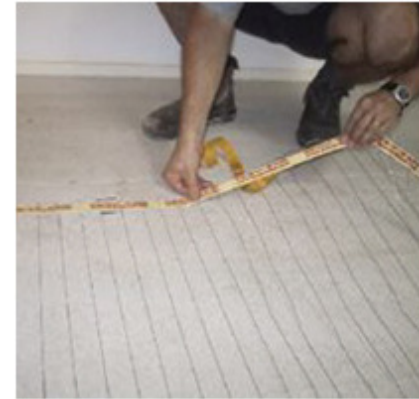


Tile Warm™

INSTALLATION INSTRUCTIONS



Speedheat® US
Woodstock, Georgia
Phone: 678-391-3244
Toll Free: 1-888-WARM FLOOR
Fax: 678-391-3248
Toll Free Fax: 1-888-927-6357
www.speedheat.us



TileWarm™

Congratulations on choosing TileWarm™ by Speedheat® as the safe, energy efficient way to add a touch of warmth and luxury to your floors!

In the following pages, you will find detailed, step-by-step instructions for installing your new flexible TileWarm™ electric floor heating strips.

For Safety Reasons and to Avoid Damaging the Product, please pay special attention to all items labeled:



DANGER!






Indicates a tip to help make your life easier!

TileWarm™ Installation Instructions

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IMPORTANT NOTICE

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IMPORTANT NOTICE

THESE INSTALLATION INSTRUCTIONS ARE ISSUED ON THE EXPRESS UNDERSTANDING THAT THE HEATING SYSTEM SUPPLIED HAS BEEN SPECIFIED BY AN AUTHORIZED SPEEDHEAT RESELLER.

BEFORE PROCEEDING BE SURE OF THE FOLLOWING:



1. You will be using vinyl or ceramic, stone, marble, or porcelain tiles for your floor covering. **TileWarm™ heaters are not designed for installation under laminate or wood floors, wall-to-wall carpets, or area rugs.** Speedheat® has other specifically designed products for those applications.
2. The heaters supplied will **adequately cover floor area** to be heated without having to lengthen or shorten the element.
3. **The correct electrical requirements have been specified:**
 - 3.1 **Supply Voltage** Required – 120 Volts or 240 Volts.
 - 3.2 **Current draw** (Amps).
 - 3.3 **Required Voltage & Amperage** of Dedicated Circuit Breaker.
(Example – 240 Volt/30 Amp; 120 Volt/15 Amp ; 120 Volt/20 Amp, etc.)
 - 3.4 **Size & Type of Electrical Boxes** to house the thermostat.
Some require ¾” knockouts for specified electrical conduit.
(Standard size is Double gang with single gang adapter plate).
 - 3.5 **Electrical Cable from Service Panel** to electrical box should be **Correct Gauge and Number of Wires.**
(Example – 14/2; 12/2; 10/3 etc.)
 - 3.6 **Quantity & Diameter of Electrical Conduit** to be installed from the specified electrical box to floor level for hook up wires and floor temperature sensor cable.
(Example – ½”; ¾”; plastic or metal). Thermostat box must have correct knockouts for conduit size.

**CAREFULLY READ THE PRECAUTIONS AND PREPARATIONS
ON PAGES 23 TO 24**

2.0 SUB FLOOR PREPARATION



2.1 PLY WOOD SUB FLOOR PREPARATION

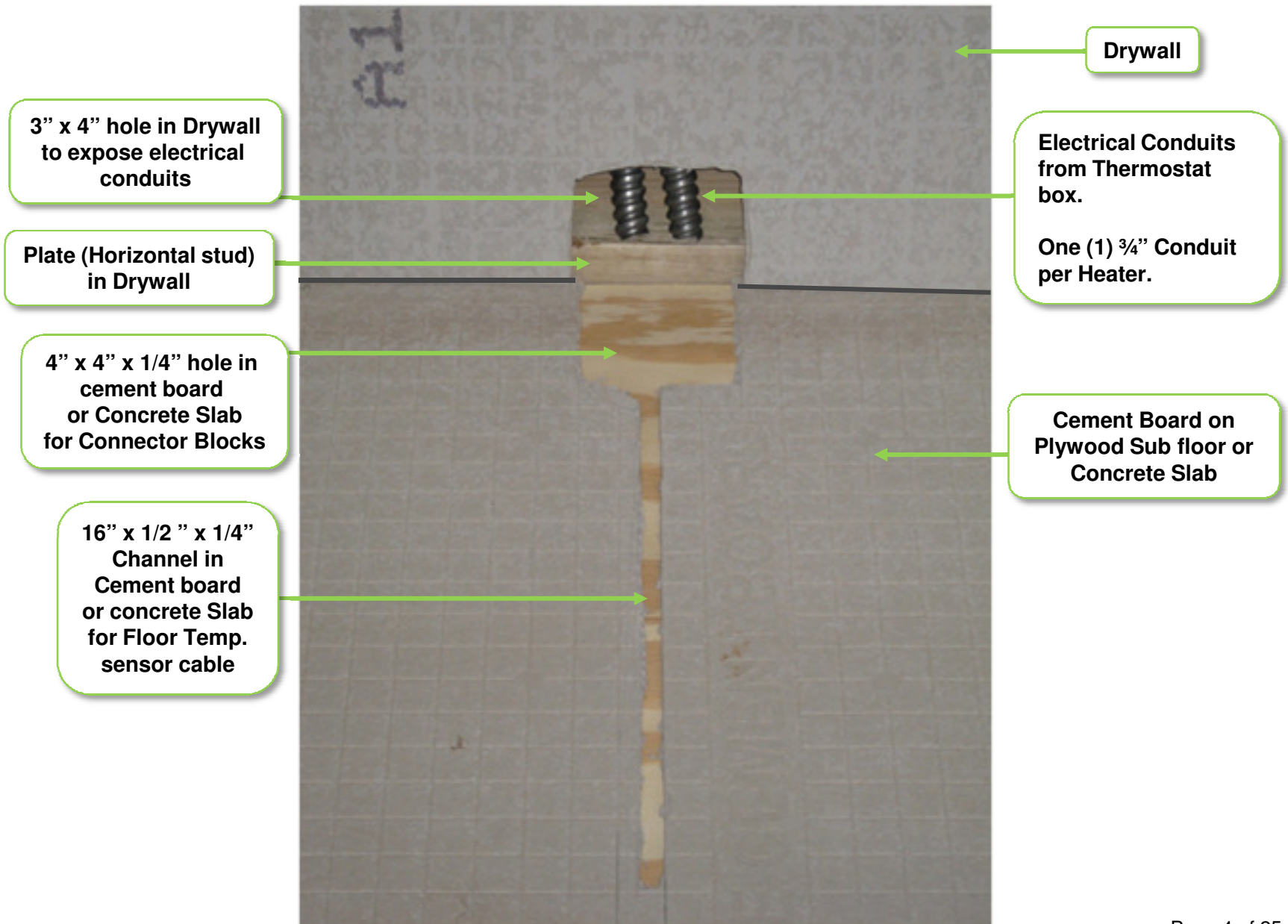
- 2.1.1. Cover the ply wood sub floor with a cement board de-coupler in accordance with the tile manufacturer's requirements.
- 2.1.2. Fill or cover gaps between adjoining cement boards.
- 2.1.3. Ensure the floor is smooth and free from protruding screws, nails, lumps of cement etc.
- 2.1.4. Thoroughly sweep all dust off prepared sub floor.



