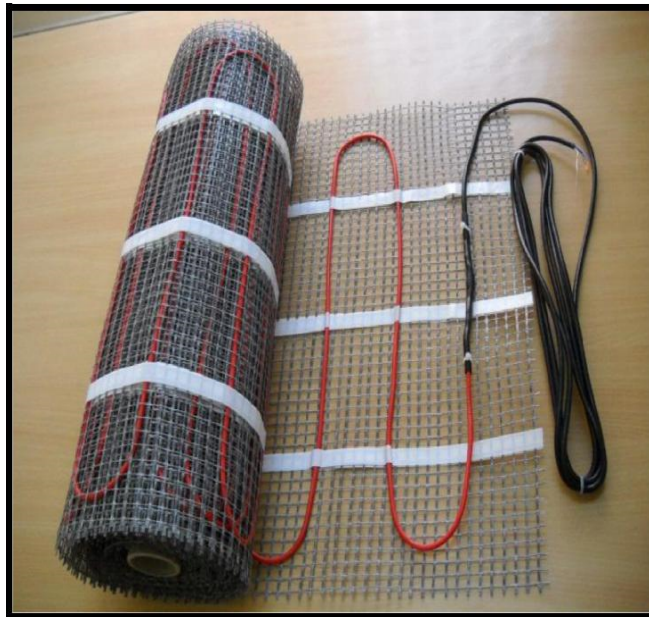




STEADYHEAT

Electric Underfloor Heating Mat



Installation Manual

This installation manual includes factory guidelines for installing SteadyHeat Floor Heating Systems. These guidelines must be followed to ensure warranty coverage. Contact SteadyHeat for any questions regarding proper installation of the heating mats and cables.

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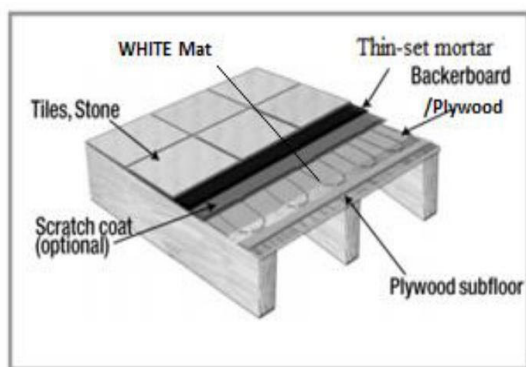
1.0 General Information

Electric Floor Heating is a simple, economical way to warm any indoor space providing years of lasting comfort whether it is used as a supplemental or primary heating source. This heats the room uniformly by the process of radiant heating. This installation manual provides guidelines / safety warnings and describes the elements of properly installing the SteadyHeat floor heating system which are:

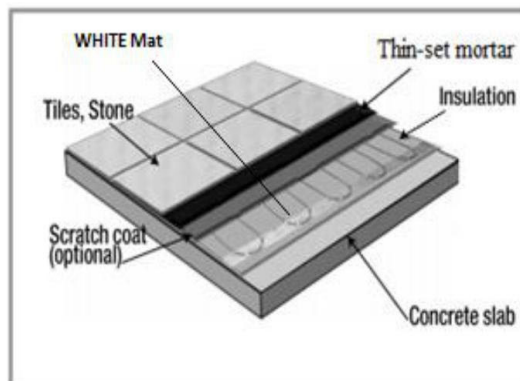
1. How to design the proper layout for the room
2. How to select the right product for the application
3. How to properly install the system

This installation manual **DOES NOT** provide detailed information regarding thermostat installation. It is important to thoroughly review the thermostat manual included with the thermostat. It is necessary to install a thermostat (UL listed) with Class A GFCI as per instructions given in the thermostat manual.

Typical Installations



Directly on Plywood



Directly on Concrete

2.0 Important Safeguards and Warnings

Read and follow the warnings and installation instructions provided in this manual. Failure to do so could result in any of the following: cable failure, improper system operation, property damage, bodily injury, or death. The warranty is invalid if the warnings and specific instructions are not followed.

WARNING: ELECTRIC SHOCK AND FIRE HAZARD

1. The instruction manual follows North American standard building construction conventions.
2. An electrical inspector may be required before, during and after the installation. It is recommended to contact your local building department **BEFORE** beginning the installation.
3. **DO NOT** energize the cable before installation as it will cause overheating or damage to the cable.
4. Connect cables to rated voltage only (120 VAC).



