

electric radiant

an ideal choice for melting snow and ice

By John Vastyan

One of the key obstacles for exterior porcelain tile and stone tile installations has been the challenge of keeping surfaces free of snow and ice during the winter months. Today, radiant heat technology can eliminate the challenge of snow and ice removal and the risk of injury from falls while offering tile professionals an entirely new market opportunity.

Exterior tile or stone deck, sidewalk and porch surfaces can be warmed



Installing SunTouch ProMelt mat under an exterior tile floor.

from below to eliminate the hazards of snow and ice with the use of electric cables.

Most manufacturers of electric snow melting offer either heavy duty, commercial-grade electric cable or mat systems. Among the leading products available today are ProMelt mats or cable offered by SunTouch (www.sun-touch.com/promelt). In general, manufacturers have designed these electric products to be embedded in a mass – either concrete, sand or asphalt – which in turn transmits heat to the finished tiled surface.

Cable or mat systems can be tied to rewire or rebar or anchored in place over a stone aggregate prior to concrete over-pour. For safety reasons, make sure the product used has a grounded power lead.

Most products come in various energy outputs and power requirements:

Interior floor warming

The following electric heating systems can be used for interior floor warming – but check with manufacturers to be sure their products fit your project needs.

- Carbonic Heat Radiant Heating Film – www.CarbonicHeat.com
- LATICRETE® Floor HEAT – www.laticrete.com
- Nuheat Floor Heating Systems – www.nuheat.com
- Peel and Heat Complete - Heating and Anti-Fracture Membrane in One – www.protectowrap.com
- Raychem® QuickNet tile floor heating system – www.tycothermal.com
- Step Warmfloor – www.warmfloor.com
- ThermoTile® Electric Floor Heating Systems – www.thermosoft.com
- Warm Tiles – www.easyheat.com
- Warm Touch – www.dkheatingsystems.com
- WarmWire System – www.warmwire.com
- Warmly Yours Tempzone™ – www.warmlyyours.com
- Warmup® Floor Heating – www.warmup.com

- Outputs: 38 watts per square foot or 50 watts per square foot.
- Power: 120VAC, 208VAC, 240VAC, and 277VAC (some specialized products are available with higher power capacities.)

Generally, cables cost less than the mats and offer more layout options. Cables can go perimeter to perimeter (within 3 - 6 inches of the edge of the slab) or fill odd-shaped areas adjacent to mats for complete snow melting coverage. Most manufacturers have different cable and mat configurations. To reduce installation errors, select a product with a single connection point. These products simplify installation and reduce potential connection problems after the tile is installed.

Planning your system

When installing electric snowmelt systems, experienced professionals have learned to follow these simple steps:

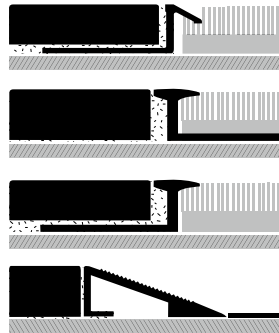
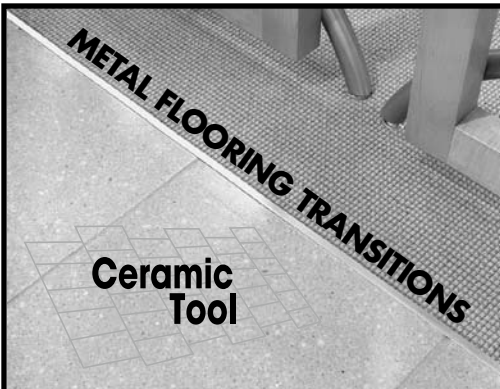
1. Determine what voltage will be used: 120V, 208V, 240V or 277V.
2. Determine required heat output. The climate and amount of snowfall dictate this choice. Most systems will require 50 watts per square foot to melt snow and ice. Some residential or light commercial systems in temperate climates may require only 38 watts per square foot.
3. Determine the square footage of the area to be melted. Do not include areas under built-ins like planters, permanent grills or similar obstructions. Stay 3 to 6 inches from slab edges and do not cross expansion joints if possible.

More than one cable or mat can be used to provide the capability for snow and ice melting. Combine mats (or cables) in a manner not to exceed the capacity of the electric control selected. Most electrical controls will have a maximum allowable amperage rating. Check with the manufacturer before wiring product to controls if the maximum value is unknown.

The project referenced below used SunTouch ContractorPro™ controls. These controls have a maximum amperage capacity of 50 amps per contactor. For larger areas that may require feeds of greater than 50 amps, many manufacturers recommend dividing the area into sub-zones to maximize the amp load connected to each contactor.



Preparing the deck to receive the snow melt cables included treatment with Custom Building Products' RedGuard® waterproofing and crack prevention membrane.



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Omaha snowmelt:

Joe Abramo, president of The Floorplan, an Omaha-based flooring contractor who has plenty of experience with electric mat radiant systems for interior use, proposed the use of SunTouch's ProMelt for a 2,000 s.f. exterior deck as part of a substantial home remodel nearby.

Christy Minniear, architectural specifications representative with Omaha-based Premier Distributing, a wholesale distributor of tile, setting material and laminate counter tops, specified 1,400 s.f. of ProMelt for the job.

Installers attached wire straps to the concrete deck with the use of a construction grade adhesive. These straps allow the ProMelt Cable to be attached securely to the deck before the dry-bed is installed. The cable was spaced 3 inches on center to ensure rapid response when the weather turns icy.

As with all installations, the tile is the focus and all precautions should be made to ensure the tile performs as desired. In this case, Custom Building Products' RedGuard® anti-fracture coating was installed prior to the snow melting cables. This coating will prevent any unwanted cracks from developing due to cut joints in the deck.

Once the cable is in place, the deck is ready for the dry-bed to be installed. Tile and stone is then installed on the leveled dry-bed.

"The installation went very well," said Minniear. "We're eager to see how it performs this winter. The homeowners are delighted with the product and how easily it went in directly below the exterior tile."



One circuit of the radiant heat/snowmelt cable system is complete.



Mark Walz of Walz & Floors and Joe Abramo of The Floorplan, the Omaha-based contractor who installed the ProMelt system.