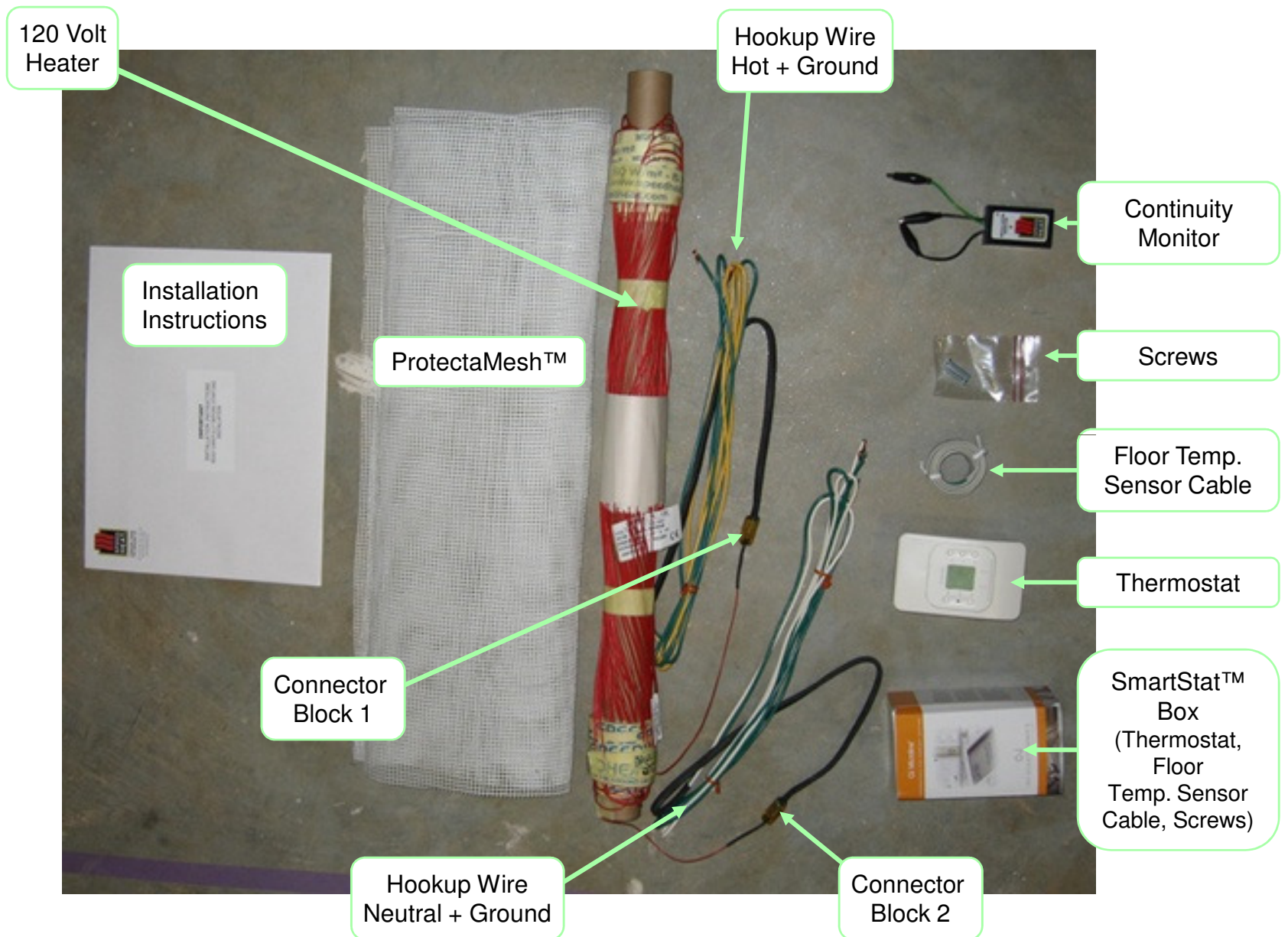
2.2 CONCRETE SLAB REPARATION

- 2.2.1. Concrete slab must be dry and cured. Any surface cracks to be filled in accordance with tile manufacturer's requirements.
- 2.2.2. Ensure the floor is smooth and free from protruding lumps of cement etc.
- 2.2.3. Thoroughly sweep dust off prepared sub floor. Use a damp cloth to remove dust from new concrete slabs.

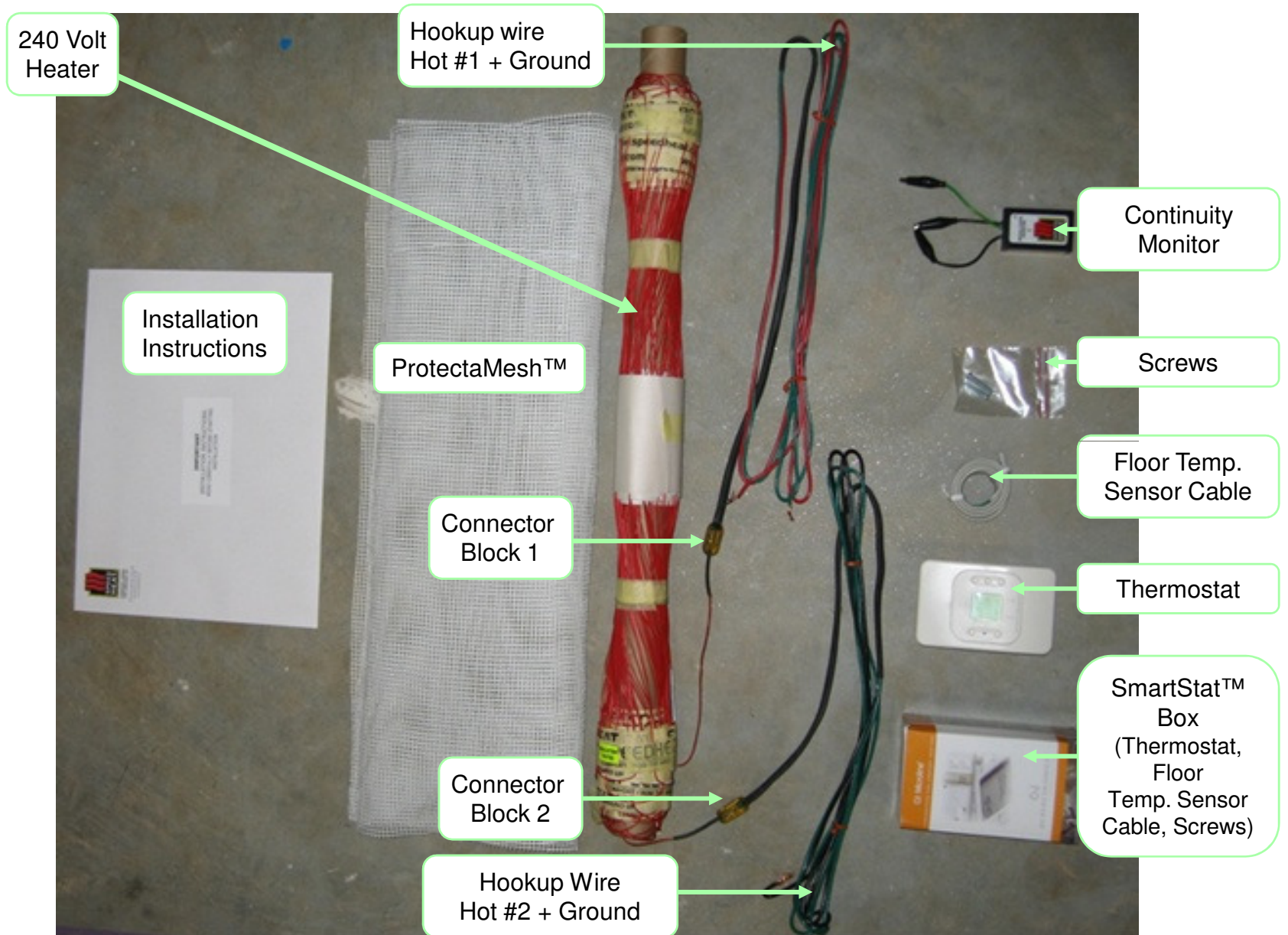
3.0 DRY WALL AND SUB FLOOR ACCESS HOLES



4.1 120 VOLT System Package Contents



4.2 240 VOLT System Package Contents



5.1 Test Heaters - 120 Volt System

5.1.1 Monitor As Received In Package



5.1.1.1 Two black leads connected to each other to keep monitor silent in sleep mode.

5.1.2 Monitor Awakened



- 5.1.2.1 Unclip alligator clips to separate two black leads.
- 5.1.2.2 Monitor will emit a **clicking sound until connected** to a heater **or until the two black leads are connected** together again.

5.1.3 Monitor Connected To 120 Volt Heater



- 5.1.3.1 Attach one (1) **Black Monitor Lead** to the **Yellow Heater Hookup Wire**.
- 5.1.3.2 Attach other **Black Monitor Lead** to the **White Heater Hookup wire**.
- 5.1.3.3 Connect **Yellow/Green Monitor Lead** to **BOTH Green Heater Hookup wires**.

5.1.3.4 Monitor will go silent, and a **GREEN LED** will flash continuously.

5.1.3.5 If **RED LED** flashes, call **1-888-WARM FLOOR** (888-927-6356 ext. 201)



5.1.4 IMPORTANT



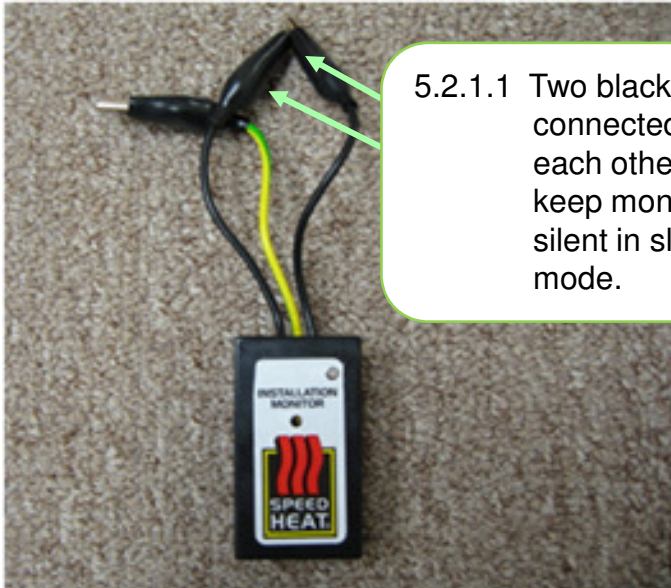
Once a monitor has been connected to a heater IT WILL ONLY WORK ON THAT HEATER.

Clearly identify each monitor and heater.

- 5.1.4.1 **After a heater has been successfully tested**, detach the alligator clips from the heater hookup wires.
- 5.1.4.2 The monitor will “chirp” loudly, and the LED will flash red until the alligator clips on the 2 black leads are reconnected to each other.
- 5.1.4.3 **Clearly identify each monitor and the heater to which it was attached.**
- 5.1.4.4 **The monitor must be re-attached to the same heater after the heater has been installed.**

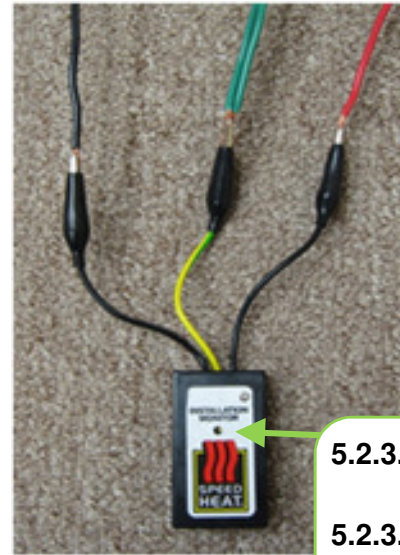
5.2 Test Heaters - 240 Volt System

5.2.1 Monitor As Received In Package



5.2.1.1 Two black leads connected to each other to keep monitor silent in sleep mode.

5.2.3 Monitor Connected To 240 Volt Heater



- 5.2.3.1 Attach one (1) **Black Monitor Lead** to the **Red Heater Hookup Wire**.
- 5.2.3.2 Attach other **Black Monitor Lead** to the **Black Heater Hookup wire**.
- 5.2.3.3 Connect **Yellow/Green Monitor Lead** to **BOTH Green Heater Hookup wires**.

