radiant
AUSTRALIA

Under tile cable **mat** kit

installation instructions

CONTENTS

Important safety information

DO

- ✓ READ THROUGH THE INSTRUCTIONS BEFORE BEGINNING WORK
- ✓ USE FLEXIBLE ADHESIVES AND GROUT
- ✓ TEST THE CABLE MAT AND FLOOR PROBE **BEFORE** TILING
- ✓ BE CAREFUL NOT TO DAMAGE OR DISLODGE THE CABLE DURING TILING
- ✓ WAIT AT LEAST 7 DAYS BEFORE TURNING THE SYSTEM ON
- ✓ READ THE SEPARATE INSTALLATION AND OPERATING INSTRUCTIONS FOR THE THERMOSTAT
- ✓ ENSURE THE JOINT BETWEEN THE COLD CABLE AND HEATER CABLE IS BENEATH THE FINAL FLOOR COVERING
- ✓ TAKE A PHOTOGRAPH OF THE FLOOR HEATING CABLES OR DRAW A PLAN BEFORE THEY ARE TILED OVER FOR FUTURE REFERENCE AND WARRANTY REGISTRATION
- ✓ KEEP CABLE MONITORING ALARM CONNECTED AND TURNED ON DURING THE TILING PROCESS AND WHEN ANY TRADES ARE WORKING IN THE ROOM

DO NOT

- × ATTEMPT TO CUT THE HEATER CABLE AT ANY TIME
- × ALLOW THE WIRES TO CROSS OR TOUCH
- × ALLOW EXCESSIVE FOOT TRAFFIC OVER THE MATS BEFORE TILING
- × CUT TILES DIRECTLY OVER THE MATS
- × PLACE TOOLS OR STACKS OF TILES ON TOP OF THE CABLE

radiant HEATING

Preparation and planning for the installation

Before you begin installing read through these instructions carefully and check that you have all the components required.

The system is designed for installation below tiles, stone or marble flooring.

Contents of heating kit

- Twin-core heating cable on mesh mat
- Digital thermostat and separate floor sensor
- Fixing tape
- Conduit for floor sensor cable
- Monitoring alarm

Installation notes:

- The system requires a 230/240v mains voltage and must be connected by a licensed electrician.
- The system is intended for heating tiled or stone floors and the mat output/wattage is given on the box and label.
- The 'cold' cable connected to the mat is double insulated and the first outer sheath (coloured black) carries an earth screen (the silver coloured braid). The cable also contains a built in return, meaning that the cable only has to be connected to the thermostat from one end. Inside the outer sheath there are 2 wires, these are the live (brown) and neutral (blue).
- For larger areas, if two or more mats are used, these can usually be connected together at the thermostat or by using a small blank-fronted connection box.
- The system is suitable for installing on any sub-floor which is sound and suitable for tiling; in the main this will be concrete, plywood or tile-backer boards. Some water resistant composite boards may also be suitable but it is not recommended to tile directly onto hardboard, MDF or standard grade chipboard as these materials absorb moisture and subsequent swelling could cause tiles to crack or dislodge.

Note: if installing on a newly finished concrete screed the required minimum drying out or 'curing' period should be followed before installing.

- The electrical and electromagnetic fields generated are negligible and are well within all recommended international guidelines.
- The mesh matting can be cut, but the heater cable **MUST NOT** be cut.

Electrical Provisions:

Before starting the installation you should make provision for the electrical connections.
When planning the installation you should always consult with your electrician concerning your requirements.

Note: for bathrooms and wet areas the position of the thermostat must be considered and be in accordance with current AS/NZS wiring regulations. Consult a licensed electrician for advice.

*The heater cable **MUST NOT** be cut or cross at any point - only the black 'cold' cable and the probe can be cut or lengthened.*

*The joint between the heater cable and the black 'cold' cable **MUST** be located under the final floor covering.*

For larger areas a separate circuit will be required - always consult your electrician concerning your individual requirements.