5. This product is approved for indoor use only. Minimum installation temperature is 50°F (10°C).
6. Use only copper supply wires. Be sure to size for conductor properly to carry the rated amperage.
7. **DO NOT** cut the red heating cable or attempt to alter the length in any way. The black cold lead can be shortened, but only at the end of cable where the power lead is exposed. **DO NOT** cut at the splice between the cold lead (black wire) and the heating wire (Red wire).
8. **DO NOT** install heating cable under any type of floor that requires nailing.
9. The installation must be protected by a Class A GFCI (ground fault circuit interrupter) for safe operation. Potentially wet areas, such as kitchens and baths, require a Class A GFCI.
10. **DO NOT** install the splice and end seal of the cable in shower area.
11. If the GFCI trips during normal condition and cannot be reset, consult an electrician for service. **NEVER** attempt to bypass or disable the GFCI system.
12. **DO NOT** drill, nail, or cut any floor that have heating cable installed underneath. This could result in contact with live electrical wire causing electrical shock.
13. **DO NOT** use staples, nails, or similar fasteners directly on the cable. Use only the strapping system or duct tape to attach the cable. The use of any other fastening method will void the warranty.
14. Use a smooth plastic trowel only. **NEVER** bang or drop a tool on the cable. Care should be taken not to nick or gouge cable.
15. **DO NOT** install the heating cable under a cabinet or other built-in fixtures. This will cause the cable to overheat.
16. **DO NOT** install the heating cable (Red wire) inside a wall. Only the cold lead can go into a wall stud, when put inside a UL listed conduit.
17. **DO NOT** extend the heating cable beyond the room or area that it originates. Heating product will not be installed in closets, over walls or partitions that extend to the ceiling, or over cabinets whose clearance from the ceiling is less than the minimum horizontal dimension of the cabinet to the nearest cabinet edge that is open to the room or area. However, the isolated single runs of the cable may pass over partitions where they are embedded.
18. **DO NOT** attempt to repair damaged cable without a factory splice kit.
19. **DO NOT** overlap heating cable. Dangerous overheating will occur.
20. **DO NOT** allow the cold lead or thermostat sensor to cross or overlap the heating cable.
21. All cables must be completely embedded into a cement-based mortar including the cold lead, cold lead splice, heating cable tail splice and thermostat sensor with the wire lead.



22. **DO NOT** bend the cable at sharp right angle. Always maintain a minimum 1" radius.
23. Maintain at least a minimum spacing of 3" between heating cable.
24. Test and record the cable resistance at least four times during installation.
25. After installation of the cable, the installer must inspect and remove damaged or defective cables before they are covered or concealed.
26. The installer should mark the appropriate circuit breaker reference label indicating which branch circuit supplies the circuit to those electric space heating cables.
27. These products are to be installed in accordance with ANSI/NFPA 70, National Electrical Code (NEC) and CAN/CSA-C22.1, Canadian Electrical Code, Part I (ECE).
28. Only UL Listed conduit, fitting, and/or another component are to be used.
29. Product are listed for installation with a maximum thermal resistance value of R-1 and a minimum value of R-0.02.

Typical examples are:

Granite R-0.05	Ceramic Tiles R-0.028	Marble R-0.09
Cement Mortar R-0.20		
Hard Board 1/2" R-0.34	Engineered wood 3/4" R-0.38	Plywood 3/4" R-0.93

30. While installing tiles or other stone floor coverings, the installer must decide if a Permeability Barrier (Water Barrier) is to be applied during installation.

3.0 Cable Construction/Specification

The SteadyHeat Heating Mat is a complete heating mat consisting of a series heating wire and power lead for connection to the electric power supply. The heating wire length cannot be cut to fit.

Controls: SteadyHeat Heating Mats must be controlled by a floor sensing thermostat (UL Listed).

Voltage: 120 V AC, Single Phase (See Table on page 6)

Watts: Standard 12 W/Sq Ft (41 Btu/h / Sq Ft) with 3.0" spacing

Maximum circuit load: 10 Amp

Maximum Circuit Overload Protection: Circuit Breaker 120 V AC 15 Amp

GFCI (Ground Fault Circuit Interrupter): Required for each circuit (Included in the Thermostat Control)

Application: For indoor floor heating application only. Only embedded in Polymer modified cement-based mortar / Self leveling Cement.

Minimum bend radius: 1"

Maximum exposure temperature: Continuous and storage 194°F (90°C)

Minimum installation temperature: 50°F (10°C)

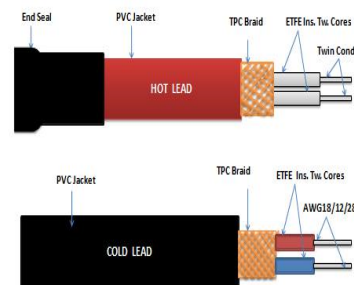
Skill Level: Installation must be performed by qualified persons, in accordance with local codes, ANSI / NFPA 70 (NEC Article 424) and CEC Part 1 Section 62, where applicable.

This product may be secured in place by an average do-it-yourself person or qualified installer. However, electrical wiring is required from a circuit breaker or other electrical circuit to the control. So, it is recommended that an electrician perform these installation steps. Please be aware that local codes may require this product and /or the control to be installed by an electrician.

