Underfloor Heating mats – Preparation & Installation

Preparation

TAKE RESISTANCE READINGS before starting installation and NOTE THE RESULTS ON YOUR WARRANTY REGISTRATION CARD AND IN THE USER GUIDE.

- o Plan your floor mat layout on paper before starting work.
- o Determine where the thermostat is to be placed. Note that for bathroom installations the thermostat must be located **OUTSIDE** the room.
- o Place a standard mounting box with a min. depth of 35mm, at a convenient height (1.2 -1.4m).
- o Cut out the necessary recess & channels and mount the back box and electrical conduit.
- o You need to install two separate conduits, use the one supplied to hold the temperature sensor and the other (not supplied) for the "cold tail" connecting cable.
- o Do not run the power cable and sensor cable through the same conduit.
- o Cut a channel in the floor for the floor sensor conduit (10mm deep).
- o Ensure that the surface where the mat is being worked on is flat, clean, and free of dust and dirt.

PLEASE NOTE:

Make sure the sensor is not placed near to a radiator or hot water pipe running under the floor. Also ensure it doesn't pass under a heating cable.

1.1 Tools and Materials Needed

You will need the following items to install and test your Philex Heating Kit:

1. Scissors 2. Sharp knife 3. Wire stripper 4. Tape measure
5. Screwdriver 6. Multimeter 7. Room thermometer
8. Flexible tile adhesive or self-levelling mortar & flexible grout suitable for floor heating.
9. Flexible cement and cement gun for expansion joints along the walls.
10. 2m (approx) flexible electrical conduit (16mm) for "cold tail" cable run from floor to thermostat.
11. (Plastic) adhesive comb with approx. 6 mm teeth.
12. Mounting box for thermostat (min 35mm deep, preferably with Earth terminal).
13. 13Amp power supply wired from a dedicated RCCD in the consumer unit to the thermostat.

NOTE: All electrical work must be carried out by a qualified electrician and comply with part 'P' of the building regulations.

In addition you will need the appropriate tools and materials to install the particular floor, including items like thin-set mortar, plywood or thermal backing board, notched trowel, and anything else for your specific floor.

1.1.1 Sub-floor Types

This heating mat is primarily designed for installation on screeded floors. If laying onto a wooden floor, it must be sheeted with a thermal board kit or similar cement covered board that is compatible with heated floor systems. Alternatively sheet the floor with 15mm WBP (Weather and Boil Proof plywood) or marine plywood, fix with screws at 200mm centres and skim with 2-3mm of flexible tile adhesive and allow to dry.

1.1.2 Over- floor Types

This heating mat is designed to be laid under ceramic tiles. It is not suitable for laying under carpeted or wood floors.

NOTE: Always check with the floor manufacturer concerning suitability with underfloor heating as heat outputs could change due to thickness of floor covering.

1.2 Installation Steps

Follow these steps for a successful installation.

