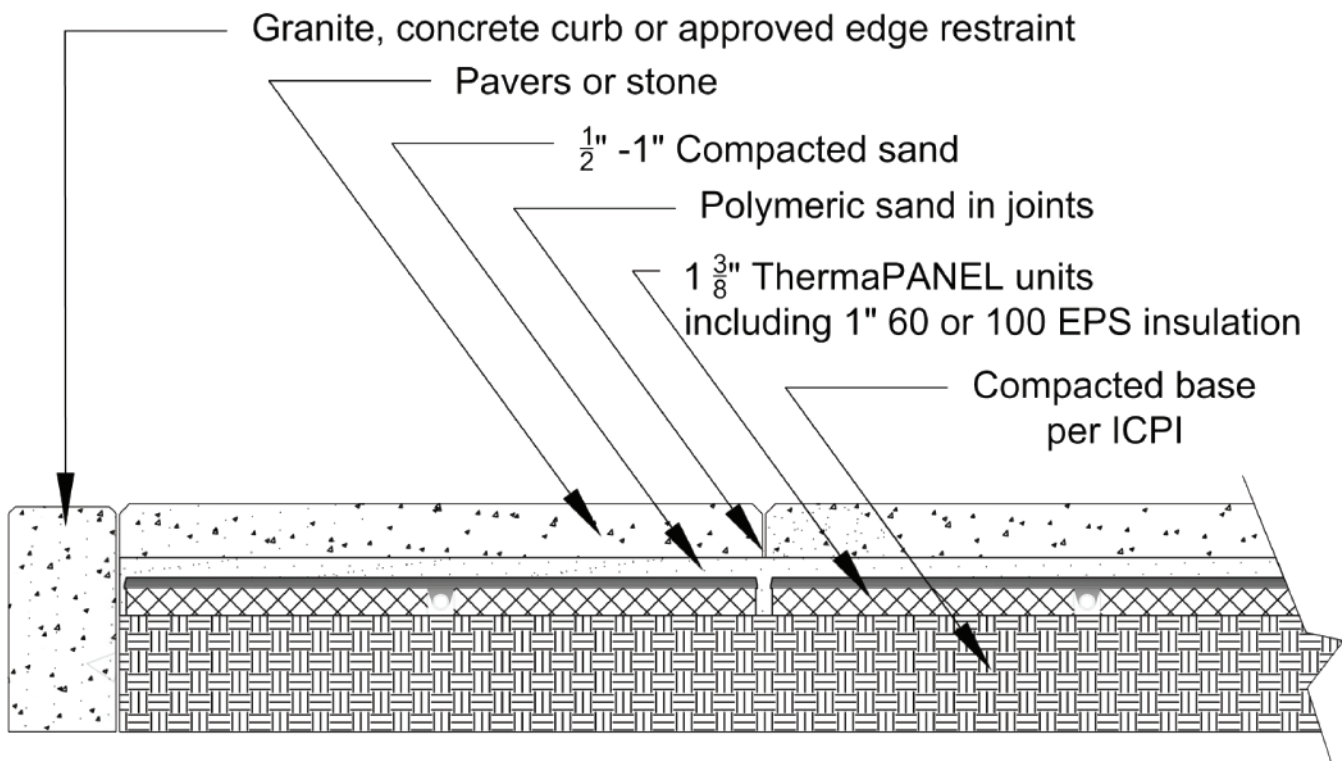


Pedestal mounted pavers typically lay out on either a 24" or 23-5/8" grid. ThermaPANEL can be laid out on 23.5" to 26" centers on pedestals.

