

Submittal and Specification

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Project Name: _____

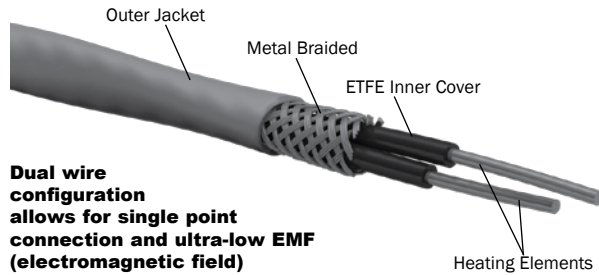
SunTouch Representative: _____

Unit Tag #: _____ Order #: _____ Date: _____

Designer: _____ Submitted By: _____ Date: _____

Contractor: _____ Approved By: _____ Date: _____

SunTouch® Electric Floor-warming Mat

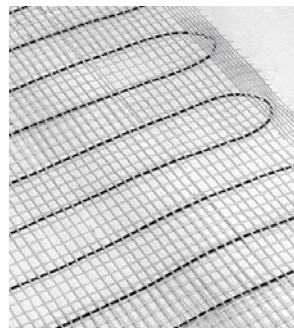


Factory applied end termination splice shall have a diameter of 3/16" and shall be crimped, soldered, and environmentally sealed. Power leads shall be of sufficient length to reach junction boxes as shown on detailed drawings. The finished mat shall have only one power lead at one end of the mat. Power leads shall be minimum 10' long, made of stranded wire recognized by Underwriters Laboratories Inc. (UL®), and color-coded to match the standard NEC wire color scheme. This power lead assembly shall be shielded with a tin-coated copper braid bonded to the ground wire and the heating wire ground braid.

PRODUCT DESCRIPTION

General

The SunTouch floor-warming mat is a series resistance type heating element and open mesh mat assembly installed over plywood, tile backer board, or concrete slab (according to ANSI or TCNA guidelines), and then embedded in a 3/8"-or thicker layer of self-leveling or thin-set polymer-modified mortar beneath a finished ceramic, tile, or stone floor.



Other floor coverings are approved if the mat is embedded in a minimum 3/8"-thick layer of polymer-modified mortar beneath the finished floor.

An EMF field monitor, held at 1/2" above operating heating elements and set to milligauss scale, must indicate less than one milligauss across the entire heating element and mat assembly. This is the field added to the ambient while the heating element is operating.

Heating mat shall be tested by manufacturer for correct resistance and insulation integrity before leaving the factory. Compliance with this quality criteria shall be certified on the label of each mat.

All heating mats furnished under this section shall be supplied by a single manufacturer. Manufacturer shall have at least 20 years experience manufacturing floor-warming systems. The product shall have a limited 25-year warranty.

Heating mat made with self-regulating wire or a wire not woven into an open mesh mat construction is not acceptable for this application.

The Heating Wire

The resistance heating wire for the heating mat shall be series resistance type that cannot be cut to length on jobsite. It shall be UL Recognized for the U.S. and Canada for this application. Insulation shall be rated for continuous duty at 194°F (90°C). The mat can produce up to 12 watts/sq. ft. (129 watts/sq. meter).

The heating cable assembly shall be made of two individual heating wires twisted around each other to reduce the EMF to nearly zero. Each wire shall be made of oxygen-free copper or Nickel-Copper conductor shall be encapsulated in an inner layer of ETFE fluoropolymer. This insulation shall be surrounded by a tin-coated copper braid to provide a ground path. An outer jacket shall be extruded over the braid for abrasion and chemical resistance.

CONTROL/OPERATION

The control system shall include a SunTouch SunStat Pro thermostat. This control shall have the following attributes as a minimum: dual-voltage capability (120V/240V); floor, air, or air/floor sensing; Regulator (no-sensor) capability; SmartStart (early start) technology; temperature set-back and related programming; home automation remote control; 15-ft long Class 2 double insulated floor sensor; and master control capability with direct connection to SunStat Relays.