STEADYHEAT - UNDER FLOOR HEATING MATS

CONSTRUCTION:

- I) Heating Cond.: Solid/ Multi-strand
(Kanthal - D, SS, CCS, Cu. & Cu. Ni. alloys)
- II) Cold Tail Cond.: AWG 18 TPC (Tin Plated Copper)
- III) Insulation: ETFE, 12 Mil RTI
- IV) Shielding: Tin Plated Copper (TPC) Braid, 80% Coverage
- V) Outer Jacket: 32 Mil RTI, High Temp. PVC
- VI) Cold Tail: Separate/ Integrated



As per UL 758, UL 1683

CABLE DRAWING

4.0 Product Table:

120V

120V Model	Watts	Mat Width (ft)	Element Length (ft)	Heated Area (ft ²)	Mat Length (ft) Nominal	Total Res. Ohm	Amps (A)
SHFLR110-6	115	1.6	40	9.6	6	125	1.0
SHFLR115-9	173	1.6	60	14.4	9	83	1.4
SHFLR120-12	230	1.6	80	19.2	12	63	1.9
SHFLR125-15	288	1.6	100	24	15	50	2.4
SHFLR130-18	346	1.6	120	28.8	18	42	2.9
SHFLR140-24	461	1.6	160	38.4	24	31	3.8

NOTE – The tolerance resistance is -5% to +10% at 68°F (20°C)

5.0 Tools/Materials Required for Install

A. Supplied by SteadyHeat

1. SteadyHeat floor heating mat

B. Bought out / supplied by installer

2. Thermostat with Class A GFCI (UL listed)
3. Temperature sensor (included with thermostat)
4. Electrical box and cable clamps (UL Listed)

5. Wood chisel or router
6. Multi meter or Mega ohm meter
7. Wire nuts of correct size and cable fasteners (UL Listed)
8. Nail plate (Optional)
9. Duct tape (1")
10. Stapler
11. Protective glasses
12. Broom
13. Felt tip marker
14. Electrician tools
15. Electric drill
16. Trowel
17. Hammer
18. Hot glue gun
19. Tape measure
20. Double backed tape (for concrete slab)
21. Polymer modified thin-set cement base mortar or self-leveling cement
22. Cement backer board for wooden floor, 1/4" thick (R-Min 0.13 and Max 0.15), 3/4" plywood (R- 0.93)
23. Expanded Polystyrene Hard Foam Insulation board 1/4" thick (R-Min 4.0 and Max 5.0)
24. AWG 14 copper electrical wiring cable

6.0 Pre-Installation Check List

- The red heating cable must NOT be cut. Only the cold lead wire (black cable) may be shortened as required.
- The installation must be protected by a Class A GFCI (Ground Fault Circuit Interrupter) for safe operation. Potentially wet areas, such as kitchens and baths, require a Class A GFCI.
- Check that the product identification label on the SteadyHeat outer packaging and the tag attached to the cold lead of the cable are an identical match. Also, that the heating mat supplied matches your requirement for the area coverage and heat output by cross referencing on the product table (page 6) before commencing the installation.
- In case of any discrepancies, you should report these to the manufacturer or supplier and discontinue the installation immediately.
- Always wear rubber soled shoes. Do not walk on the cable mat until the cement mortar is completely set and cable is fully protected.
- Before laying the heat mat, check the cable resistance with an ohm meter. It should match the rating on the heat mat label and on the product table (page 6) with a tolerance of -5% to 10%. You should check the cable mat resistance regularly at all stages of the installation.
- When installing multiple SteadyHeat heating mats in a single room, the mats should be connected in parallel.
- Consideration should be given to sub-floor thermal insulation before laying the SteadyHeat mat. A high thermal barrier such as Expanded Polystyrene Hard Foam Insulation Board with R value 4 will significantly slow the process of heat

losses into the sub-floor, improve performance and reduce the initial warm up time.

- Install insulation materials onto the concrete subfloor using modified thin-set mortar prior to laying the heat mat and covering with a thin-set mortar or self-leveling cement.
- The minimum handling installation temperature for under floor heating is 50°F (10°C).
- All the red heating cable must be installed in the floor and covered with thin-set mortar and / or self-leveling cement.
- When using thin-set mortar ensure that the cable is totally encapsulated with no air pockets.
- The perimeter of the self-leveling compound area must be separated from the vertical structures by an expansion joint (Polystyrene etc. up to 0.5" wide). In case where cables are laid in an area larger than 180 Sq. Ft. or with a diagonal greater than 23 Ft., it is necessary to install an expansion joint. The heating cable should not cross expansion joints. The non-heating connecting cables located at the expansion joints must be laid loosely in a listed conduit to be provided by installer.
- Consult the self-leveling compound manufacturer's instructions as to a suitable drying out period before turning on the heating system.
- Use a polymer modified thin-set mortar or self-leveling cement-based mortar when tiling over the underfloor heating.
- The heating mat should not be placed in floor areas that will be permanently covered with floor fitted furniture, fitments, or appliances (e.g., kitchen cabinets, bathtubs, vanities, toilets, refrigerators etc.).
- Heating product will not be installed in closets, over walls or partitions that extend to the ceiling, or over cabinets whose clearance from the ceiling is less than the minimum horizontal dimension of the cabinet to the nearest cabinet edge that is open to the room or area.
- A minimum clearance of 3 in. should be left between the heating mat and perimeter walls (4 in. for combustible surfaces).
- Final electric connection to the main power supply **MUST** be carried out by a qualified electrician.
- Ensure that you have a listed thermostat with a floor sensor before commencing installation. The floor limit sensor must be installed in the floor when laying the mat.
- Consideration should be given to the load rating of the controlling thermostat. Where the load rating of the thermostat is exceeded, a suitable rated contractor should be installed.
- Only listed thermostats with Class A GFCI must be used.
- The heating mat must be installed minimum 4" away from any combustible material.