5.2.3.4 Monitor will go silent, and a **GREEN LED** will flash continuously.

5.2.3.5 If **RED LED** flashes, call **1-888-WARM FLOOR** (888-927-6356 ext. 201)



5.2.2 Monitor Awakened



5.2.2.1 Unclip alligator clips to separate two black leads.

5.2.2.2 Monitor will emit a **clicking sound until connected** to a heater **or until the two black leads are connected** together again.

5.2.4 IMPORTANT

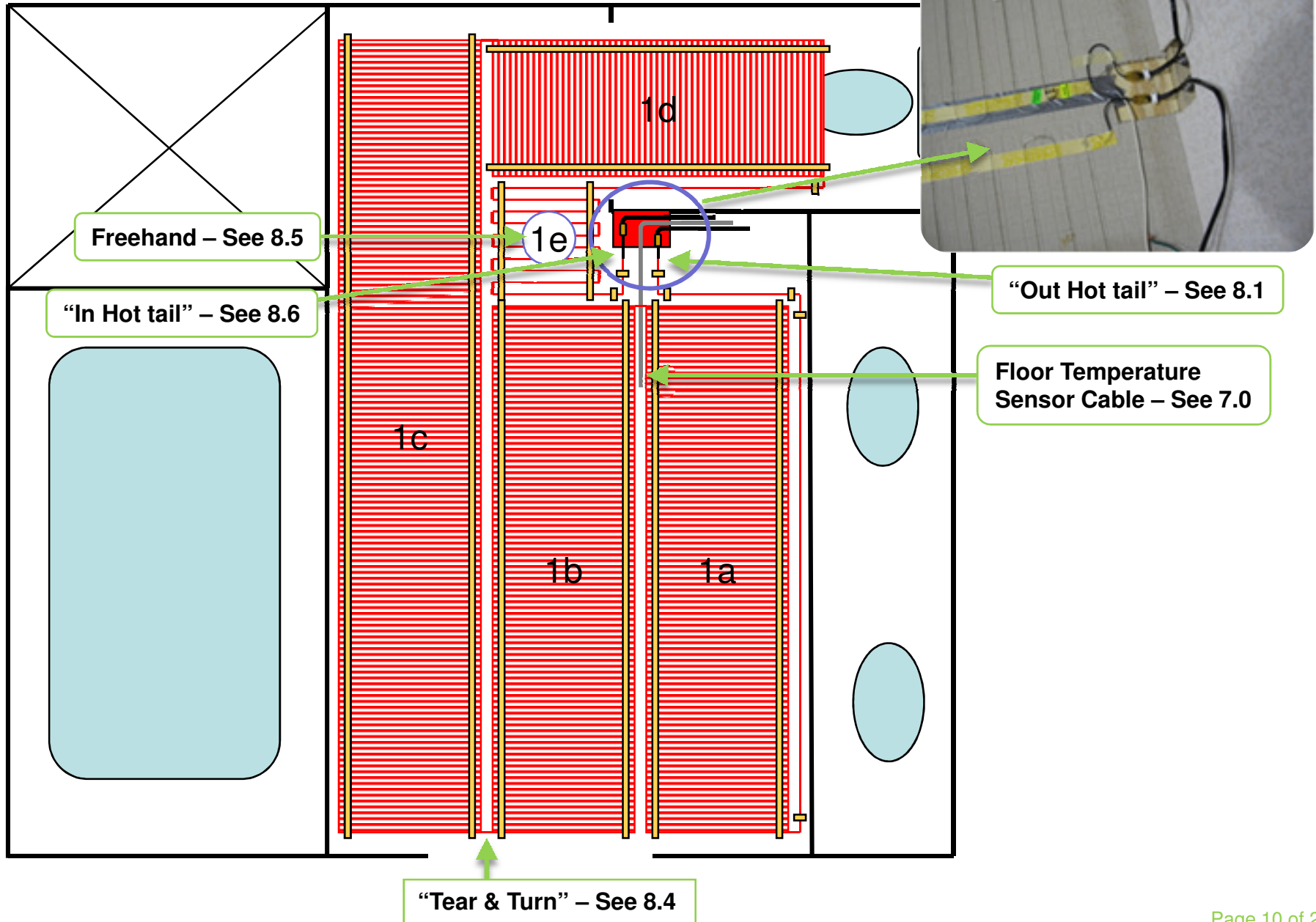


Once a monitor has been connected to a heater IT WILL ONLY WORK ON THAT HEATER.

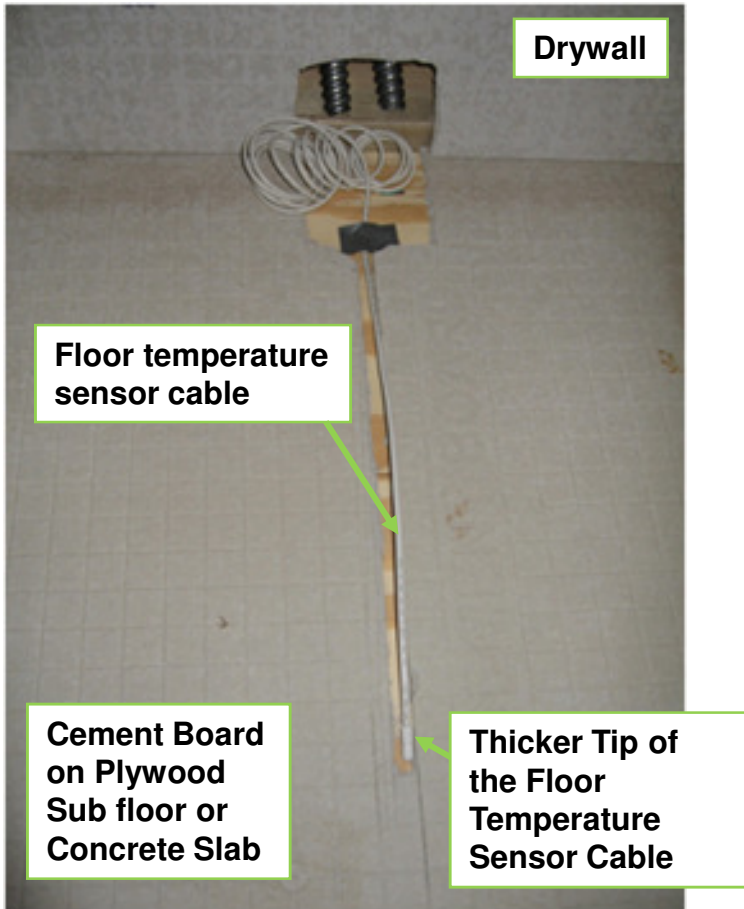
Clearly identify each monitor and heater.

- 5.2.4.1 **After a heater has been successfully tested**, detach the alligator clips from the heater hookup wires.
- 5.2.4.2 The monitor will “chirp” loudly, and the LED will flash red until the alligator clips on the 2 black leads are reconnected to each other.
- 5.2.4.3 **Clearly identify each monitor and the heater to which it was attached.**
- 5.2.4.4 **The monitor must be re-attached to the same heater after the heater has been installed.**