The SunStat shall have an integral Ground Fault Circuit Interrupter (GFCI) Class A (5mA) and integral 16-amp Relays. If the system requires more than 15 amps, SunStat Relay(s) shall be used as needed. SunStat Relays shall be capable of connecting directly to the main SunStat thermostat.

If an alternate control is used, the power supply circuit shall have a Class A GFCI. All controls shall be installed according to local codes and manufacturer recommendations.

CODE LISTINGS/SPECIFICATIONS

The heating mat shall be Listed by UL® for the U.S. and Canada. The heating mat shall be capable of being installed in one step with the mortar bond coat and tile. This installation technique shall have been tested by TCNA or other independent, reputable agency according to ASTM C627, a standard test method for evaluating ceramic floor tile installation systems using the Robinson-type Floor Tester. The installation and testing shall result in a minimum performance level of "Extra Heavy" for installation over slab and "Heavy" for installation over wood subfloor. "Heavy" is described as applications such as shopping malls, stores, commercial kitchens, auto showrooms, and shipping/receiving areas. "Extra Heavy" is described as "extra heavy and high-impact use in food plants, dairies, breweries, and kitchens".

The manufacturer shall be a member of the Radiant Panel Association, TCNA, WFCA, NTCA, USGBC, and other industry associations.



PRODUCT INSTALLATION

Examination

Installer must

- verify that the floor surface is ready to receive work.
- verify field measurements are as shown on drawings.
- verify mats and control are correct size and voltage for area.
- verify that required utilities are available, in proper locations, and ready for use.
- using a digital ohm meter, verify the cable resistance with the manufacturer's values printed on the UL tag.

Beginning of installation signifies that installer accepts conditions.

Heating Mat Installation

Follow the detailed instructions in the SunTouch Installation Manual. In brief, these are:

Use a digital ohmmeter to measure and certify the correct wire resistance (ohm) value for the mat. Check this resistance value regularly during and after the installation and additionally before mortar and tile are installed. Record these readings in the chart provided in the installation manual.

Use of manufacturer's LoudMouth™ monitor is recommended for continuous monitoring of the mat during installation. The LoudMouth shall monitor ground, line, and neutral wires of the mat, and shall sound an alarm if there is a break in the circuit or a short to ground. LoudMouth shall have integral test button/light to verify proper battery power.

Clean the subfloor. Roll out the mat to make sure it covers the proper area. Use double-sided tape or finish staples to secure the mat to the subfloor. Make cuts to the orange fabric to shape the mat to the room dimensions.

CAUTION: Never allow nails or staples to touch the blue heating elements. Never use metallic fasteners to hold down the blue heating elements. Metal fasteners may damage the heating elements.

Install the floor sensor a minimum of 6"–12" into the heated floor area, according to installation manual.

Apply one layer of polymer-modified, cement based thin-set mortar over the mat with a minimum 3/8" x 1/4" notched trowel, then set the tile or stone floor. Other techniques and floor coverings are allowed; see installation manual. Do not install the mat under a surface other than tile without embedding it into 3/8" (minimum) self-leveling, cement-based material.

Do not cut or damage the blue heating elements. Do not cut the mats to make them shorter. Do not overlap the mat on itself or install one mat over another. Do not install the mats under cabinets or built-ins. Remember to measure and record mat resistance readings. Use licensed masonry and electrical installers and follow all building and electrical codes.