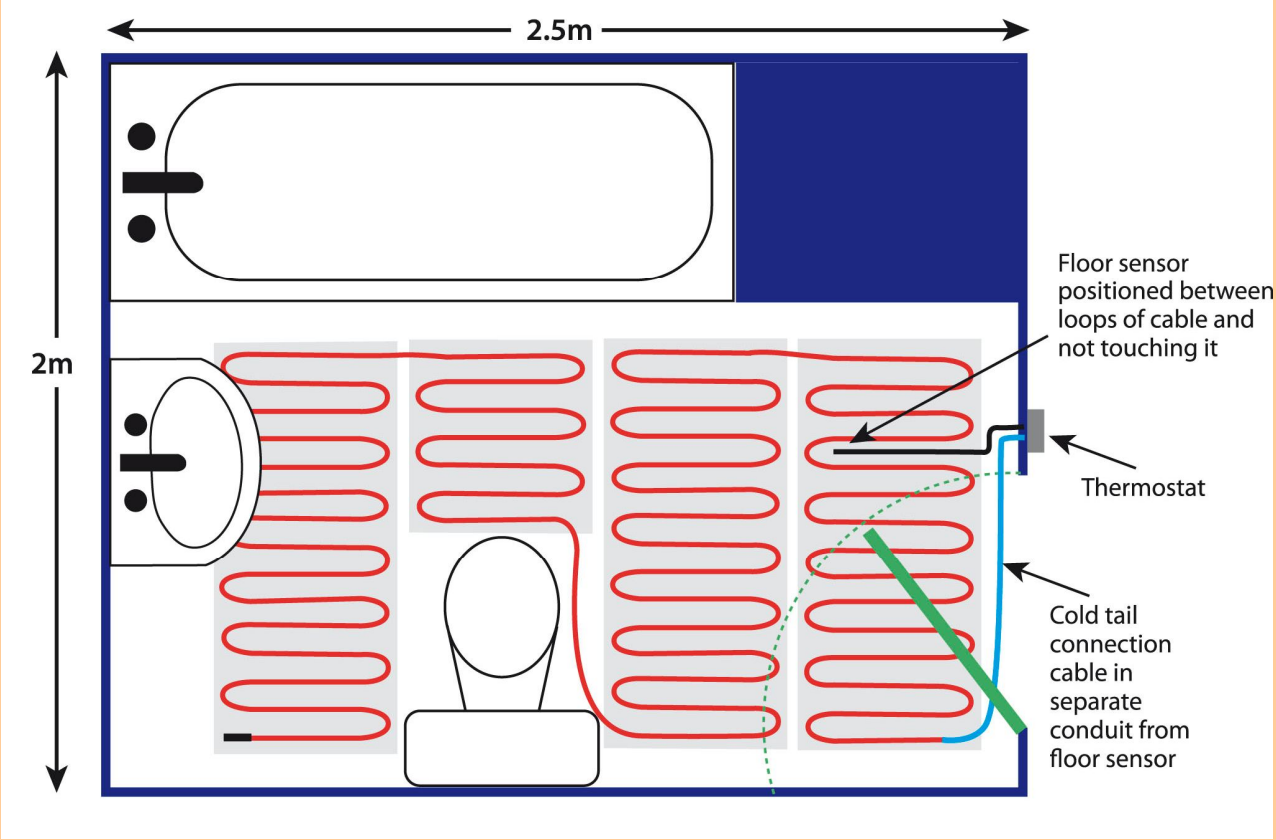
1.2.1 Prepare the Sub-floor

- o Make sure that the floor area to be heated is clean (as dust free as possible), dry, flat and free of any protruding objects that can damage the mat, like nails or staples.
- o Drill or cut a hole through the wall sill plate under the position of the thermostat. You will use this hole to route the connecting lead and the temperature sensor wire to the box.

Typical layout for a bathroom floor using 4m mat

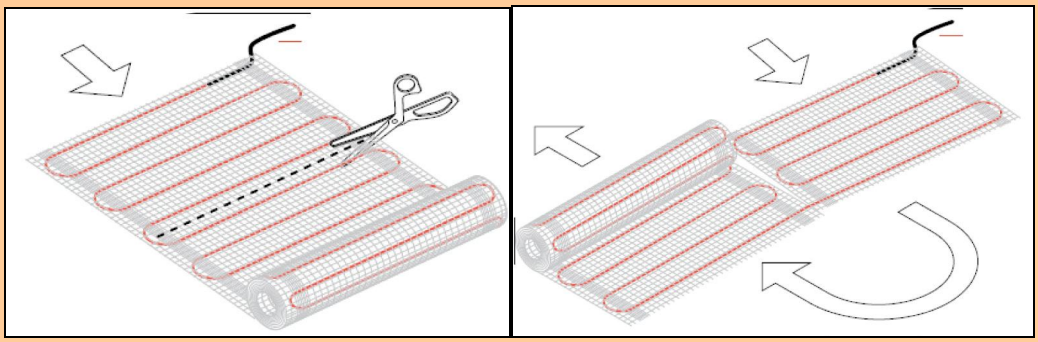
PLEASE NOTE:

For bathroom installations the thermostat must be mounted outside the bathroom



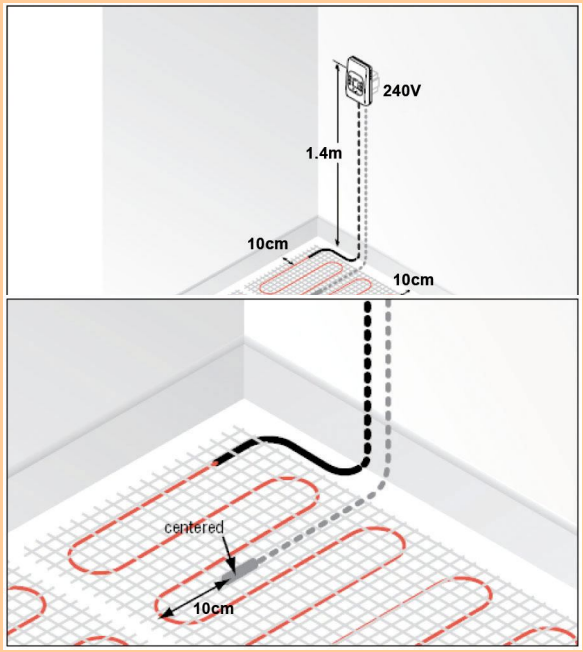
1.2.2 Orient the Floor Heating Mat

- o Sketch out your room (see diagram) to decide how best to lay the mat.
- o Lay out the mat according to your design with the red heating element uppermost, using as few turns as possible and ensuring that the cold tail connecting lead is close enough to connect to the thermostat.
- o To make a turn in the direction the mat is being installed, cut the mesh WITH SCISSORS ONLY, **DO NOT CUT THE RED CABLE**
- o If it is necessary to remove the heating cable from the mesh to route around an obstacle, be sure to maintain at least 76mm space between heating cables. Also leave a space of at least 40mm between heating cables and any conductive materials such as pipes.