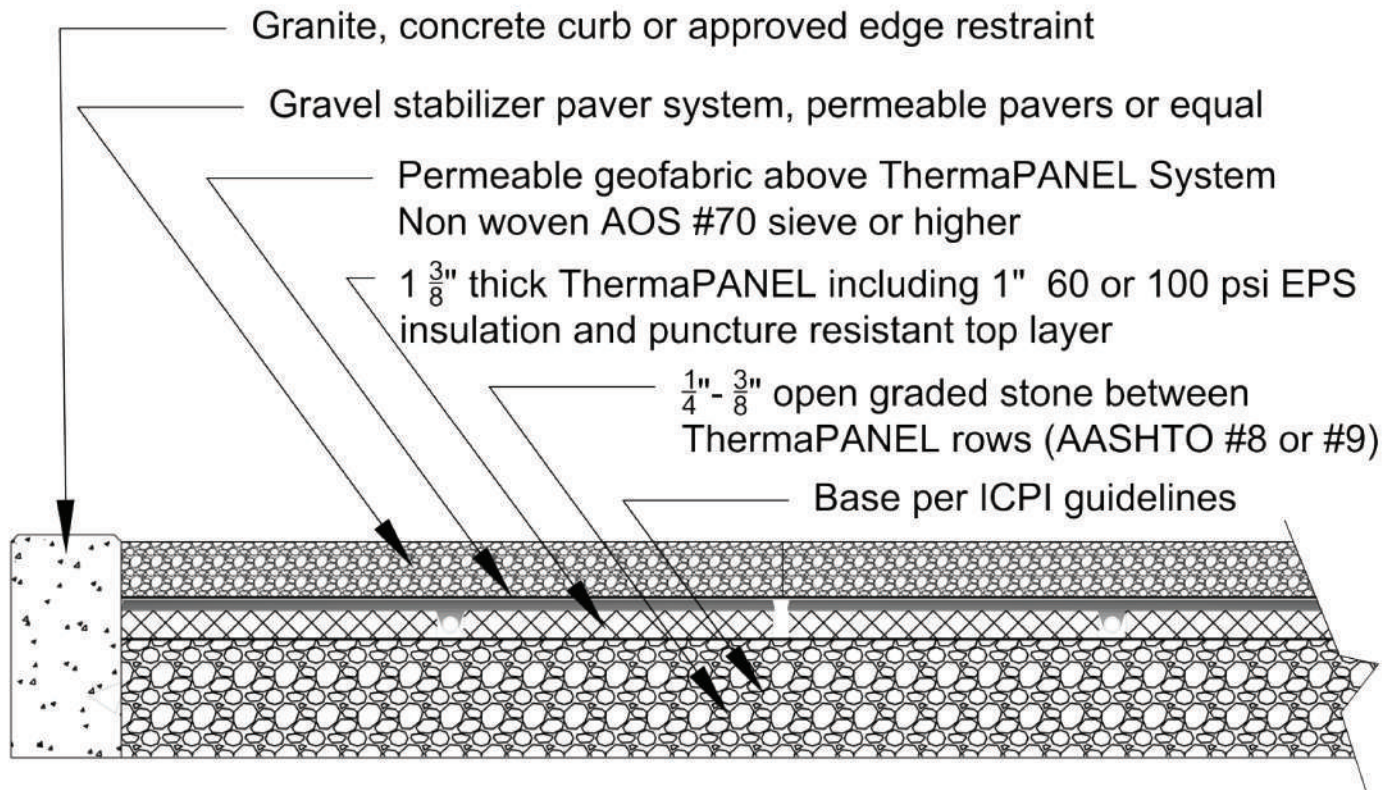
Other sizes can be accommodated by using an FRP support system beneath the ThermaPANEL units or with additional pedestals.

Manifolds and piping can be routed and placed in the plenum between the panels and the supporting surface.

Ground Mount Details



Permeable Ground Mount Details



This configuration is used where permeable surfaces are required.