6.0 Sample Heater Layout & Installation Basics

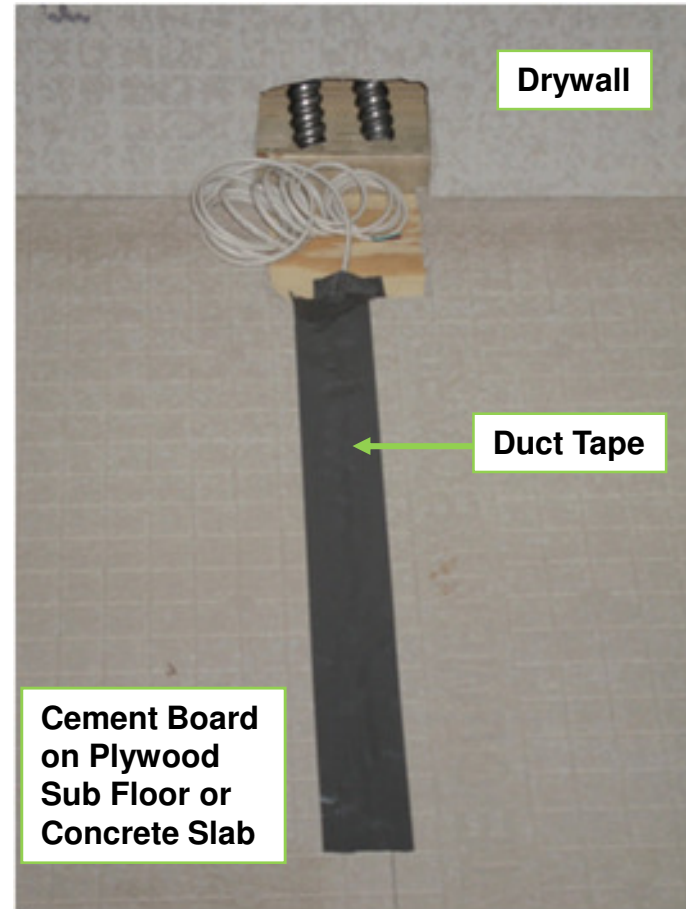


7.0 Floor Temperature Sensor Cable Installation

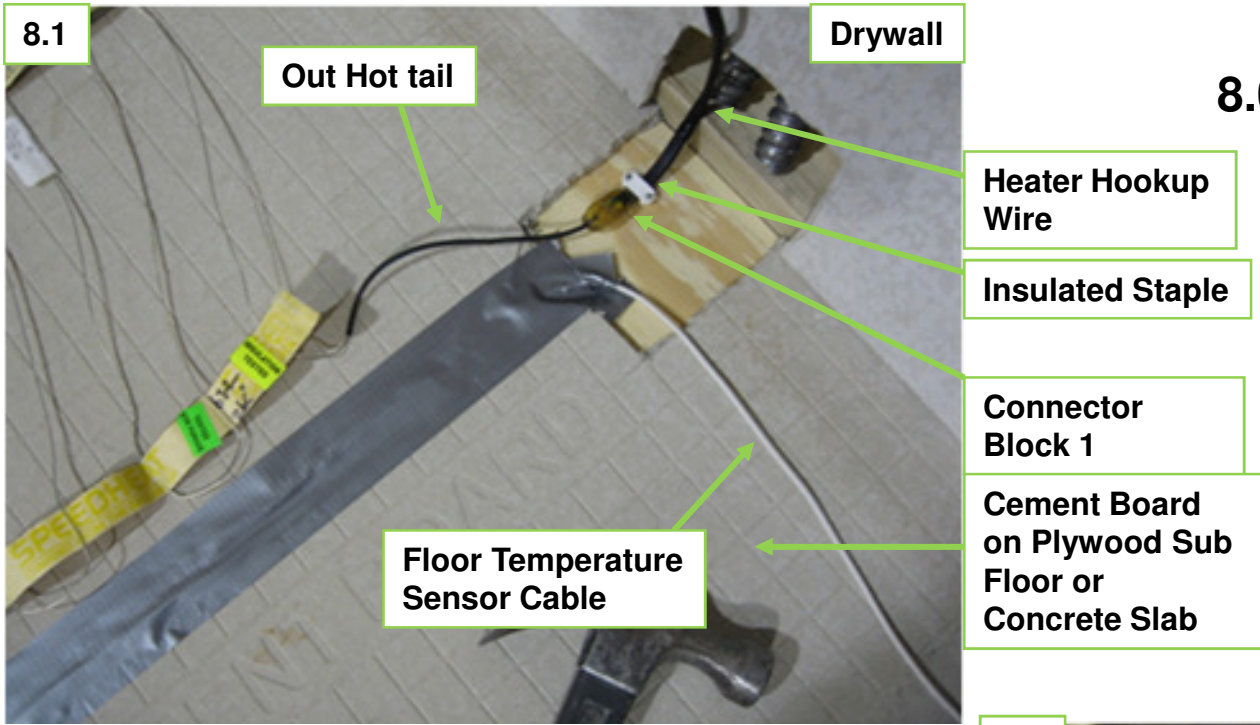


7.1 Place Floor Temp. Sensor Cable in the channel cut out in the sub floor.

7.2 The tip of the cable (which is thicker than the rest of the cable) should be positioned so that it will be covered by the heating element.



7.3 Cover the floor temperature cable with duct tape.



8.0 HEATER INSTALLATION

8.1 INSTALL CONNECTOR BLOCK 1

8.1.1 Secure Connector Block 1 for the “Out Hot Tail” to the ply wood sub floor with an insulated staple.

8.1.2 On a concrete slab, use hot glue to stick the block to the sub floor.



**NEVER ALLOW
ELEMENT WIRES
TO CROSS OVER
EACH OTHER!**

8.2 ATTACH HEATER STRIP TO THE SUB FLOOR

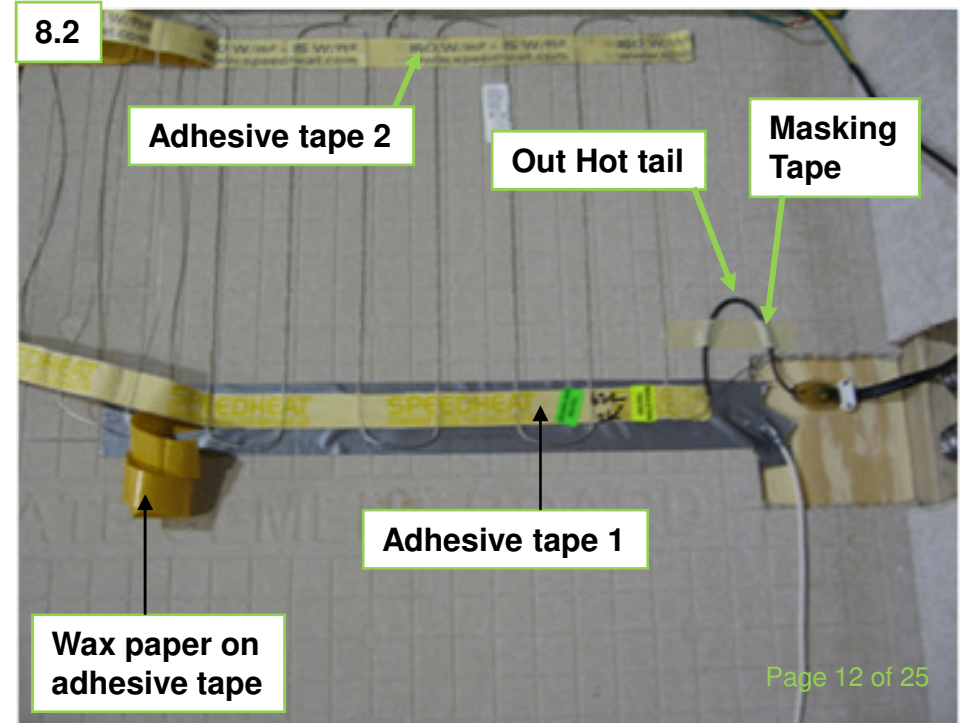
8.2.1 Secure the “Out Hot Tail” to the sub floor with masking tape or duct tape.

8.2.2 Remove the factory fitted wax paper from Adhesive Tape 1.

8.2.3 Attach Adhesive Tape 1 to the cement board or concrete slab and press firmly into place.

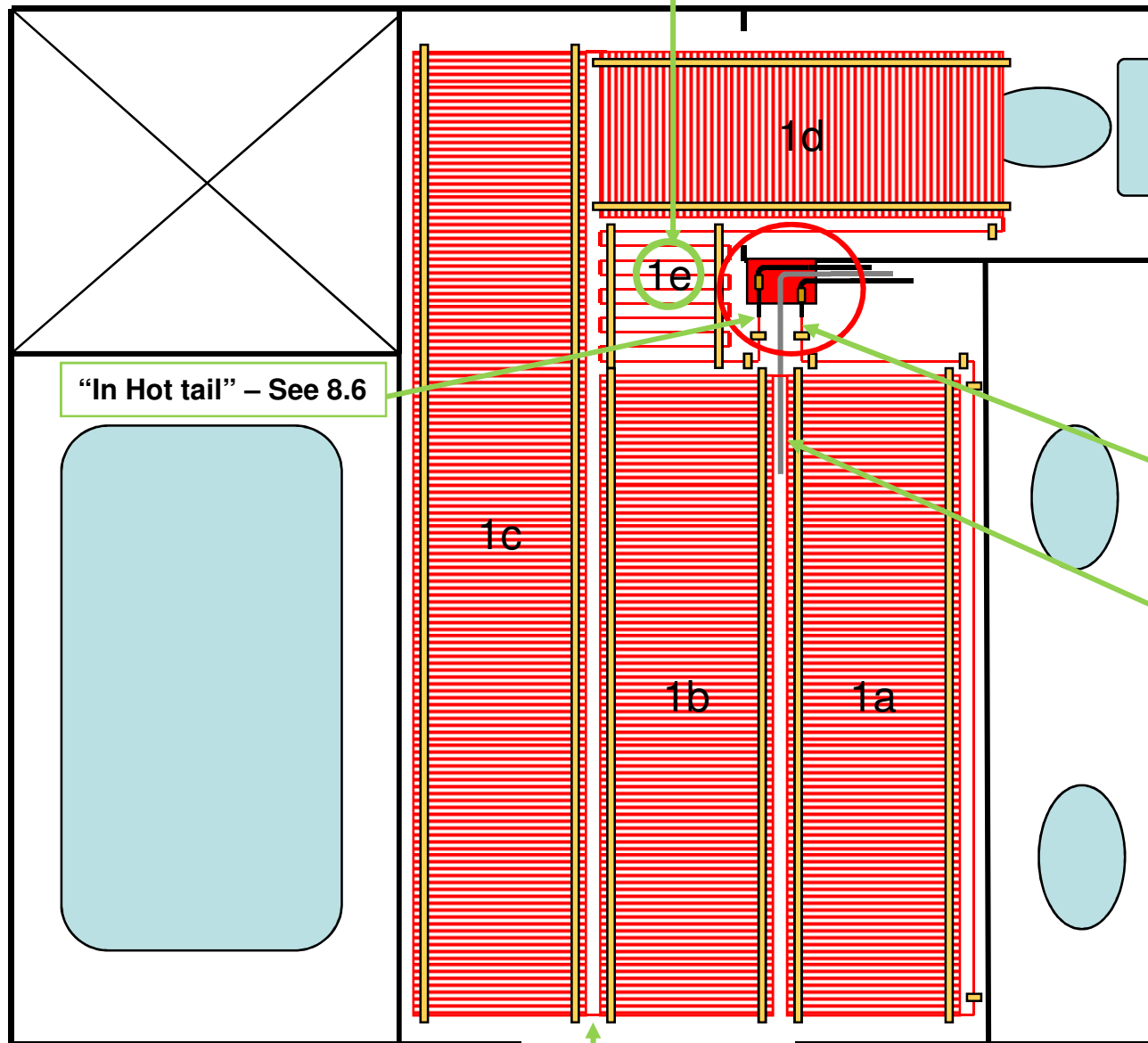
8.2.4 Stretch out the heater strip so that the element wire is straight.