7.0 Inspecting and Testing the Cable and Floor Sensor

7.1 Take the heating mat out of the packing and inspect it for any physical damage.

7.2 Test the insulation and the resistance of the cable and record data in the **HEAT MAT CABLE TESTING LOG** listed on page 10 of this manual.

7.3 The heating mat and sensor should be tested and recorded a minimum of 4 times during the installation for the warranty to be valid.

7.4 Insulation Test:

This test ensures that the insulation of the cable is not damaged. A low value on the meter indicates the cable has been damaged and must be replaced. Follow the following steps:

- A. Set the multimeter to read ohms.
- B. Connect the ground wire (braided uninsulated wire) to the black test lead of the multimeter and the red test lead to both the brown and blue wires of the cold lead.
- C. The meter should read "OPEN" or "OL". If you get a different reading, the cable is damaged. Contact manufacturer for support.
- D. Record the reading on the cable tag and in the cable test log.



Insulation Test

7.5 Resistance Test

This test measures the resistance of the heating mat which verifies the continuity (no breaks) and that the cable has the proper wattage rating.

- A. Set the multimeter to read ohms
- B. Connect the meter leads to the brown and blue cold lead wires, **DO NOT** connect the ground wire.
- C. Compare the resistance reading to the value specified in the product selection table (on page 10), it should read -5% to +10%. If the reading is different, contact the manufacturer.
- D. Record the reading on the cable tag and in the cable test log (on page 10)



Resistance Test



Floor Sensor Test

7.6 Floor Sensor Test:

This test measures the resistance of the floor sensor to verify the integrity of the component.

- A. Set the multimeter to read ohms.
- B. Connect the multi-meter leads to the floor sensor wires.
- C. The meter should give a reading corresponding to the specifications given in the thermostat manual. If the test results are not matching, contact the thermostat manufacturer for support.
- D. Record the reading on the cable tag and in the cable test log.

CABLE TEST LOG

Tests must be recorded for warranty	Resistance (-5% +10%)	Insulation Test
Model:		
Volts:		
Factory QC Test		
TEST 1. Before Installation		
TEST 2. After installation but before embedding		
TEST 3. After Embedding		
TEST 4. After Floor Tile		

8.0 Installation – Set Mat

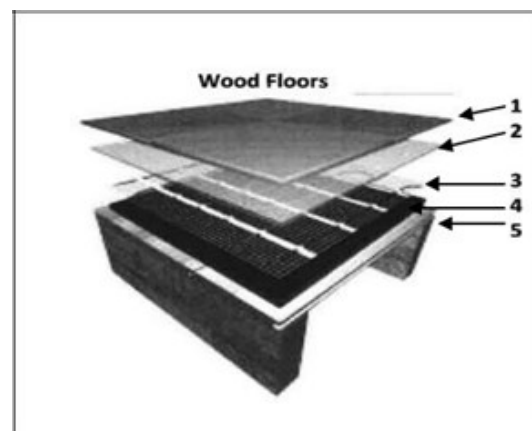
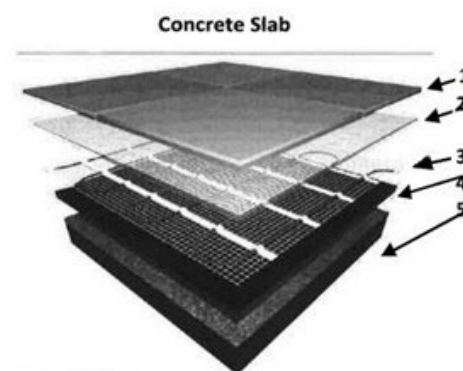
8.1 Floor Constructions

Concrete Floors – For optimum performance it is recommended that concrete sub floors be covered by an insulation layer of Polystyrene hard foam insulation board with cement coating on both sides (min. R value 4 and max. 6) This will minimize heat loss and ensure quicker heat up time. The SteadyHeat mat can be laid directly onto an uninsulated concrete floor if it is insulated from below, this will increase heat loss and operating costs.

1. Tile/Stone Floor
2. Thin-Set Mortar and/or Self-Leveling Compound
3. SteadyHeat Mat
4. Insulation
5. Concrete Sub-Floor

Wood Floors – When installing SteadyHeat mat on a plywood sub-floor, it is essential that you take the standard precaution to stabilize the sub floor and prevent sub-floor movement, e.g., overboard with a suitable surface for tiling, e.g., with $\frac{3}{4}$ " plywood (R value 0.93) or cement backer board $\frac{1}{4}$ " (R value 0.13).