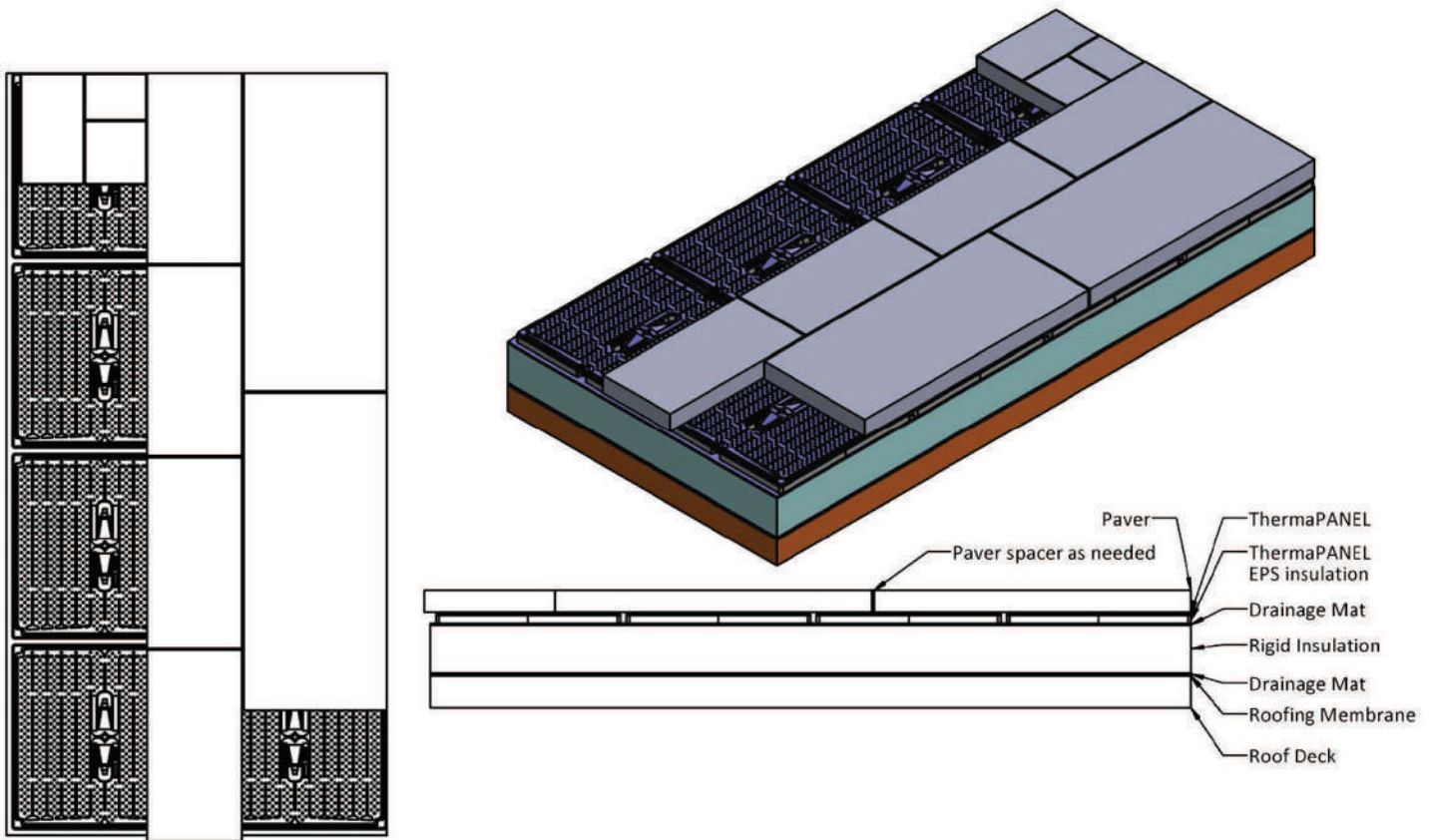
Variable sized permeable paving units that do not match the size and layout of the ThermaPANEL units can be utilized.

Permeable gravel stabilization systems can be used where a gravel or grass surface is required.

#70 Non woven geofabric is placed on the top of the ThermaPANEL units.

The ThermaPANEL units have an HDPE double top layer to prevent the gravel from abrading and puncturing the ThermaPANEL units.