8.2.5 Attach Adhesive Tape 2 to the cement board or concrete slab.



NEVER ALLOW ELEMENT WIRES TO CROSS OVER EACH OTHER

8.0 HEATER INSTALLATION



Freehand – See 8.5

8.3

- 8.3.1 Continue installing the heater according to the layout requirements.
- 8.3.2 See 8.4 for “Tear and turn” instructions.
- 8.3.3 See 8.5 for “Freehand” instructions.

“In Hot tail” – See 8.6

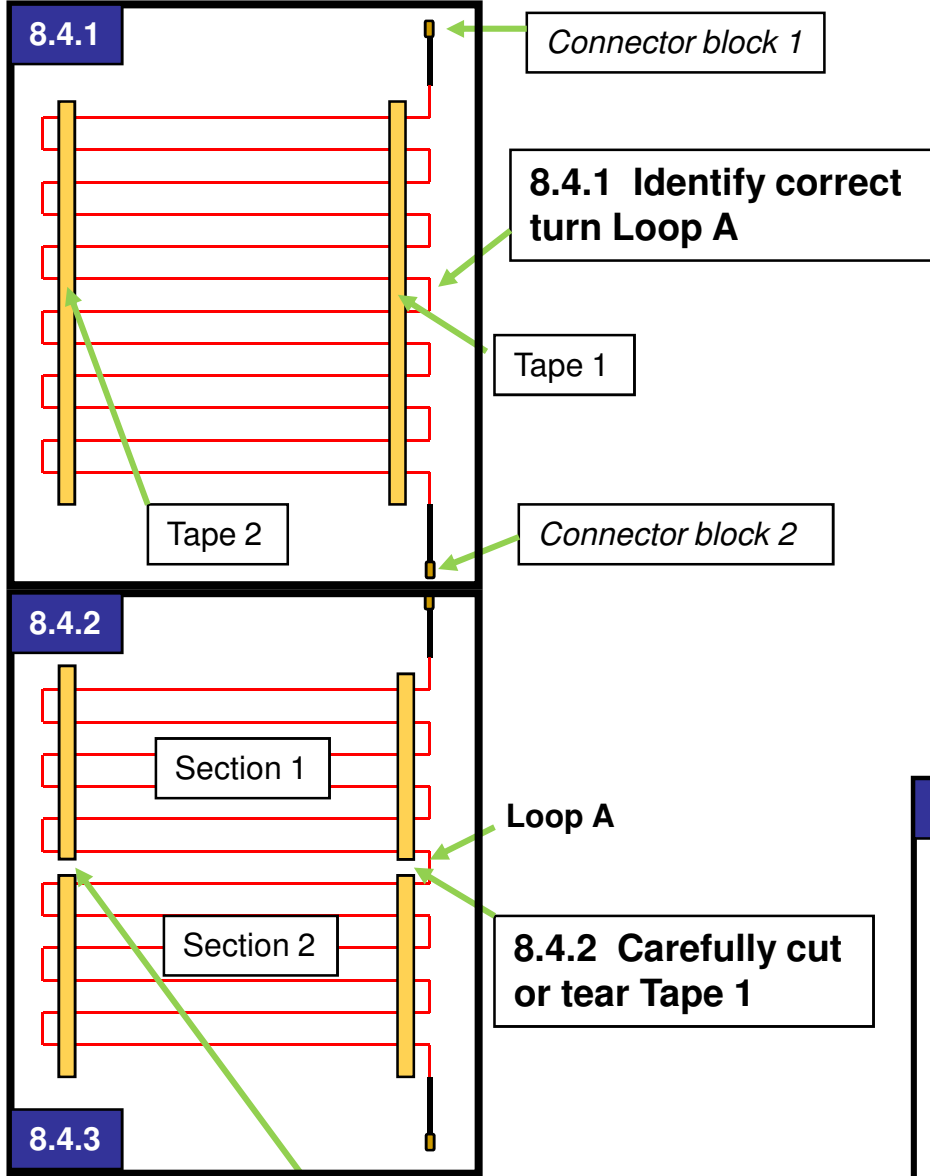
“Out Hot Tail” – See 8.1

Floor Temperature Sensor Cable – See 7.0

“Tear & Turn” – See 8.4

8.0 HEATER INSTALLATION

8.4 TEAR AND TURN INSTRUCTIONS



Use this method to turn the heater through 180°.

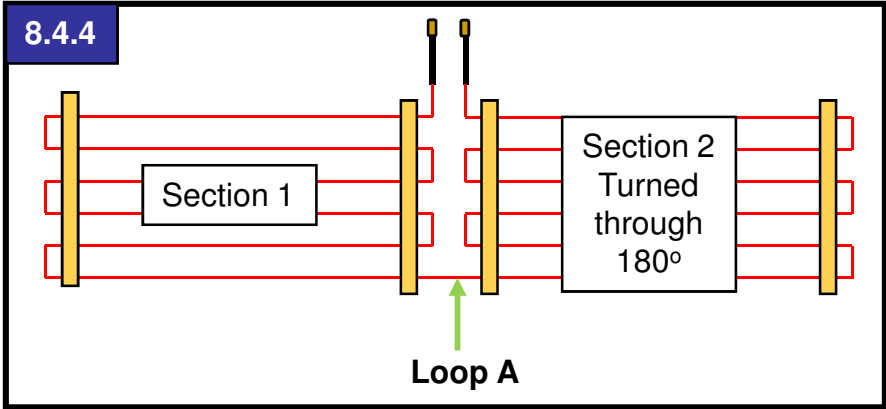
8.4.1 Identify the correct turn **Loop A** according to the layout requirements.

8.4.2 Carefully cut or tear Tape 1.
DO NOT CUT THE HEATING ELEMENT.

8.4.3 Carefully cut or tear Tape 2.
DO NOT CUT THE HEATING ELEMENT.

8.4.4 Turn Section 2 of the heater through 180°.

8.4.5 Attach heater sections 1 and 2 to the floor with the factory fitted adhesive tape.



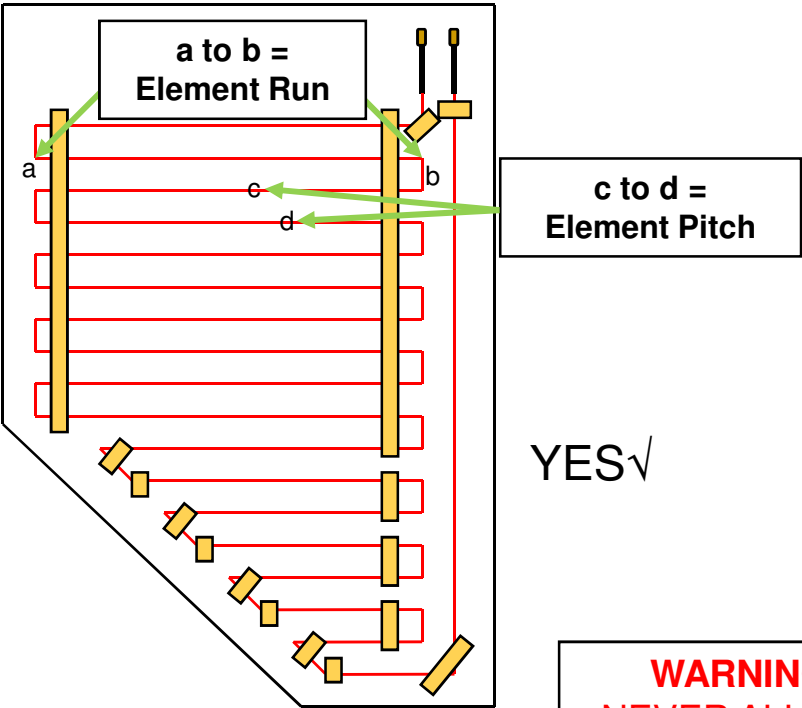
8.4.3 Carefully cut or tear Tape 2

NEVER ALLOW ELEMENT WIRES TO CROSS OVER EACH OTHER

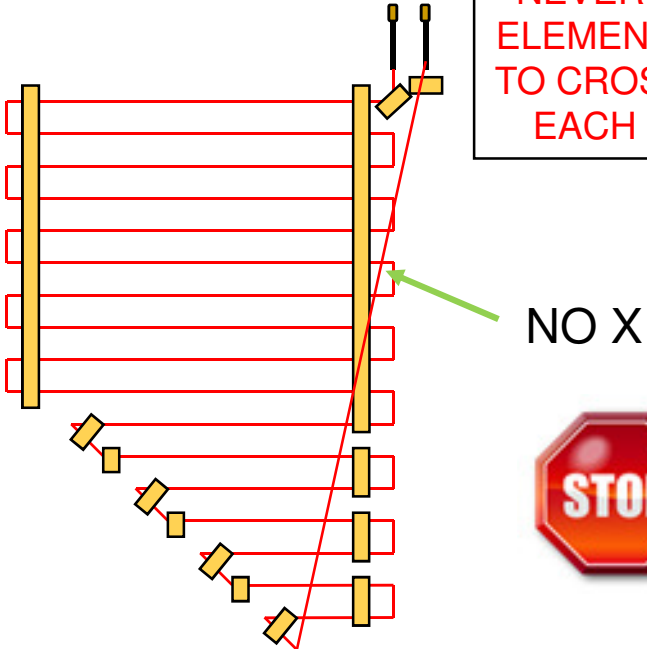
8.4.4 Turn Heater Section 2 through 180°