1. Tile/Stone Floor
2. Thin-Set Mortar and/or Self-Leveling Compound
3. SteadyHeat Mat
4. Backer Board/Plywood
5. Suspended Wood Subfloor



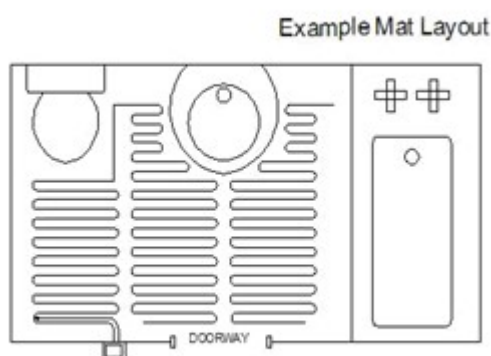
8.2 Layout Planning and Product Selection

It is good practice to plan the installation using a sketch marking your layout pattern and planning the position for floor sensor, connection box and thermostat. Accurately measure the free floor area to be heated, in square feet, deleting any items of the fixed furniture such as bath, WCs, showers, kitchen cabinets/appliances etc. Use this calculated area (sq ft) to select the nearest cable mat size **DOWN** using the product selection chart (on page 6). **NEVER** select the nearest mat size up.

If the calculated “heated” floor area is larger than the mat size offered, you can use a combination of mats to achieve the coverage.

Additional mats should be wired in parallel using a suitable junction box. It is important that the correct size of SteadyHeat matting is used as the cable cannot be shortened.

Example:



Calculated Heated Area (sq ft)	Heating Mat Coverage (sq ft)	Product Model No.

Note: For hard-to-reach areas the cable can be removed from the matting and attached to the floor with thin-set mortar/ duct tape.

8.3 Shower Area

It is preferable to use a separate cUL wet rated mat in the floor of the shower area. It must never be installed into walls. In general, the cable mat should be completely embedded into mortar directly below the surface covering of tile or stone. Other type of coverings is not recommended.

Make sure the power lead factory splice (the connection between the power lead and the heating cable) and the cable end seal, are located outside the shower area and at least 1’ away from shower openings and other similar areas normally exposed to water. Make sure the control

is located at least 4' away from shower openings such that it cannot be exposed to water or touched by a person in the shower area.

If the heating cable must enter the shower area over a curb, secure the cable at the edges to ensure the cable is not bent sharply or pinched when surface coverings are installed. Do not damage any water proofing components and do not run the heating cable through a non-masonry curb causing it to overheat.

8.4 Laying Thermal Insulation

Use of cement reinforced extruded hard polystyrene foam insulation board, minimum thickness $\frac{1}{4}$ ", with a thermal resistance value of R minimum 4 is recommended.

CONCRETE FLOORS

Ensure the floor is level and dust free. A new concrete screed should be well cured prior to laying insulation board. A bed of polymer – modified thin-set should be applied to the floor using a notched trowel. Lay the boards in a staggered brickwork pattern butting the edges together. Boards should be thoroughly bedded ensuring that no air pockets remain.



A waterproof joint can be made using silicone sealant before butting the board edges together. When the thin-set mortar is dry, board joints can be taped with a fiberglass reinforcing scrim tape.

WOOD FLOORS

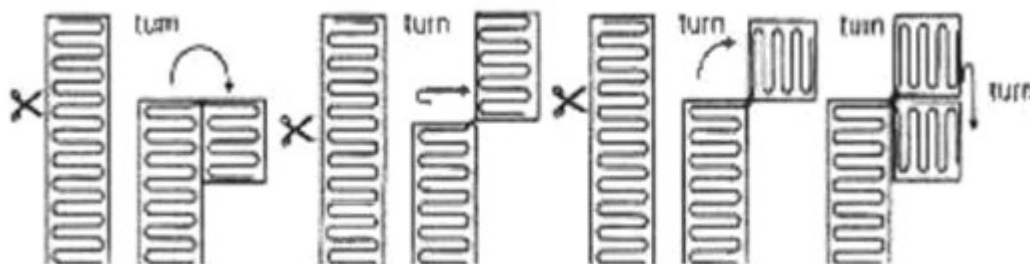
Plywood $\frac{3}{4}$ " thick R 0.93 or Cement Backer Boards $\frac{1}{4}$ " thick R 0.13 can be laid onto a thin – set mortar. A bed of polymer-modified thin-set mortar should be applied to the floor using a notched trowel. Lay the boards in a staggered brickwork pattern butting the edges together. Boards should be thoroughly bedded, ensuring that no air pockets remain. $\frac{3}{4}$ " boards can be mechanically fixed to flat and plywood floors (12" centers) using stainless steel screws with washers under their heads. These should be screwed down until the washers grip the boards. Cementitious surface joints can be taped with a fiberglass reinforcing scrim tape.

8.5 Laying the Mat

Roll out the mat minimum 3" away from the wall. When you reach end of a run, allow for minimum 4" from the wall from rolling out the mat, simply cut the backing mesh (NOT the red cable) and turn 180. The mat is unrolled in the opposite direction ensuring a minimum spacing of 2.6" between the cable loops. When satisfied with the proposed layout, stick the matting to the floor using the integral "peel and stick" tape strips or using 1" duct tape.