1.2.3 Route the "Cold Tail" Connecting Lead

- Run the "cold tail" connecting lead as close as possible to the wall en route to the thermostat.
- The "cold tail" must be routed outside of the heating mat, never under or over the heating cable and it must not protrude higher than the heating mat. Cut a groove in the floor for the area of the join between the heating cable and the "cold tail".
- Run the "cold tail" inside a conduit inside the wall to the thermostat mounting box.



Note: The rating label stuck to the end of the "cold tail" should be visible in the thermostat mounting box. If it's necessary to shorten the connecting lead, be sure to peel off the label and reattach so that it is visible in the thermostat mounting box.

1.2.4 Place the Temperature Sensor

The Floor sensor must be placed in the sensor conduit
which must be embedded in a shallow channel in the floor, making sure it reaches the end of the conduit but does not protrude. (If required the sensor cable may be extended up to 50m using 2 core 5A mains cable. **DO NOT** use 2 strands of a multi-core cable as any voltage signals will disturb the function of the thermostat.) The installation MUST USE a separate cable for the sensor mounted in a separate conduit.
Centre the sensor between two runs of the heating cable, 100mm from the end of the heating cable loop (see image 4). Run the sensor inside the wall to the thermostat box location.

Note: Don't allow heating cable, connecting lead or temperature sensor to cross themselves or each other. Sensor must be placed at least 500mm away from radiator/water pipes, drains and electrical wiring.

1.2.5 Final Heating Mat Layout

- Turn the mats over and remove the white plastic backing to the adhesive tapes on the back of the heating mat then carefully reposition in the planned position and stick to the floor.

1.2.6 Perform Resistance Tests Before Embedding in Mortar.

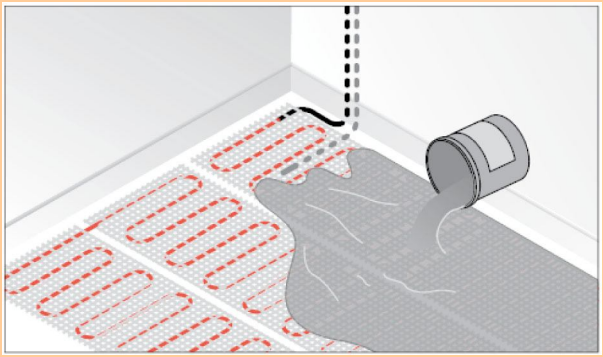
TAKE RESISTANCE READINGS before embedding in mortar and NOTE THE RESULTS ON YOUR WARRANTY REGISTRATION CARD AND IN THE TABLE ON PAGE 11.

Note: You must perform these tests before embedding the mat in mortar to confirm that the mat, heating cable or sensor cable haven't been damaged.
This will support your guarantee.

Readings need to be taken with an ordinary Multimeter. Please also make a note of the resistance readings on your inspection card.

1.2.7 Embed the Heating Mat in Mortar

After laying out the heating mat and routing the connecting lead and the temperature sensor to the electrical junction box, apply a thin coat of self-levelling mortar over the mat. Be sure to use the flat side of the trowel to avoid any damage to the mat. Spread the mortar evenly over the mat filling in all voids between the floor, mesh and heating cable. Once the surface is smooth and even, allow it to set to a hard surface before installing the tile.



1.2.8 Laying Ceramic or Quarry tiles

To lay ceramic or quarry tiles apply a layer of acrylic or latex modified thin-set using the ridged side of your trowel. Tile and grout the floor using best industry practice and in accordance with instructions provided by the manufacturer of the tiles. Ensure the grout has a flexible additive mixed in.
Don't power the floor warming system until the thin-set and grout are fully cured (at least 14 days).

1.2.9 Repeat the Resistance Tests again after Completing Mat Installation.

TAKE RESISTANCE READINGS after all flooring is finished and prior to connecting up the thermostat NOTE THE RESULTS ON YOUR WARRANTY REGISTRATION CARD AND IN THE USER GUIDE.

Note: This will confirm that neither the mat, heating cable nor sensor cable have been damaged. **Always check with the floor manufacturer concerning suitability with underfloor heating as heat outputs could change due to thickness of floor covering.**