*The thermostat has a rating of **16amps** - loads in excess of 16 amps (3.45kw approx) will either require further thermostats or need to be connected via a suitable contactor - consult your electrician on this.*

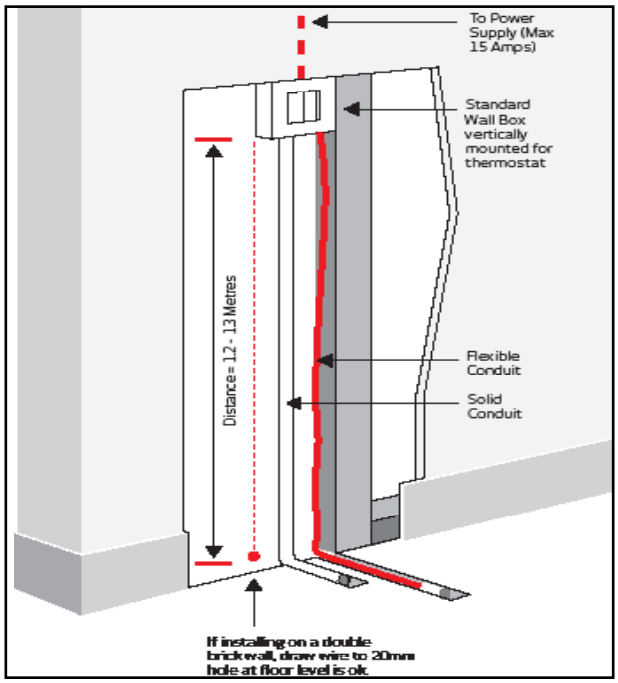
Installation

Preparation

Ensure that the sub-floor is solid and suitable for tiling and is free from dust and debris. Wood flooring with more than 30cm between the joists should ideally be reinforced to prevent flexing and the possibility of tiles dislodging. Wood flooring can be reinforced using tile-backer boards.

Electrical provision

Prior to installing the heating mat, your electrician should make the provision for the thermostat and floor sensor as per the drawing below.



Installation

Step 1

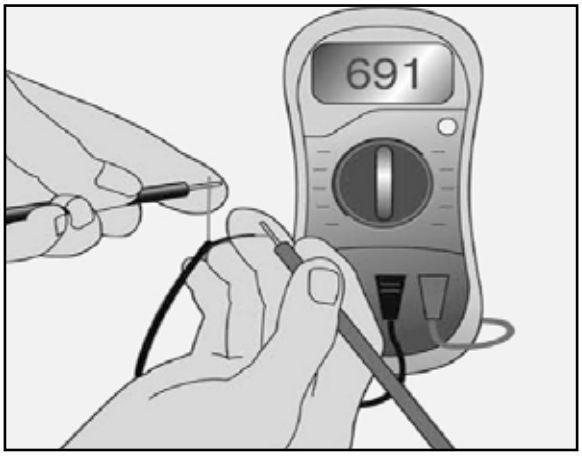
First prepare the sub-floor, sweeping up any dirt, dust and debris and ensure that the floor is free from grease.

Note: If your sub-floor has already been waterproofed you may lay the cable mat directly over the waterproofing, provided it is completely dry. If the floor surface is dusty and porous it is recommended to prime the floor with a floor primer to aid adhesion of the mat and fixing tape.

Step 2

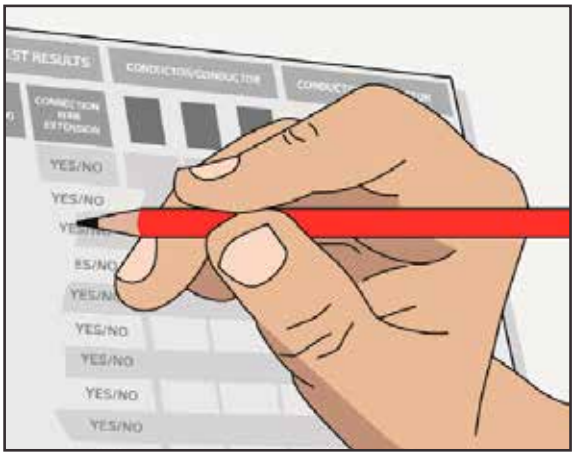
Test the resistance of the cable on the mat using a multi-meter prior to unrolling to ensure that the reading corresponds to the manufacturer's resistance reading. This can be found on the label on the packaging or printed on the PVC sheath (±10%). Make a note of the reading on the warranty form.

DO NOT tile over the cable without first testing it.



Resistance test

Each test has three parts:
Live and neutral.
Live and earth.
Neutral and earth.



Record results

Write each resistance value on the warranty form to ensure your warranty is valid.