8.0 HEATER INSTALLATION

8.5 FREEHAND INSTRUCTIONS



WARNING
NEVER ALLOW
ELEMENT WIRES
TO CROSS OVER
EACH OTHER



Covering Odd-shaped Sections of the Floor

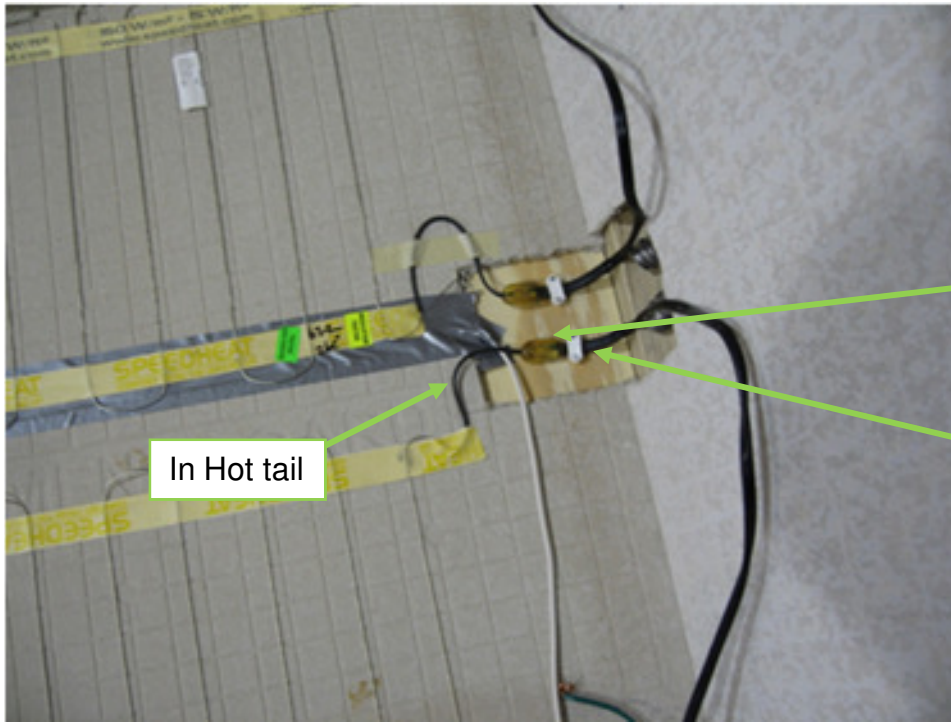
- 8.5.1 Detach the heating element from the factory fitted adhesive tape by giving it a sharp tug upwards.
- 8.5.2 Keep the 2 pieces of adhesive tape from which the element has been removed and use it to attach the freehand sections of element to the sub floor. Use masking tape or duct tape to adhere the element to the sub-floor if more tape is required.
- 8.5.3 Alternatively, tear the tape between each element run, leaving small pieces of tape attached to the element to stick to the sub-floor.
- 8.5.4 Maintain the same “element pitch” between “element runs” as the original strip. This spacing varies from 1.25” to 2.5” depending on the power density of the heater.

8.0 HEATER INSTALLATION

8.6 INSTALL CONNECTOR BLOCK 2

8.6.1 Secure Connector Block 2 for the "In Hot Tail" to the plywood sub floor with an insulated staple.

8.6.2 On a concrete slab, use hot glue to stick the block to the sub floor.



Connector Block 2

Insulated staple

In Hot tail

8.7 FISH WIRES AND SENSOR CABLE INTO CONDUIT

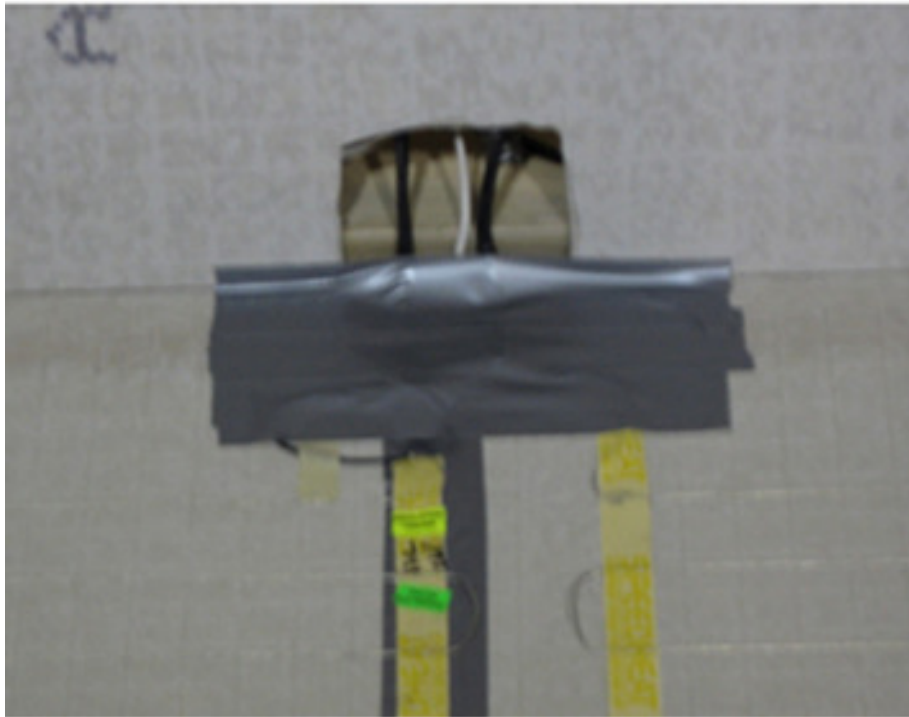
8.7.1 Fish the heater hookup wires and floor temperature sensor cable through the electrical conduits in the dry-wall up to the electrical box which will house the thermostat.

8.7.2 Tape the hookup wires together for each heater with electrical tape just above the point at which the wires enter the electrical box from the electrical conduit.

8.7.3 Separately identify each heater to ensure that the correct Continuity Monitor is attached later.

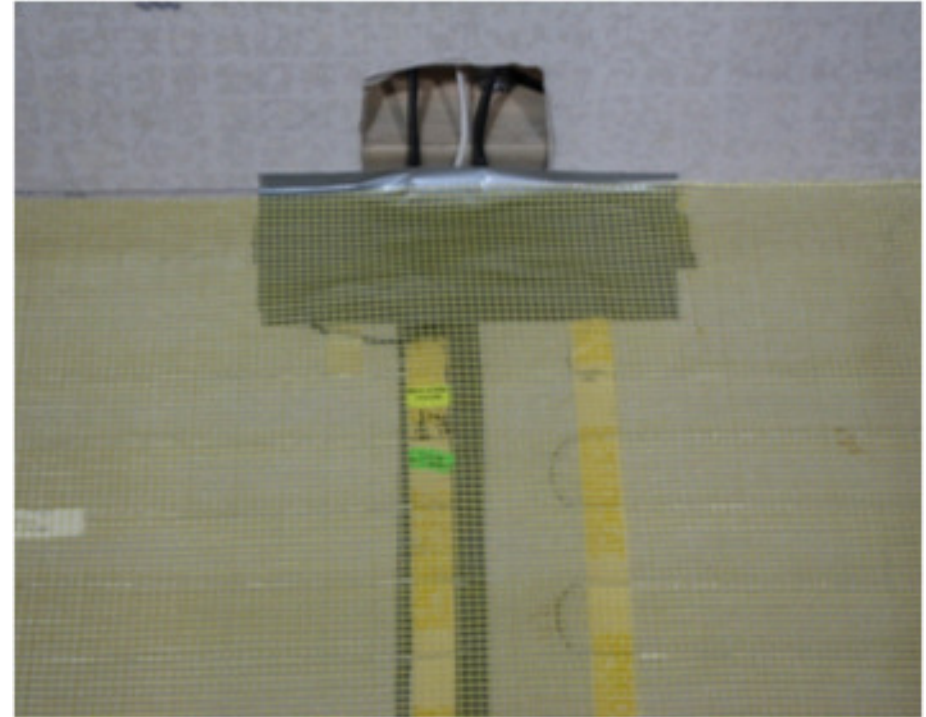


8.0 HEATER INSTALLATION



8.8 COVER CONNECTOR BLOCKS WITH TAPE

8.8.1 Cover the element blocks in the 4" x 4" x 1/4" cut out in the sub floor and with duct tape.



8.9 INSTALL PROTECTAMESH

8.9.1 Install the self-adhesive ProtectaMesh™ over the entire area covered by the heating element.

8.9.2 The ProtectaMesh supplied may be a different color to the yellow shown above.

8.9.3 Carefully cut the ProtectaMesh to the required size and shape with scissors or a knife.

DO NOT CUT THE HEATER ELEMENT

8.9.4 Flatten the ProtectaMesh by walking over it or by pressing down firmly with your hands.



9.0 RE-ATTACH MONITORS TO HEATERS

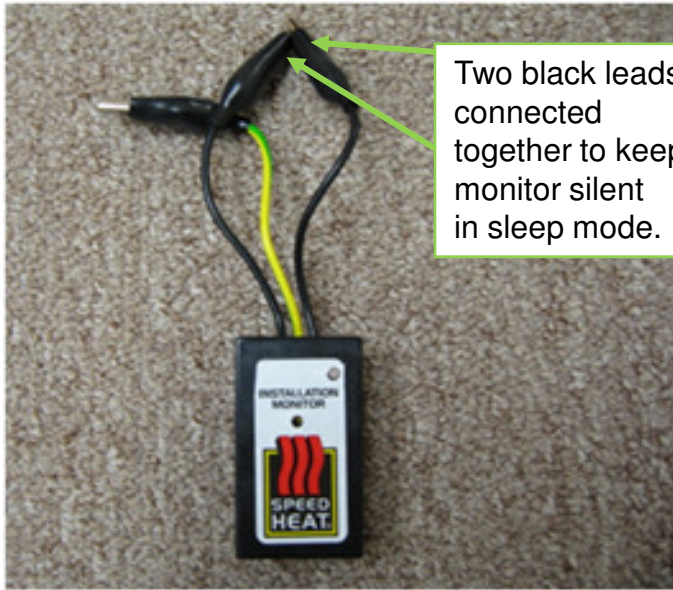
9.1 Connect the correct Continuity Monitor to each heater according to the instructions that follow.