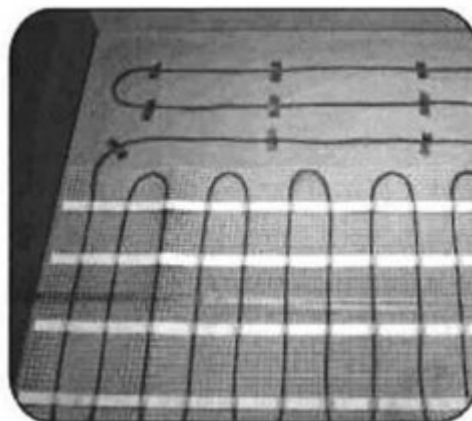


Note: The floor shall be clean from the dust and the sharp objects. Never install one mat on top of another or overlap the heating wire on itself. This will cause dangerous overheating.



8.6 Adjusting the Mat

For areas that will not accommodate the full mat width of 18" the cable can be removed from the matting and attached to the floor uniformly with duct tape. The matting can be further secured to the floor by hot glue gun or duct tape. This is recommended on the outer edges of the matting when using self-leveling compound to prevent the mat lifting. These additional fixing methods should only be used on the matting and NOT on the cable. The looped cables must be spaced about 3" from each other (Minimum 2.6") using 1" duct tape.



WARNING: Risk of electrical shock and fire. Damage to supply conductor insulation may occur if the conductors are routed less than 2.6" from this heating product. Refer to above for recommended means of routing supply conductors. Connections of multiple mats must be done in PARALLEL at the power source / thermostat. **NEVER** cut off the end of the heating cable to connect another one in series.

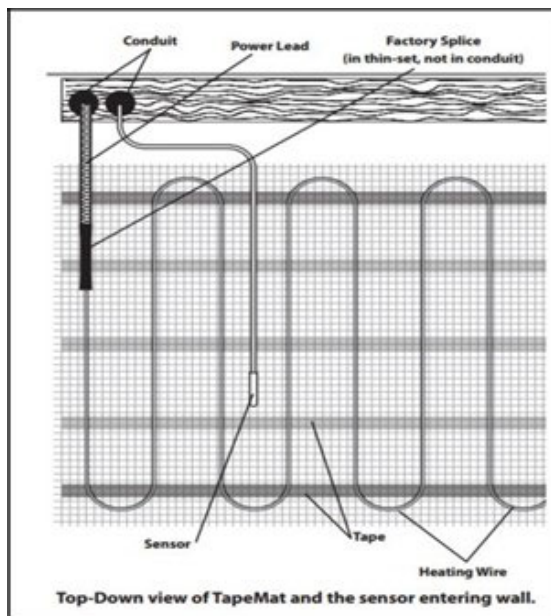
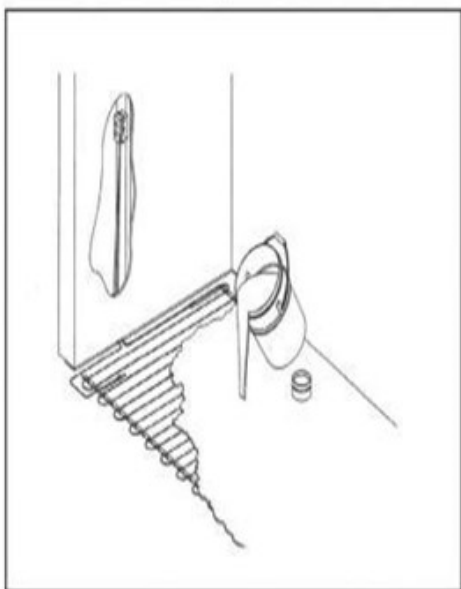
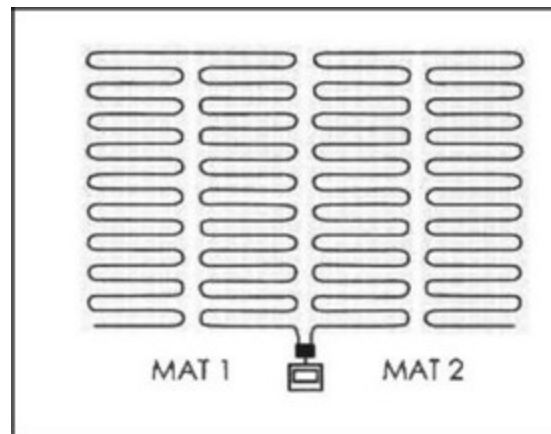
8.7 Joining Multiple Mats

If the area to be heated is larger than the largest available mat size, the mats can be simply wired in parallel.

If the total current drawn by the mats wired in parallel exceeds the rating of the relay limit in the thermostat (typically 16 Amp) then a higher rated contactor must be used with the thermostat.

8.8 Installing the Floor Probe/Sensor

If necessary, cut a groove in the floor to accommodate the floor sensor for the thermostat. Before laying the sensor check the resistance using an ohm meter. The sensor should be positioned between 2 heating cable loops under the mat approximately 20" from the wall. Additionally, a second back up sensor can be installed as a precaution against future replacement. Bring it to the box, but do not connect the second sensor to the thermostat. The existing floor should be prepared as normal for tiling. The entire floor should be free from any sharp projections. The floor surface should then be primed to accept the tile thin set mortar if required.