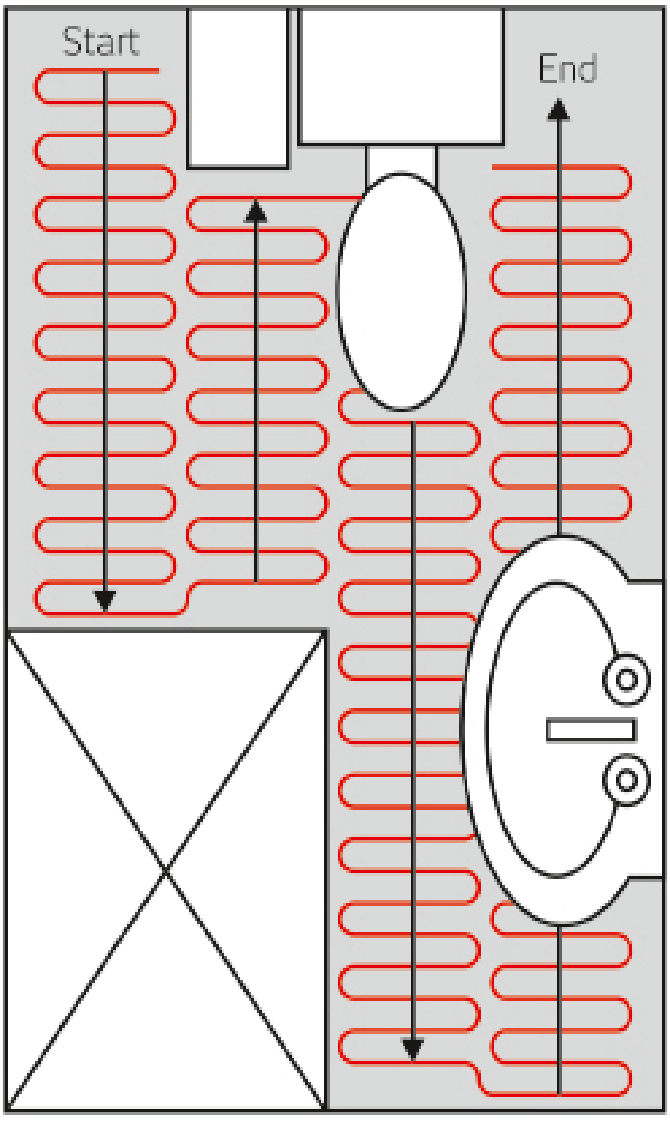
FAILURE TO FOLLOW THESE INSTRUCTIONS WILL INVALIDATE THE WARRANTY. PLEASE READ THE INSTALLATION GUIDE CAREFULLY.