(See Sections 5.1, 5.2 and 8.7.3)

9.2 Tape around the alligator clips with electrical tape so that false alarms do not occur if the Monitor is accidentally bumped and the alligator clips touch each other.

9.3 Ensure that the floor temperature sensor cable has been fished through the conduit and that it is secured so it will not fall back down the conduit.

9.0 ATTACH MONITORS TO HEATERS



Two black leads connected together to keep monitor silent in sleep mode.



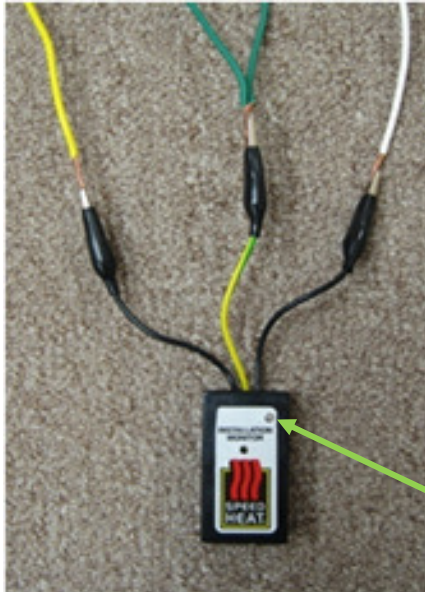
IMPORTANT
Once a monitor has been connected to a heater it will only work on that heater.

Unclip alligator clips to separate two black leads. Monitor will emit a continuous clicking sound until connected to a heater or until the two black leads are connected together again.



9.1.1 MONITOR AFTER HEATER TESTING

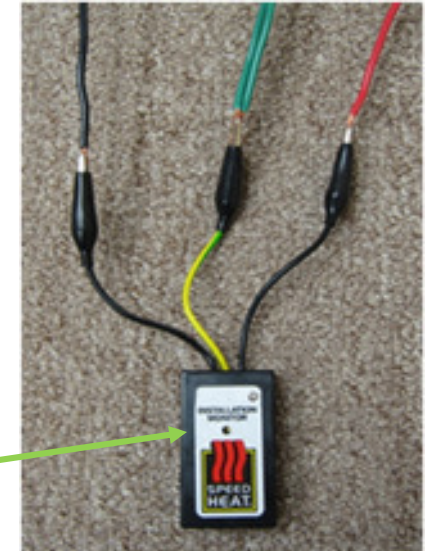
9.1.2 MONITOR AWAKENED



120 VOLT HEATER
Attach 1 Black Monitor lead to the Yellow Heater hookup wire.
Attach other Black Monitor lead to the White Heater hookup wire.
Connect Yellow/Green Monitor lead to both Green Heater hookup wires.
Monitor will go silent and a green LED will flash continuously. (If Red LED flashes call SPEEDHEAT).

9.1.3 MONITOR CONNECTED TO 120 VOLT HEATER

240 VOLT HEATER
Attach 1 Black Monitor lead to the Red Heater hookup wire.
Attach other Black Monitor lead to the Black Heater hookup wire.
Connect Yellow/Green Monitor lead to both Green Heater hookup wires.
Monitor will go silent and a green LED will flash continuously. (If Red LED Flashes, call SPEEDHEAT)

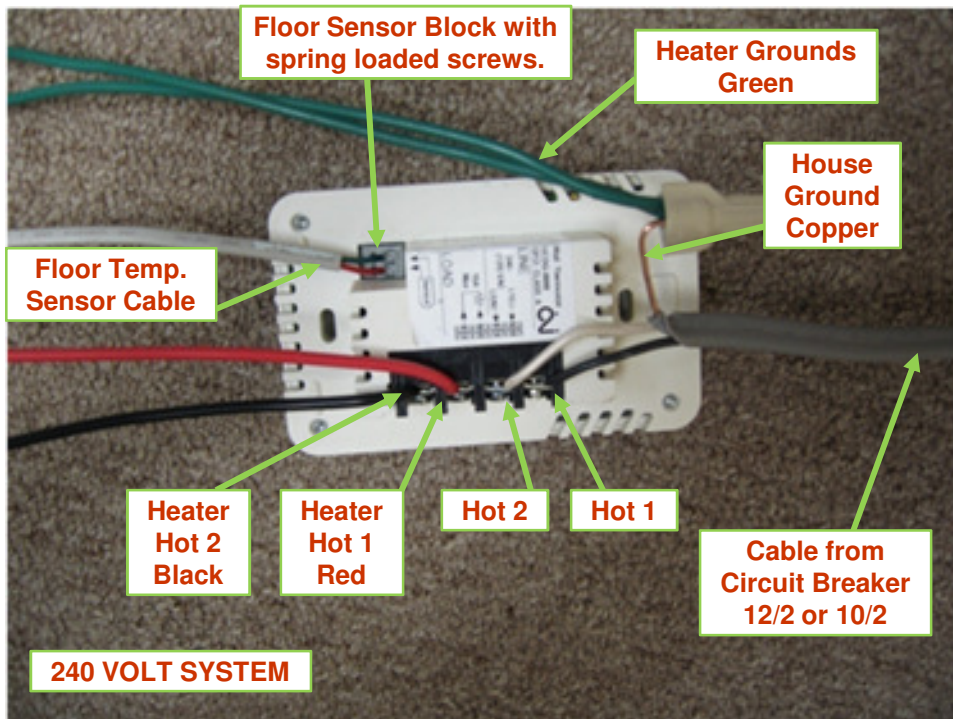
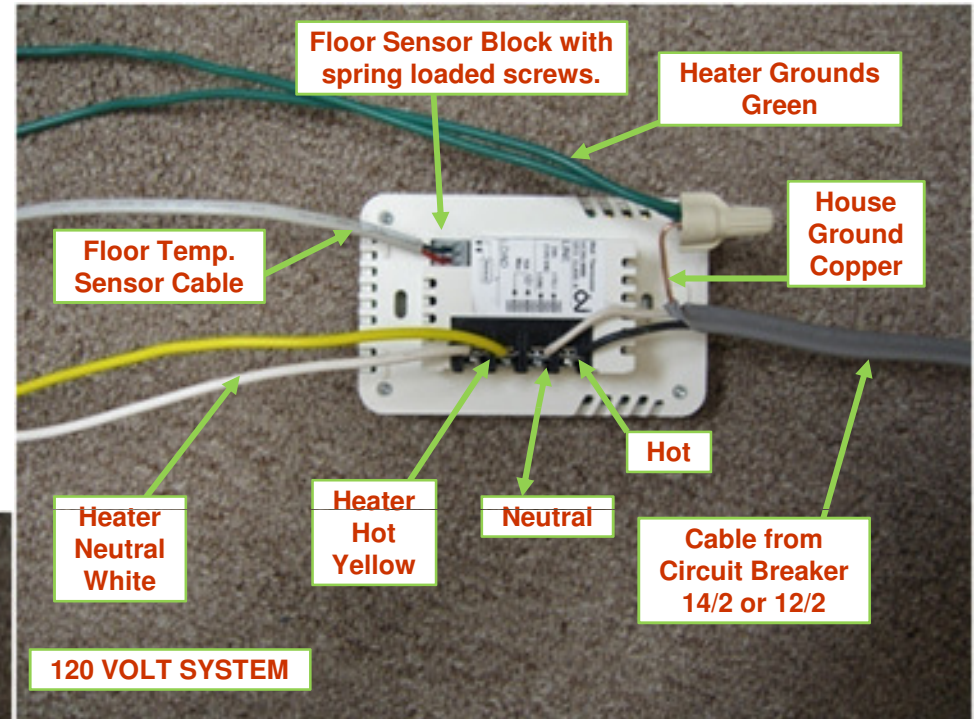


9.1.4 MONITOR CONNECTED TO 240 VOLT HEATER

10.1 Thermostat auto senses 120 Volt or 240 Volt system

- 10.2 Strip ¼" of insulation from red and green wires in floor temperature sensor cable.
- 10.3 Press down on 2 spring loaded screws of the Floor Sensor Block, insert red and green wires, then release screws.
- 10.4 Tug on sensor cable to insure firm connection.
- 10.5 If sensor cable is incorrectly installed, E2 error will be shown on thermostat display when connected to power.
- 10.6 Insert heater hot and neutral hookup wires into screw connectors as shown.
- 10.7 Connect house ground to heater grounds with a screw connector. **USE THE CORRECT SIZE CONNECTOR.**
- 10.8 Insert the hot and neutral wires from the circuit breaker in the service panel, into the screw connectors as shown.
- 10.9 *Some installations with more than 3 heaters on one thermostat may require a separate relay/contacter and would be connected within a junction box.*