8.9 Apply the Scratch Coat (Optional)

8.9.1 Apply a scratch coat of the Polymer modified thin-set or self-leveling cement uniformly over the entire floor area. Make sure the heating cables are completely embedded. Follow the compound manufacturer's instructions.

8.9.2 Use a plastic straight edge trowel and cover the entire areas to maintain uniform height.

8.9.3 Apply the mortar in the same direction of the cable runs to minimize lateral movement.

9.0 Completing the Installation

There are two recommended methods of covering the heating mat:

Concrete or wood floors using Polymer modified thin-set cement base mortar.

Working with a width of mat at a time, apply Polymer modified thin-set cement base mortar on top of the mat so that the cable and mat both are completely covered ensuring that there are no air pockets. This should be done using a plastic notched trowel or similar, taking care not to damage the cable. Once dry, another layer of thin-set mortar can then be applied carefully using a notched trowel to comb the thin-set mortar before laying the tiles.



Concrete and Wood floors using self – leveling cement:

An alternate method for all but the smallest installation is to cover the cable mat installation with suitable self-leveling cement. This product will find its own level and once dry will provide a suitable flat surface to apply a layer of thin-set mortar before laying the tiles.

Important:

- 1.) The heating cable must **NOT** be cut or shortened and the joint between the cold lead wire (black) and the heating cable (Red) must not be bent or put under strain. Red heating cables should never cross or touch (2.6" gap min) and must be installed in the floor. To ensure no heating wire enters the wall, leave 6" of lead wire in the floor.
- 2.) Always wear rubber soled shoes. Do not walk on the cable mat until the cement mortar is completely set and cable is fully protected.
- 3.) A fully qualified electrician must now make the final connections to the main power supply and install the thermostat. The thermostat should be installed in the room to be heated. For bathrooms, the thermostat must be placed outside the shower at least 4 ft away. Control of the heated floor in this application is provided by the floor sensor only.
- 4.) Make sure to check that the heater is connected to the proper voltage supply 120V.

Finally, the electrician should check for continuity of the floor sensor and retest the resistance of the cable. The installation should be protected by Class A GFCI for safe operation. Potentially wet areas, such as kitchens and baths, require a Class A GFCI.

IMPORTANT TEST: TEST THE CABLE RESISTANCE, CABLE INSULATION AND FLOOR SENSOR RESISTANCE TO BE SURE NO DAMAGE OCCURRED. RECORD THE READINGS ON THE CABLE LABEL AND THE DATA LOG ON PAGE 10.

9.5 Electrical Rough-In



Mount Electrical Box



Drill Horizontal Hole

9.5.1. Determine the proper location and height (typically 60") for the junction box. The cold lead and the floor sensor lead wire should be in the same stud cavity as the electrical junction box. Install the junction box for the thermostat and run the power supply wire into the box.

9.5.2. Drill a $\frac{3}{4}$ " hole 1-1/2" deep horizontally into the sill plate for the cable routing. Drill the hole as close to the bottom of the sill plate as possible. Chisel out the bottom of the sill so that the cold lead wire will not create a high spot in the floor when the thin set is applied.

9.5.3. Drill a $\frac{3}{4}$ " hole vertically into the sill plate 1-1/2" deep. If installing a floor sensor, drill a second set of holes 4" away in the same stud cavity.

9.5.4. Clear the cable routing holes of debris and install in the same stud cavity.

9.5.5. It is recommended to thread a pull string as the cable installation will be done after the drywall is in place. Run a second pull string if a floor sensor is being installed. Otherwise, the wires can be fished through the wall with an electrician's fish tape after the drywall is installed.



10.0 Install the Thermostat

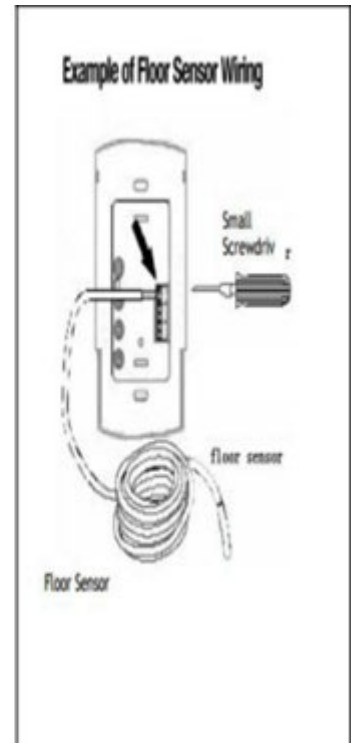
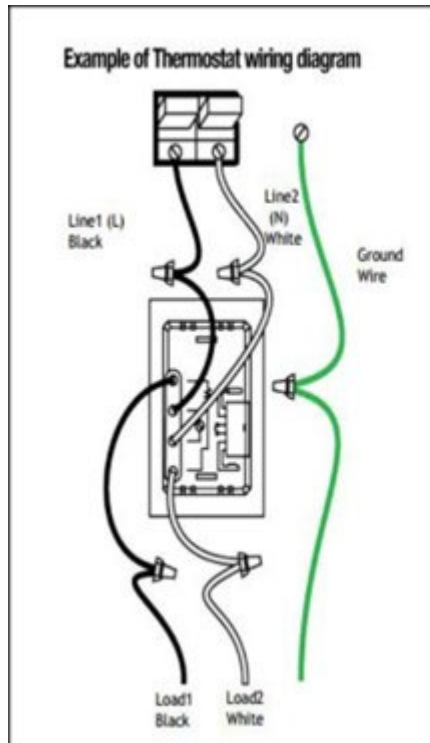
Before starting any wiring, verify that the power supply is turned off.