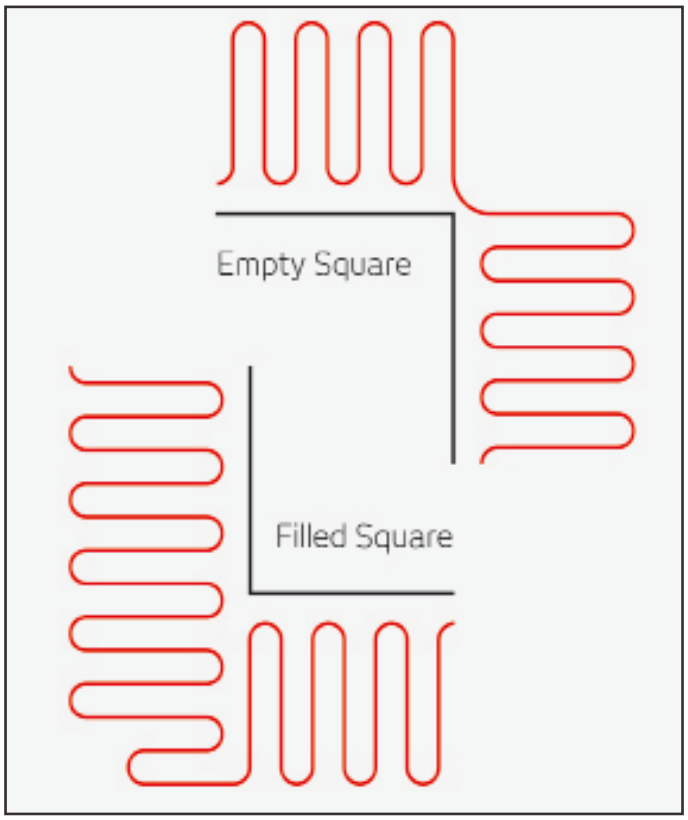
Installation - continued

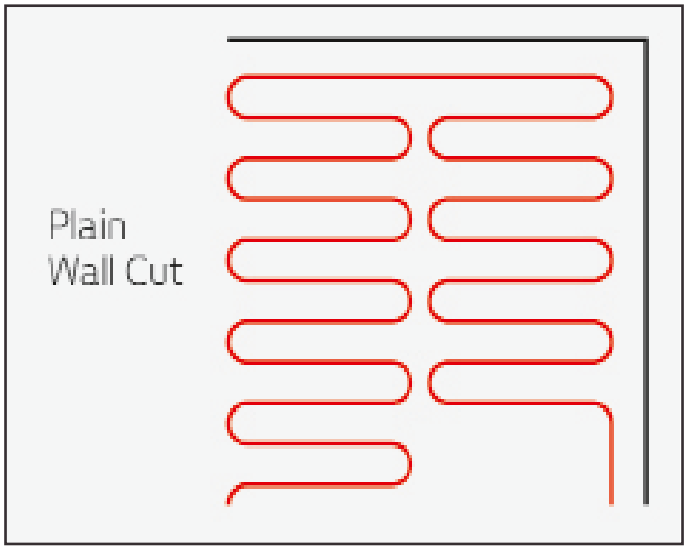
Step 3

Plan the mat layout. This is a vital step and **MUST** be done correctly to ensure that all the mat is used up. **Once the mat has been unrolled and cut it cannot be returned.**

Measure the area to be heated in m^2. Do not include areas taken up by fixed objects such as baths, showers and kitchen units. If the calculated heated area is smaller than the chosen mat size **STOP** and return and exchange for the correct mat size. The mat width is 50cm. You should mark out the layout plan on a drawing - see examples.







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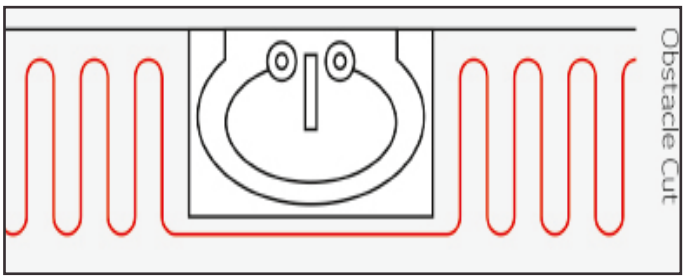
Installation - continued

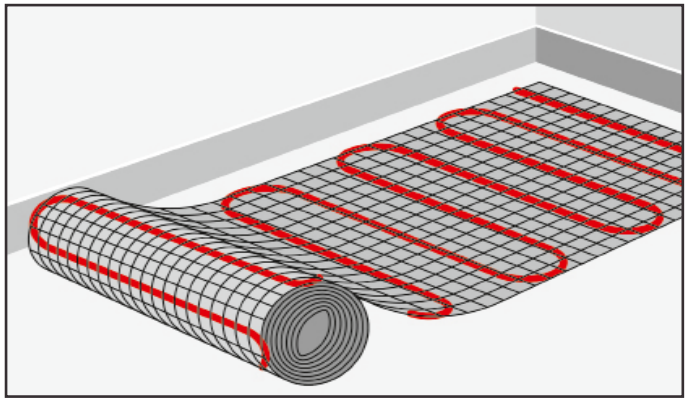
Note: Irregular areas

Cut the mesh - taking care not to cut the heater cable - and pull the heater cable off to allow for fitting around irregularly shaped objects.

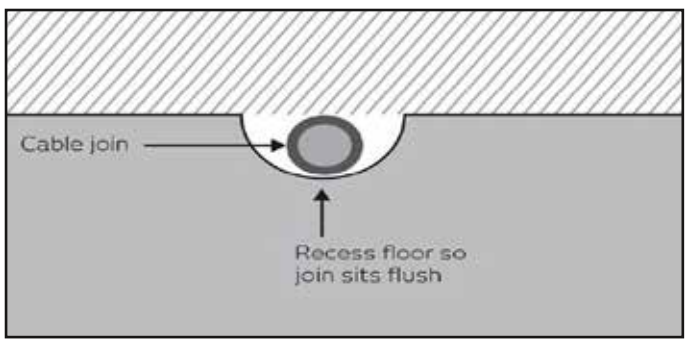


Step 4

Only when you have calculated that the mat will fit into the room should you begin to lay. Beginning at the corner closest to where the thermostat is located, position the mat ready to start rolling out.