Installation Applications

✓ Description
Cementitious backer board over wood floor
Reinforced mortar setting bed over wood floor
Mortar setting bed on a concrete slab floor
Thin-slab concrete over framed floor or slab

Control Options

Qty.	Model No.	Volts	Description
	500670	120/240	SunStat Pro (digital programmable)
	500675	120/240	SunStat (digital non-programmable)
	500710	120/240	SunStat Dial (non-programmable)
	500680	120/240	SunStat Relay
	423250	NA	LoudMouth Monitor

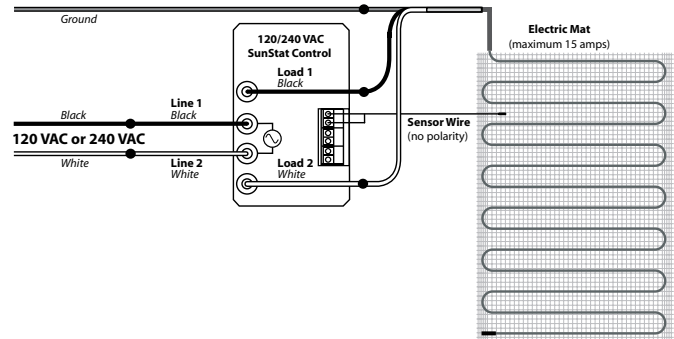
Control Installation

Test the supply to ensure voltage at each unit and verify the correct voltage is available, as per UL Listing label attached to heating mat.

Properly choose correct SunStat control(s) and protection devices for the heating area. A SunStat can control up to 150 sq.ft. at 120 VAC (15 amps), and 300 sq.ft. at 240 VAC (15 amps). If amperage draw is greater than this for one zone, SunStat Relay(s) are required for safe mat operation.

Install all controls according to all applicable local and national codes, and to manufacturer's guidelines.

Typical Electrical Wiring Diagram with SunStat Controller (120V or 240V)



All electrical work must be done by a qualified, licensed electrician in accordance with local building and electrical codes, and the National Electrical Code (NEC), especially Article 424, Part IX of the NEC, ANSI/NFPA 70 and Section 62 of CEC Part I.

SunTouch Mat Sizes

SunTouch Mat Sizes 120 VAC			SunTouch Mat Sizes 240 VAC		
Qty.	Mat Size	Sq. ft.	Qty.	Mat Size	Sq. ft.
1' Wide Mat			2' Wide Mat		
	1' x 10'	10 sq. ft.		2' x 10'	20 sq. ft.
	1' x 15'	15 sq. ft.		2' x 15'	30 sq. ft.
	1' x 20'	20 sq. ft.		2' x 20'	40 sq. ft.
	1' x 25'	25 sq. ft.		2' x 25'	50 sq. ft.
	1' x 30'	30 sq. ft.		2' x 30'	60 sq. ft.
2' Wide Mat				2' x 35'	70 sq. ft.
	2' x 5'	10 sq. ft.		2' x 40'	80 sq. ft.
	2' x 7'-6"	15 sq. ft.		2' x 45'	90 sq. ft.
	2' x 10'	20 sq. ft.		2' x 50'	100 sq. ft.
	2' x 12'-6"	25 sq. ft.		2' x 60'	120 sq. ft.
	2' x 15'	30 sq. ft.		2' x 70'	140 sq. ft.
	2' x 17'-6"	35 sq. ft.		2' x 80'	160 sq. ft.
	2' x 20'	40 sq. ft.	3' Wide Mat		
	2' x 22'-6"	45 sq. ft.		3' x 10'	30 sq. ft.
	2' x 25'	50 sq. ft.		3' x 13'4"	40 sq. ft.
	2' x 30'	60 sq. ft.		3' x 16'8"	50 sq. ft.
	2' x 35'	70 sq. ft.		3' x 20'	60 sq. ft.
	2' x 40'	80 sq. ft.		3' x 30'	90 sq. ft.
3' Wide Mat				3' x 40'	120 sq. ft.
	3' x 5'	15 sq. ft.			
	3' x 6'8"	20 sq. ft.			
	3' x 8'4"	25 sq. ft.			
	3' x 10'	30 sq. ft.			
	3' x 15'	45 sq. ft.			
	3' x 20'	60 sq. ft.			