Flat Roof Solid Build Up Details



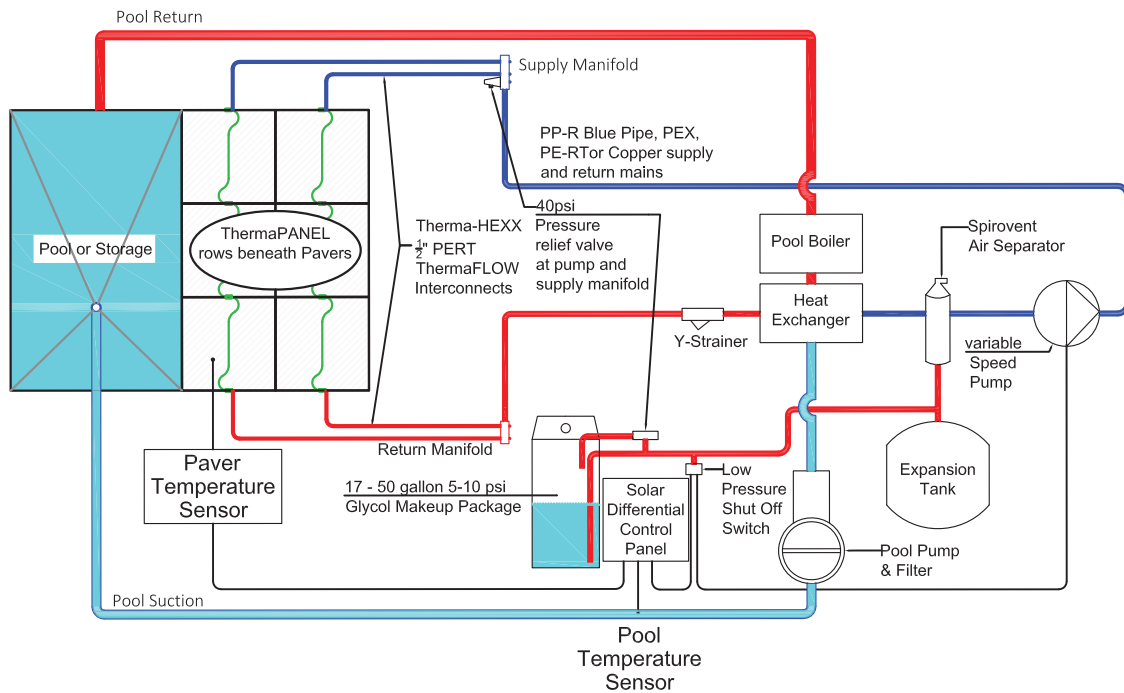
This configuration can be used on roofs that are level and flat. Pedestals are not required.

Variable sized paving units that do not match the size and layout of the ThermaPANEL units can be utilized.

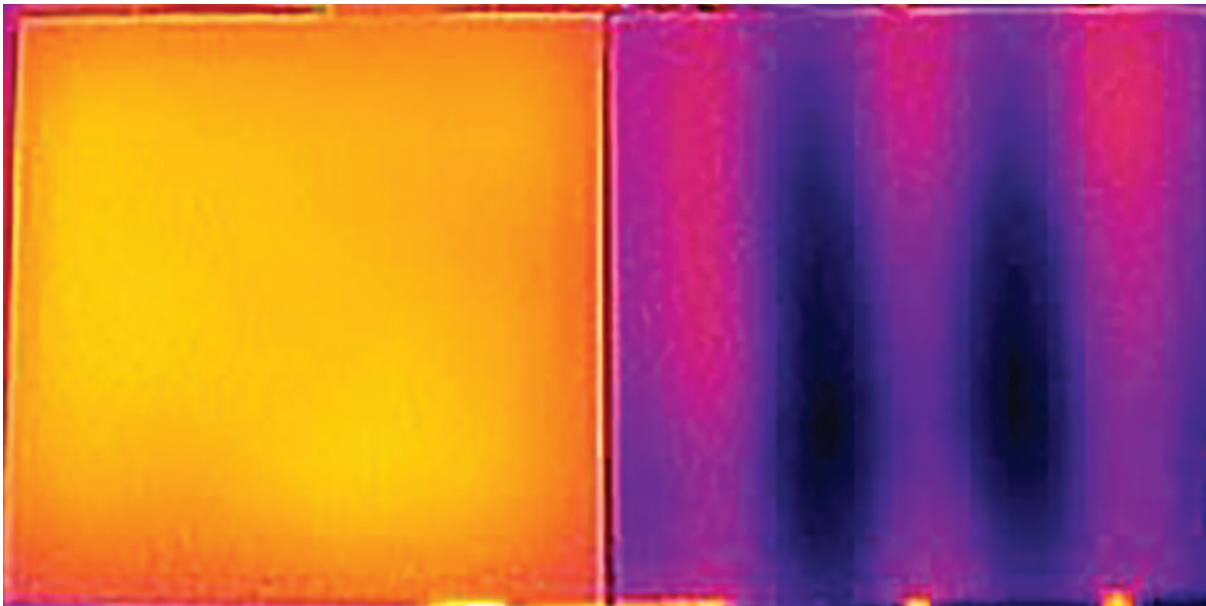
Drainage mat is placed between the insulation filler layer and the roof and between the filler layer and the ThermaPANEL units.