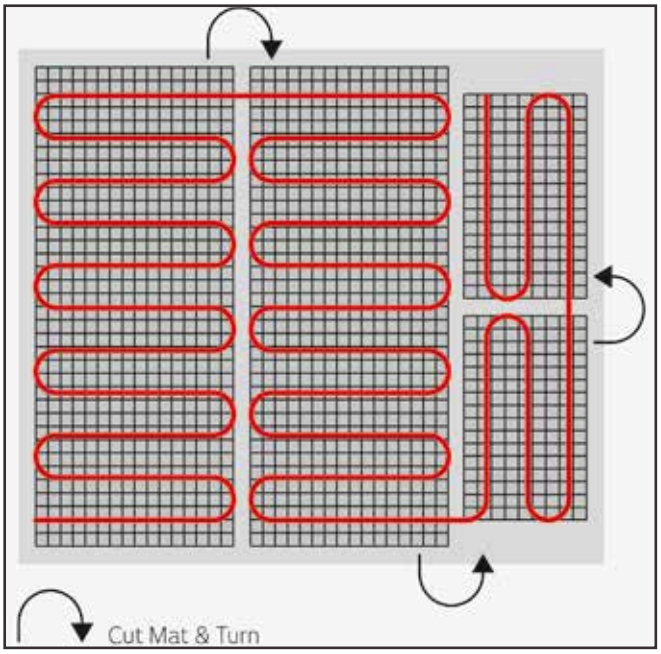
Important: Before rolling out, check that the black 'cold' lead will reach the location of the thermostat. If it does not you should either change the starting point or remove some of the cable from the starting end of the mat and run this along the edge of the room to allow the 'cold' cable to reach the thermostat. The joint between the black 'cold' cable and the heater cable **must be** located under the final floor covering. You can make a small recess in the sub-floor so that the joint does not sit higher than the cable mat height - see below.



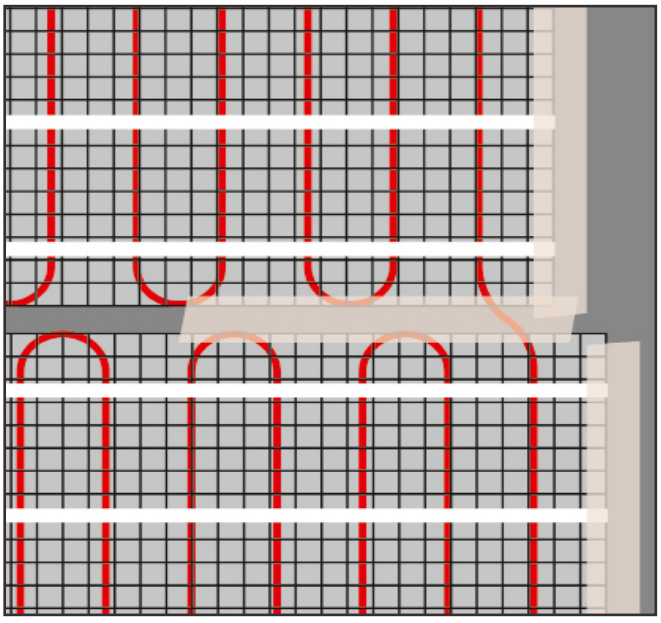
Step 5

From the starting point, begin rolling out the mat **CABLE SIDE DOWN TO THE FLOOR**.

When you have done one full run and reach the opposite corner of the room cut through the mesh. **DO NOT CUT THROUGH THE CABLE**. Turn the mat through 180° and roll the mat back the other way. Continue this process until all of the mat is used up. If you are using two or more mats, try to finish off at the opposite wall so that the second mat is easier to lay.



Once you are happy with the layout, tape down the mat along the edges to secure in place.



