



# Submittal and Specification

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Project Name: \_\_\_\_\_

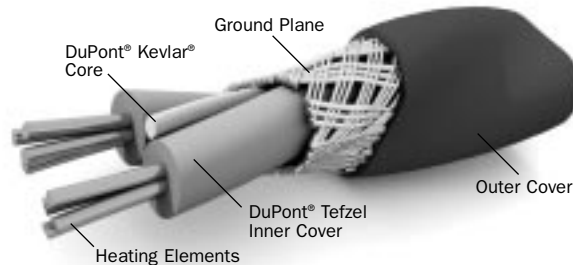
HeatWeave Representative: \_\_\_\_\_

Unit Tag #: \_\_\_\_\_ Order #: \_\_\_\_\_ Date: \_\_\_\_\_

Designer: \_\_\_\_\_ Submitted By: \_\_\_\_\_ Date: \_\_\_\_\_

Contractor: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

## HeatWeave® Electric Floor Warming Mat



### PRODUCT DESCRIPTION

#### General

HeatWeave is a heating element and mat assembly that is installed over plywood, tile backerboard, or concrete slab (according to ANSI or TCA guidelines), and then embedded in 3/8" self-leveling or thin-set mortar beneath a finished ceramic, tile, or stone floor. Other floor coverings are approved if the HeatWeave is embedded in a minimum 1/4" mortar layer below the finished floor.

An EMF field monitor held at 1/2" above operating heating elements and set to milligauss scale, must indicate zero electromagnetic field across the entire heating element and mat assembly.

Heating mat shall be tested by manufacturer for continuity, correct resistance, and insulation resistance 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 15 years experience manufacturing floor warming systems.

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

#### The Heating Wire

The resistance heating wire for the heating mat shall be UL Recognized for the U.S. and Canada for this application. Insulation shall be rated for continuous duty at 302°F (150°C). The mat can produce up to 12 watts/sq.ft. (129 watts/sq. meter).

Multiple oxygen-free copper or nichrome conductors shall be helically wound around a central core of Kevlar® cord. This assembly shall be encapsulated in an inner layer of Tefzel fluoropolymer. This Tefzel insulation shall be surrounded by a tin-coated copper braid to provide a ground path. A Hylar outer jacket shall be extruded over the copper braid for abrasion and chemical resistance.

End termination splice shall have a diameter of 3/8" and shall be environmentally sealed. Power leads shall be of sufficient length to reach junction boxes as shown on detailed drawings. Power leads shall be minimum 10' long, made of stranded UL Recognized wire, and color-coded to match the standard U.S. wire color scheme.

### CONTROL/OPERATION

The control system shall include a HeatWeave FloorStat™ thermostatic control, or equivalent. This control shall incorporate a thermistor-type floor sensor to monitor floor temperatures, an integral Ground Fault Circuit Interrupter (GFCI) or Appliance Leakage Circuit Interrupter (ALCI), a temperature set-back option to reduce energy consumption, and a digital readout.

If an alternate control is used, the power supply circuit shall be protected by a Ground Fault Circuit Interrupter (GFCI) or Appliance Leakage Circuit Interrupter (ALCI).

A programmable FloorStat or other control shall be installed according to manufacturer's recommendations.

### CODE LISTINGS/SPECIFICATIONS

The heating mat shall be Listed by Underwriters Laboratory (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 TCA 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 rating of "moderate commercial" for normal (non-vehicular) residential, commercial and light institutional use.

The manufacturer shall be a member of the Radiant Panel Association.

Charter Member:  
**RPA**  
Radiant Panel Association

Tested by the  
**TCA**  
Tile Council of America, Inc.

**UL** US

**ASTM**



## PRODUCT INSTALLATION

### Examination

#### Installer must

- verify that the floor surface is ready to receive work.
- verify field measurements are as shown on drawings.
- verify that required utilities are available, in proper locations, and ready for use.

Beginning of installation signifies that installer accepts conditions.

### Heating Mat Installation

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

Measure and certify the correct wire resistance (ohmic) 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 alarm meter (LoudMouth™ meter) is recommended for continuous monitoring during installation. The LoudMouth meter shall monitor ground, line, and neutral wires of the mat, and shall alarm if there is a break in the circuit or a short to ground.

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 polyester 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 thin-set mortar over the mat with a 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 unit 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.    | Order No. | Volts | Description                   |
|------|--------------|-----------|-------|-------------------------------|
|      | 500550-120CS | 81003835  | 120   | FloorStat (non-programmable)* |
|      | 500650-120CS | 81003661  | 120   | FloorStat (programmable)      |
|      | 500650-240BS | 81002910  | 240   | FloorStat (programmable)      |
|      | 423250       | 81000049  | NA    | LoudMouth Monitor             |

\*Available only in 120 VAC.