Adhere to roofing membrane manufacturer requirements for final design and warranty considerations.

Pool Heating / Patio Cooling Schematic



ThermaPANEL Solar Pool - Domestic Water Heating / Patio Cooling Schematic



Flir image, side by side, ThermoPANEL vs PEX tube, paver heating, performance comparison. ThermoPANEL transfers 250% more energy, evenly, per square foot per hour than the tube side.

Solar Collection, Snow Melting, Cooling



Google Offices Pittsburgh, PA - Sky Bridge - Snowmelt



Brooklyn, NY - Rooftop Terrace - Snowmelt and Cooling

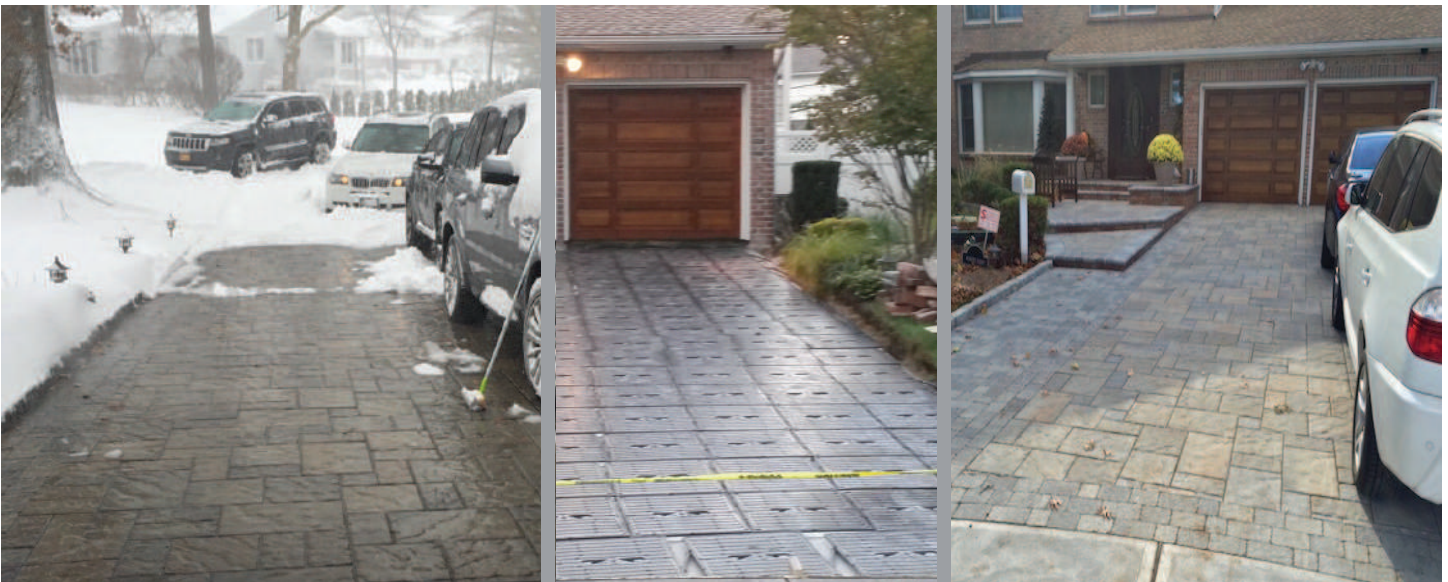
Diverse Applications



Snowbird Ski Resort - Hidden Peaks Lodge - High Performance Snowmelt

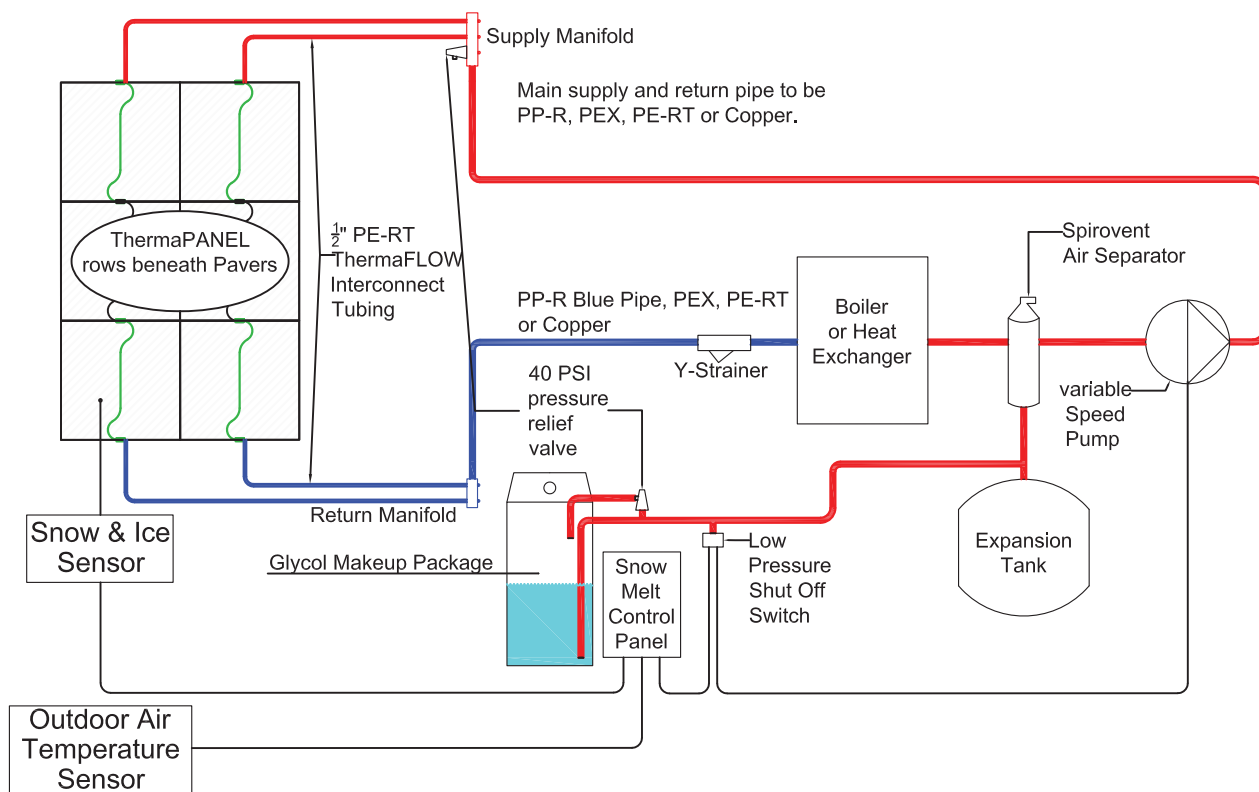


North American Missile Defense System - High Performance Snowmelt



Long Island, NY - Snowmelt and Solar Pool Heating

Snow Melting Schematic



ThermaPANEL Snow Melt Schematic

Visit www.therma-hexx.com for CAD details, videos, testimonials specifications and detailed application information.