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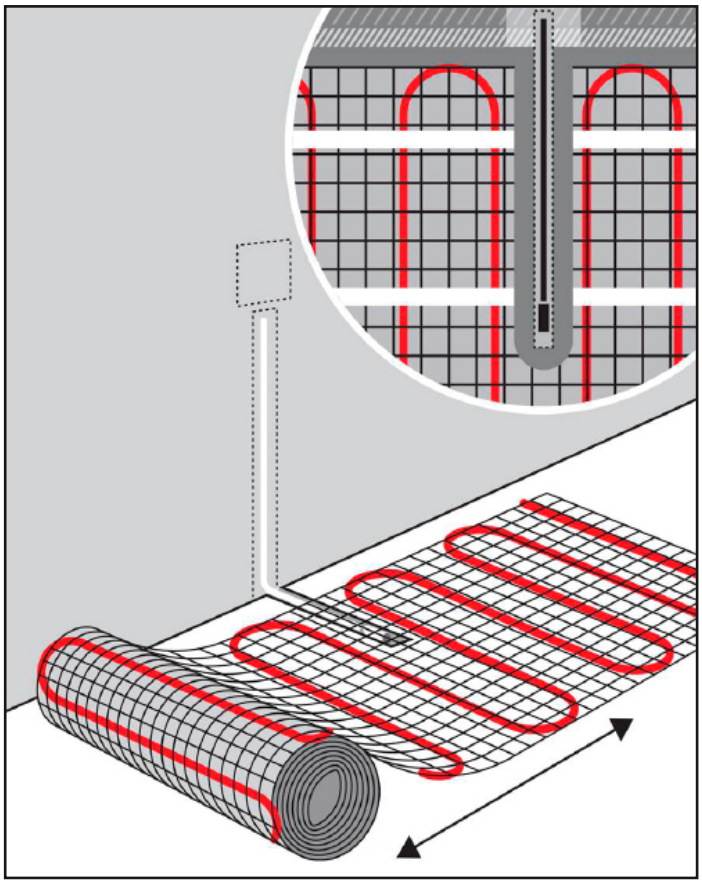
Installation - continued

Step 6

Test the resistance of the floor sensor. The resistance must measure between 8 to 12 K Ω. Make a note of the reading and record this on the warranty form. Feed the sensor cable into the conduit supplied, ensuring it feeds through to the end of the conduit located in the floor. Position the sensor either between two runs of the mesh mat or between two loops of the heater cable. The sensor wire can be shortened or, if necessary, lengthened with 2 core flex cable. If you need to cut the sensor cable you must only cut the exposed cable end. **DO NOT** cut the end that contains the plastic floor sensor.

Position the floor sensor

Position the sensor either between two runs of the mesh mat or between two loops of the heater cable.



Step 7

Connect and switch on the cable alarm prior to tiling or covering with self leveling screed. The cable alarm must be turned on at all times when tiling or when any other trades are working in the room.

In the unlikely event of the alarm sounding, stop work immediately and locate the source of the damage. Contact Radiant Heating immediately for instructions on how to proceed.

Step 8

If possible cover the mat with a thin leveling screed (3 - 4mm). This will help protect the mat when tiling. If you do not wish to use leveling screed you may tile over the mat in a single operation. Tile the floor using flexible tile adhesive and grout as per industry standards and the manufacturer's instructions. Wait at least **ONE WEEK** before turning the heating system on to allow time to dry.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL INVALIDATE THE WARRANTY. PLEASE READ THE INSTALLATION GUIDE CAREFULLY.

Finalise

Connect the thermostat

The connection to the thermostat can now be made (see separate thermostat instructions). Final connection to the thermostat must be performed by a licensed electrician in accordance with AS/NZS 3000 Wiring Regulations.

Do not turn the system on until the floor covering has been laid and allowed time to set.

Turning the heating system on

Once the floor covering has had time to set the system can be turned on.

NOTE: The heating system may be slow to react at first, especially if installed over a new screed floor or in a new building.

Start by setting the floor temperature to around 20 - 22 Deg C and build up by 1 degree per day until the desired temperature is reached.

See separate instructions for connection and operation of the digital thermostat.

Completing the warranty form

Ensure that all of the resistance readings are entered on the warranty form. Ensure that photographs are taken or diagrams are made of the layout of the mat prior to tiling. Complete the warranty form and return, along with photographs or diagrams, to Radiant Heating by post, email or using the online warranty registration form on our website www.radiantheating.com.au.

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