Follow the thermostat manufacturer's instructions.

10.1 The thermostat built in relay typically has a rating of 16 amp (Check the manual supplied with the thermostat). If multiple mats are put in parallel on a single thermostat and the total current drawn exceeds 16 amp, then a contactor must be used for switching On/Off the power. The contactor current rating must be higher than the maximum current drawn.

10.2 Connect the power supply wire and the load side heating wires.

10.3 Connect the floor sensor wires to the thermostat. These are low voltage wires and should not enter the line voltage junction box. These low voltage wires typically run through the wall and connect into the face of the thermostat away from the line voltage wire.



11.0 Switching ON

Consult the thin-set mortar manufacturer's instructions to determine a suitable drying out period before turning on the system. Once the thin-set mortar has completely dried, operate the system at a reduced temperature, gradually increase it over a seven-day period to full operation.

12.0 Troubleshooting

Should you experience any problems with your installation not warming your sub floor surface, please carry out the following test, before calling the floor heat system technical support team.

Symptom	Probable Cause	Solution
Cable test resistance measurement is wrong	Meter is out of calibration or inaccurate.	Try another meter.
	Test measurement indicates open or short circuit.	Cable is most likely damaged and must be replaced.
	Measurement is slightly out of specified range.	Room temperature can affect reading, retake the reading at room temperature around 70°F.
	The ohm meter could be set to the wrong scale.	The typical scale is 200 ohms, unless the cable label is rated for more than 200 ohm (Maximum 530 ohm),
Floor does not heat up	The cable is damaged.	Measure the resistance. If it reads open or short, then it must be repaired. Contact SteadyHeat for repair.
	GFCI is tripped.	Reset GFCI control on the thermostat or circuit breaker. If GFCI continues to trip, check circuit breaker and thermostat wiring.
	No voltage.	Check circuit breaker, if it is on then test for voltage at the line side of thermostat.
	Thermostat is turned off.	Refer to the thermostat manual for operating instructions.
	Incorrect power supply.	A 240V cable supplied with 120V power will not generate sufficient heat. Measure supply voltage with a voltmeter.
	Multiple cable wired in series.	Multiple cable must be in parallel.
Floor heat does not turn off	Wiring is incorrect. The control is bypassed.	Refer to the thermostat instruction for proper wiring.
	Defective thermostat or floor sensor.	Replace thermostat and/or floor sensor.
Control is not working properly	Check the proper power supply voltage, check program, check floor sensor and check for loose connection.	Refer to the thermostat instruction for proper wiring. Replace thermostat if found to be defective.
GFCI false trip	More than one GFCI on circuit	Verify that there is only one GFCI on circuit.
	Electric motor or ballast is sharing the circuit.	The floor heat must be on a dedicated circuit, run a new circuit.

13.0 Warranty Certificate

Following installation, the Warranty certificate on the back of this installation guide should be **FULLY** completed, including a plan of mat lay out and position of the floor sensor. This could then be used for locating the cable mat in warranty claim situation. This booklet should be permanently fixed in or near the installation main power panel.

WARRANTY CERTIFICATE

STEADYHEAT

Electric Underfloor Heating Systems

10 Year Warranty

- This warranty is only valid under the following conditions:
 - All electrical connections were carried out by a qualified and licensed electrician.
 - The warranty covers faults in material for 10 years for SteadyHeat heating mats and cables from the date of purchase.
 - The completed warranty and proof of purchase must be presented in connection with warranty claims.
 - The SteadyHeat cable test log (page 10) has been completed by the installer and the electrician.
 - The warranty covers the repair / replacement of goods found to be faulty due to manufacturing defect and does not cover any secondary charges relating to the repair / replacement of any floor covering.
 - The SteadyHeat. warranty does not cover faults resulting from incorrect design or installation or damage caused by others.

Please complete this installation completion certificate and retain a copy to validate the warranty			
Owner's Name:			
Address:			
Room(s) Installed:			
Part #			
Resistance (ohms)			
Installer's Name:		Phone:	
Electrician's Name:		Phone:	
Electrician's License Number:			
Signed by Electrician		Date Completion Tested	
This instruction manual must be left at the main power panel along with a copy of the thermostat operating instructions and the original sales receipt. The supplied stickers should be placed near the power panel and in the room installed with the underfloor heating.			