10.0 THERMOSTAT HOOK UP



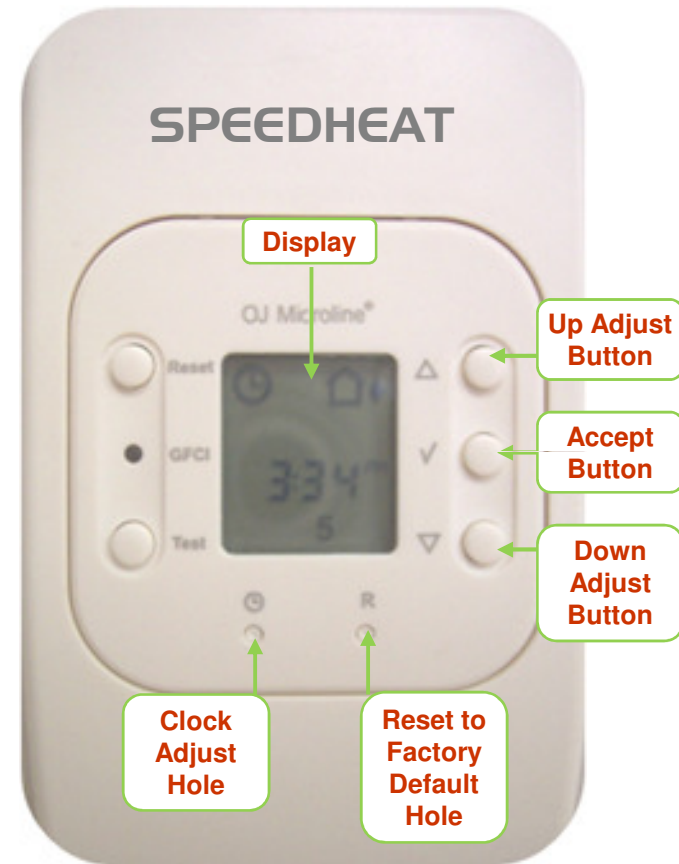
- CONNECT MULTIPLE HEATERS IN PARALLEL.**
- USE PIGTAIL WIRES IF NECESSARY.**
- USE CORRECT SIZE SCREW CONNECTORS FOR THE NUMBER OF WIRES TO BE CONNECTED.**

11.1 First Time Power On

- 11.1.1 Set correct time and correct day using Up and Down Adjust Buttons. At first time power on, Clock flashes 12:00 midnight Day flashes 1 = Monday.
- 11.1.2 To adjust Clock and Day later on, insert pin into Clock Adjust Hole, then use Up and Down Adjust Buttons.
- 11.1.3 The thermostat has a 4 - event time and AIR temperature program for Days 1 thru 5 and a 2-event program for days 6 and 7.
- 11.1.4 The Adaptive function of the thermostat calculates when to switch ON the heating to ensure that the set temperature is achieved at the set time.
- 11.1.4 To program the thermostat, hold down the Accept Button for 3 seconds until a time appears on the display (e.g.. 6:00). Release the button and the Event 1 start time will flash ready for adjustment.
- 11.1.5 Use Up and Down Adjust Buttons to set Event 1 start time. Press the Accept Button to accept this time.
- 11.1.6 A temperature will now flash on the display. Use Up and Down Adjust Buttons to set Event 1 temperature. Press the Accept Button to accept this temperature.
- 11.1.7 Event 2 time will now flash on the display. Use Up and Down Adjust Buttons to set Event 2 start time. Press the Accept Button to accept this time. And so on for 4 weekday events and 2 weekend events.
- 11.1.8 *Typically :*
 - Event 1 = Morning wake up time.
 - Event 2 = Leave home time.
 - Event 3 = Return home time
 - Event 4 = Evening sleep time.

11.0 THERMOSTAT PROGRAMMING

11.1 FIRST TIME POWER ON

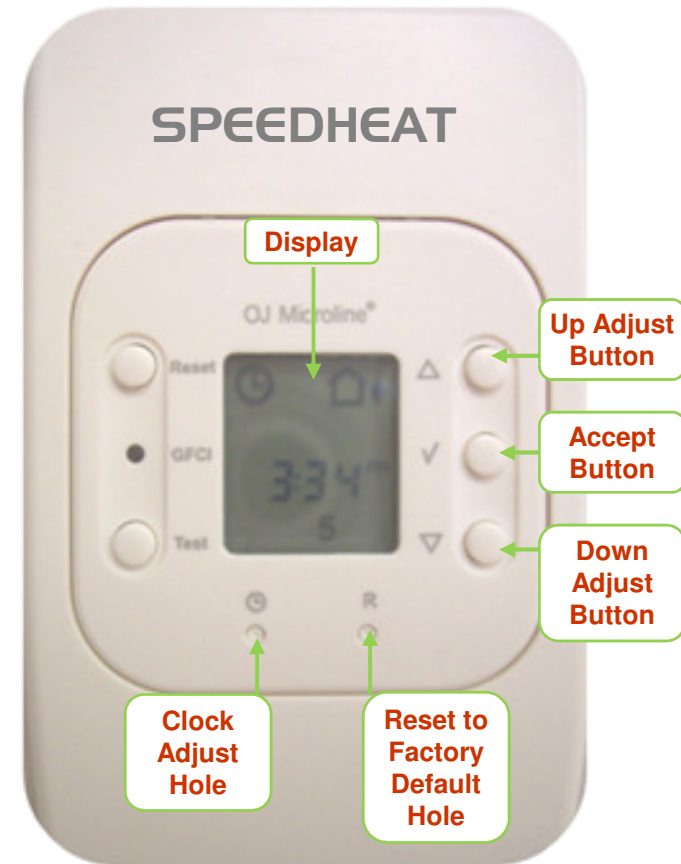


11.0 THERMOSTAT PROGRAMMING

11.2 Maximum and Minimum Floor Temperatures

11.2 Maximum and Minimum **FLOOR** Temperatures.

- 11.2.1 For wood floors, the MAXIMUM FLOOR temperature should not exceed 83°F.
- 11.2.2 Because hot air rises, it is often important to ensure that the MINIMUM FLOOR temperature does not fall below a comfortable level when the AIR temperature set point has been achieved.
- 11.2.3 Hold down the Up Adjust Button and Down Adjust Button together for 3 seconds until “Info” flashes on the display.
- 11.2.4 Press Up Adjust Button once and “Pro” will appear on the display. Press the Up Adjust Button once again and “HiLi” will flash on the display.
- 11.2.5 Press the Accept Button and a temperature will flash on the display. Use Up and Down Adjust Buttons to set MAXIMUM FLOOR temperature to 83°F.
- 11.2.6 Press the Accept Button and “LoLi” will flash on the display. Press the Accept Button and a temperature will flash on the display. Use Up and Down Adjust Buttons to set MINIMUM FLOOR temperature to (say) 75°F.
- 11.2.7 Press the Accept Button and the current time will return to the Display.



There are several other functions described in the full THERMOSTAT USER MANUAL which is packed in the box in which the thermostat is shipped.

12.0 PRECAUTIONS

12.1 REGULATIONS



12.1.1 THIS EQUIPMENT IS AN ELECTRICAL FIXTURE AND SHALL ONLY BE INSTALLED BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE APPARATUS AND THE HAZARDS INVOLVED.

12.1.2 INSTALLATION OF THIS HEATING SYSTEM SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.

12.1.3 THE ELECTRICAL HOOK UP WIRES FOR THIS HEATING SYSTEM MUST BE ENCLOSED IN ELECTRICAL CONDUIT WHEN DRAWN UP THROUGH DRY WALL.

12.2 DAMAGE AND REPAIRS

12.2.1 **DO NOT** Install the Heating System if the Continuity Test Fails.

12.2.2 **DO NOT** Cut, Shorten or Lengthen the Heating Element.

12.2.3 **DO NOT** Attempt to Repair the Heating Element, Connection Block or Hookup Wires if they are Damaged During or after Installation.

12.2.4 **DO NOT** Remove Excess Thinset from a Trowel by Banging it on the Heating Element, the Connection Block or the Cold Wire Leads.

12.2.5 **DO NOT** Use Excessive Pressure with the Notched Trowel when Applying Thinset over the Protective Mesh and the Heating Element.

12.2.6 **DO NOT** Use an Angle Grinder to Cut Tiles Installed over the Heating Element.

12.2.7 **DO NOT** Clean Out Thinset or Grout Between Adjoining Tiles Using a Sharp Object which Extends below the Bottom Surface of the Tile.



12.3. POSITIONING

12.3.1 **DO NOT** Install One Heating Strip on Top of Another or Overlap the Strip on Itself as it may Cause Dangerous Overheating.

12.3.2 **DO NOT** Install Heating Element Under Cabinets or Other Built-in Units.

12.3.3 **DO NOT** Install Heating Element Closer than 8 Inches to Heating Supply Ducts, other Heating Elements or other Heating Appliances or Sources of Heat.

12.3.4 **DO NOT** Install the Heating Element over Floor Expansion Joints.

12.3.5 **DO NOT** Install the Heating Element over Rough And Uneven Floors.

12.3.6 **DO NOT** Install the Heating Element over Protruding Screws, Nails, Staples.

12.3.7 **DO NOT** Install the Heating Strip UNDER Insulating or Water-proof Underlayment.

13.0 PREPARATION GUIDELINES

13.1. WALL AND FLOOR POSITIONING CONSIDERATIONS

13.1.1 BEFORE planning the floor layout for heating elements, an appropriate **wall position must be selected for the thermostat.**

The Following Requirements SHOULD be Considered:

13.1.1.1 Electrical cable must be installed from the service panel to the selected wall position.

13.1.1.2 The SmartStat™ will be installed in an electrical box , which will be secured to a vertical stud in the dry wall no more than 5 feet above floor level. A single gang electrical box is large enough to receive hookup wires from a maximum of two heaters. A double gang electrical box with a single gang reduction plate (mud ring), may be used for up to 3 heaters attached to a single thermostat.

13.1.1.3 Electrical conduit will be installed from the electrical box for the thermostat to the horizontal stud at floor level.

13.1.1.4 The heater hookup leads will be drawn up through electrical conduit in the dry wall from a point at floor level no more than 5 feet below the thermostat.

13.1.1.5 The thermostat should be in a convenient position for safe and easy access by occupants of the room; preferably on an internal wall away from direct sunlight and drafts.

13.1.2 The Following Flooring Criteria MUST be Considered:

13.1.2.1 The heating element cannot be installed directly onto a plywood sub-floor. Cement board or a de-coupler must be installed first.

13.1.2.2 Elements **CAN** be installed directly onto concrete floors.

END

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