### Control Installation

Measure ohm reading of heating wire in mat before, during and after floor covering is in place. Verify that this reading is in accordance with approved shop drawings before connecting to controls.

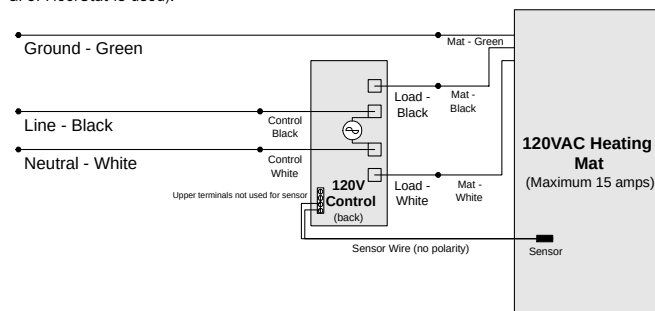
Test the supply to insure voltage at each unit and verify the correct voltage is available, as per UL Listing label attached to heating mat.

Properly choose correct FloorStat control(s) and protection devices for heating area. FloorStats can control up to 150 sq. ft. at 120VAC (15 amps), and 260 sq. ft. at 240VAC (13 amps). If amp draw is greater than this, an external controller is 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 FloorStat Controller (120V)

Dedicated 120V, 20 amp (maximum) circuit (must be GFCI protected unless GFCI FloorStat is used).



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.

### HeatWeave Mat Sizes

| HeatWeave Mat Sizes<br>120 VAC |            | HeatWeave Mat Sizes<br>240 VAC |             |
|--------------------------------|------------|--------------------------------|-------------|
| MAT SIZE                       | SQ. FT.    | MAT SIZE                       | SQ. FT.     |
| <b>12" Wide Mat</b>            |            | <b>12" Wide Mat</b>            |             |
| 12" x 10'                      | 10 sq. ft. | 12" x 20'                      | 20 sq. ft.  |
| 12" x 15'                      | 15 sq. ft. | 12" x 30'                      | 30 sq. ft.  |
| 12" x 20'                      | 20 sq. ft. | 12" x 40'                      | 40 sq. ft.  |
| 12" x 25'                      | 25 sq. ft. | 12" x 50'                      | 50 sq. ft.  |
| 12" x 30'                      | 30 sq. ft. |                                |             |
| 12" x 35'                      | 35 sq. ft. | <b>24" Wide Mat</b>            |             |
| 12" x 40'                      | 40 sq. ft. | 24" x 10'                      | 20 sq. ft.  |
| 12" x 45'                      | 45 sq. ft. | 24" x 15'                      | 30 sq. ft.  |
| 12" x 50'                      | 50 sq. ft. | 24" x 20'                      | 40 sq. ft.  |
|                                |            | 24" x 25'                      | 50 sq. ft.  |
| <b>24" Wide Mat</b>            |            | 24" x 30'                      | 60 sq. ft.  |
| 24" x 5'                       | 10 sq. ft. | 24" x 35'                      | 70 sq. ft.  |
| 24" x 10'                      | 20 sq. ft. | 24" x 40'                      | 80 sq. ft.  |
| 24" x 15'                      | 30 sq. ft. | 24" x 45'                      | 90 sq. ft.  |
| 24" x 20'                      | 40 sq. ft. | 24" x 50'                      | 100 sq. ft. |
| 24" x 25'                      | 50 sq. ft. | 24" x 60'                      | 120 sq. ft. |
| 24" x 30'                      | 60 sq. ft. | 24" x 70'                      | 140 sq. ft. |
| 24" x 35'                      | 70 sq. ft. | 24" x 80'                      | 160 sq. ft. |
| 24" x 40'                      | 80 sq. ft. |                                |             |
| <b>36" Wide Mat</b>            |            | <b>36" Wide Mat</b>            |             |
| 36" x 5'                       | 15 sq. ft. | 36" x 10'                      | 30 sq. ft.  |
| 36" x 6'8"                     | 20 sq. ft. | 36" x 13'4"                    | 40 sq. ft.  |
| 36" x 8'4"                     | 25 sq. ft. | 36" x 16'8"                    | 50 sq. ft.  |
| 36" x 10'                      | 30 sq. ft. | 36" x 20'                      | 60 sq. ft.  |
| 36" x 15'                      | 45 sq. ft. | 36" x 30'                      | 90 sq. ft.  |
| 36" x 20'                      | 60 sq. ft. | 36" x 40'                      | 120 sq. ft. |