

radiant
AUSTRALIA

In screed cable kit

installation instructions

CONTENTS

The do's and don'ts 2

Preparation & planning for the installation 3

Installation 4-7

Finalise 8

Important safety information

DO

- ✓ READ THROUGH THE INSTRUCTIONS BEFORE BEGINNING WORK
- ✓ USE FLEXIBLE ADHESIVES AND GROUT
- ✓ TEST THE CABLE AND FLOOR PROBE **BEFORE** TILING
- ✓ BE CAREFUL NOT TO DAMAGE OR DISLODGE THE CABLE DURING SCREEDING
- ✓ 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 SCREED
- ✓ TAKE A PHOTOGRAPH OF THE FLOOR HEATING INSTALLATION OR DRAW A PLAN BEFORE THE SCREED IS APPLIED FOR FUTURE REFERENCE AND WARRANTY REGISTRATION
- ✓ KEEP CABLE MONITORING ALARM CONNECTED AND TURNED ON DURING THE SCREEDING AND 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 CABLES BEFORE SCREEDING
- ✗ CUT TILES DIRECTLY OVER THE CABLES
- ✗ PLACE TOOLS OR STACKS OF TILES ON TOP OF THE CABLE

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
- Digital thermostat and separate floor sensor
- Galvanised wire grid mesh
- Cable ties
- Fixing tape for sealed/waterproofed floors
- 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 (yellow/green cable). The cable also contains a built in return, meaning that the cable only has to be connected to the thermostat from one end. These are the live/active (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 (to a maximum of 16 amps).

The system is suitable for installing on any sub-floor which is sound and suitable for tiling; in the main this will be concrete, cement sheet 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.

For maximum efficiency we recommend the use of Thermasheet Insulation board.

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, which does **NOT** have an IP Rating, must be considered and be in accordance with current AS/NZS wiring regulations. Consult a licensed electrician for advice, but as a general rule this must be in zone 3 (away from the bath and shower)

*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.*

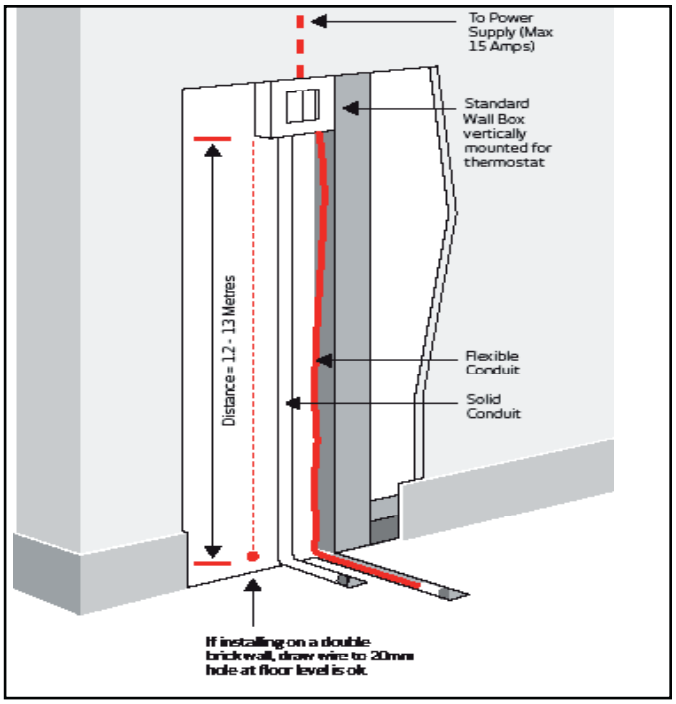
*The joint between the heater cable and the black 'cold' cable **MUST** be located under the final floor covering.*

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 (3.5kw approx) will either require further thermostats or need to be connected via a suitable contactor - consult your electrician on this.*

Installation

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



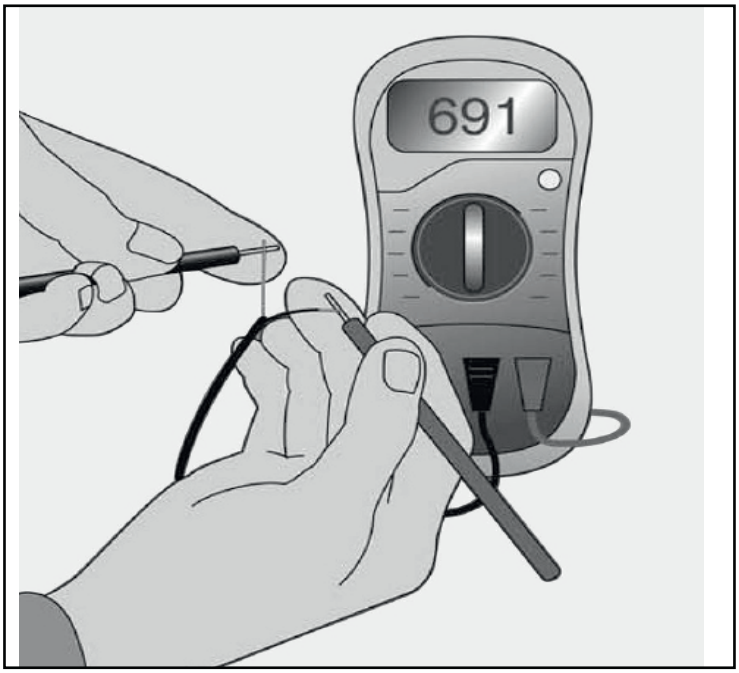
Installation

Step 1
First prepare the sub-floor, sweeping up any dirt, dust and debris and ensure that the floor is free from grease.