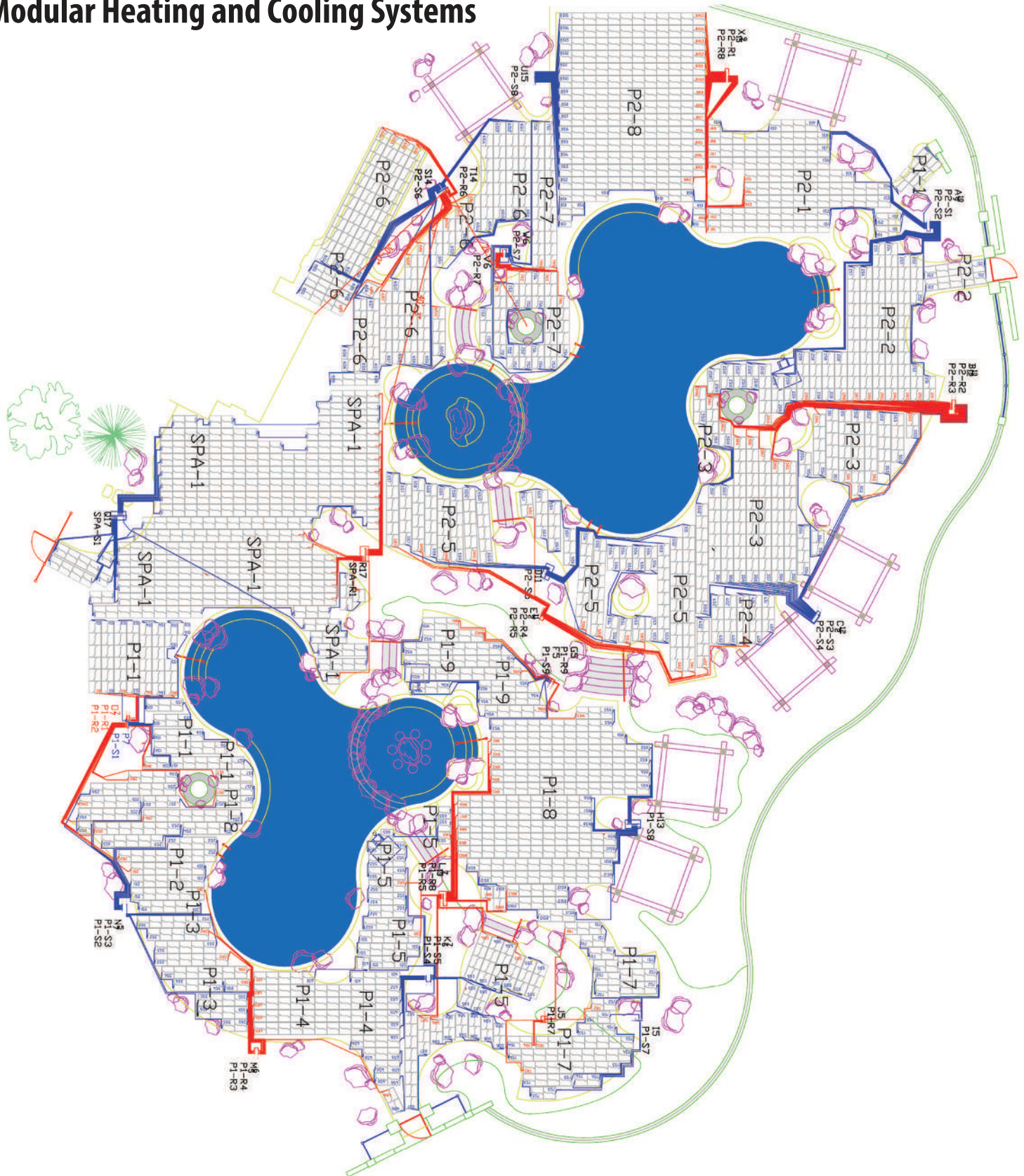
Or call us to discuss your project.
(603) 319-8815 Opt. 1

United States Patent No. 8,944,146
German Patent No. 21 2012 000 104.2
Australian Patent No. 2013101504
Canada Patent No. 2,837,373
Mexico Patent No. MX/a/2013/013721





Modular Heating and Cooling Systems



Project layout - Solar pool heating / patio cooling application