Mark out fixed objects such as baths, showers and vanities.

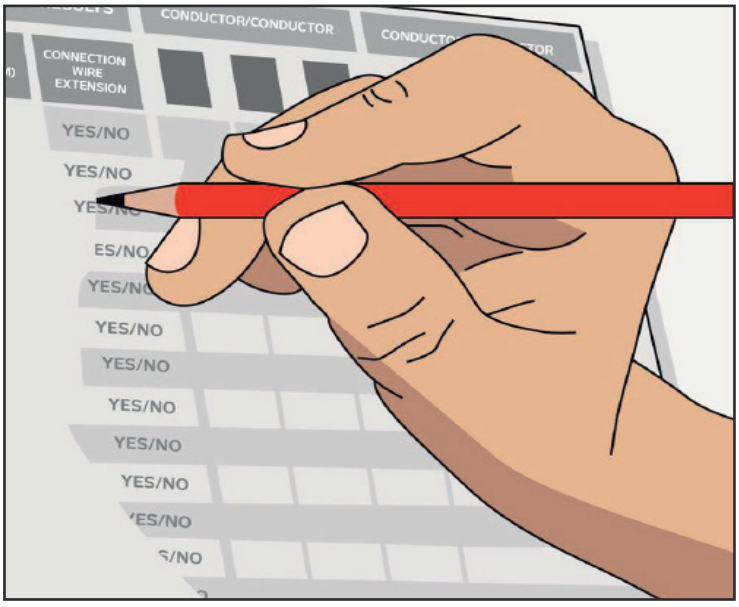
Step 2
Test the resistance of the cable using a multi-meter prior to laying to ensure that the reading corresponds to the manufacturer's resistance reading. This can be found on the label on the packaging or printed on the PVC sheath (±10%). Make a note of the reading on the warranty form.

DO NOT screed over the cable without first testing it.



Resistance test

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



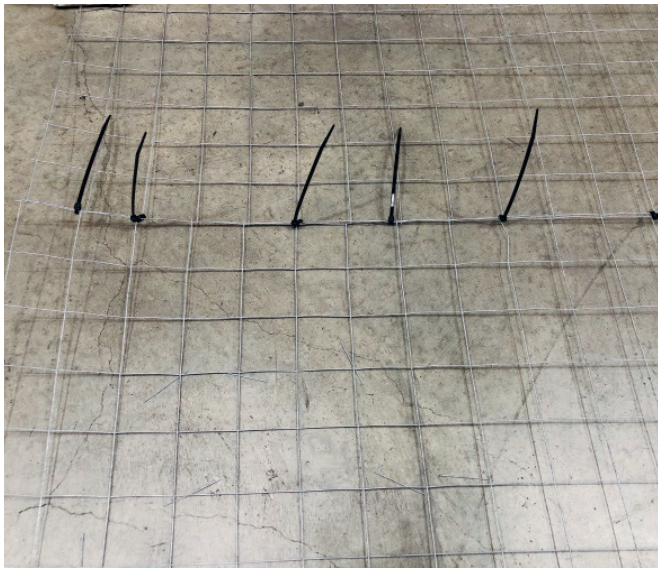
Record results
Write each resistance value on the warranty form to ensure your warranty is valid.

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

Installation - continued

Step 3
Fixing options
If the sub floor has been waterproofed and is clean and dry you may be able to fix the cable with the tape provided.

However we recommend using the mesh provided as this will give a more secure fixing with less chance of the cable dislodged when screeded.

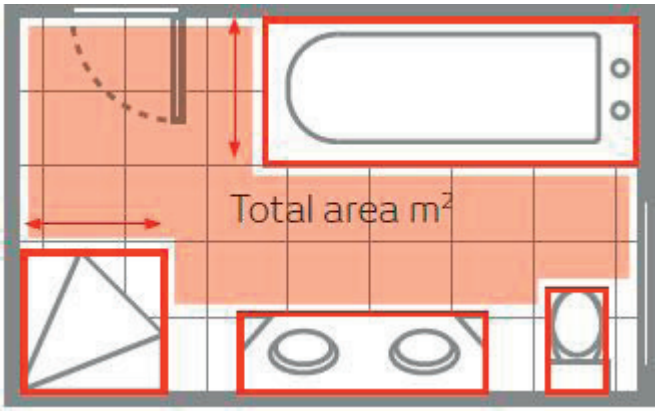


To use the mesh roll out across the floor area, cable tieing each run of mesh together to form a complete sheet.

Calculate spacing.
This is a very important step and must be done correctly to ensure all the cable is used and to avoid extra work later. For bathrooms the optimum output is 180–200 watts per sqm **(approx 100 mm spacing between the loops)**

For living areas, the recommended output is between 120 watts – 150 watts per sqm (achieved by using a cable spacing of around 150 mm between the loops)

Firstly measure the area to be heated in square metres (do not include the area taken up with fixed objects), then divide this area by the length of the cable shown on the cable label, see example.



For example
Total room 6 square metres, less fixed items 1.8 = 4.2 for heated area.
To calculate spacing divide 4.2 (heated area) by 40 metres (length shown on cable).
4.2 divided by 40 = 0.105 metres (or approx 100 mm spacing, leaving a gap of approx. 5cm from the perimeter of the room)

Note: 100mm (every 2 squares) is the optimum spacing

Step 4
Install the coldtail section of the cable and the thermostat probe (found in box) up the conduit or in the wall cavity (refer step 1), making sure that the connection between the heating cable and the cold-tail is imbedded in the sand/cement screed.



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

Installation - continued

Step 5

Start to tie the heating cable to the mesh using cable ties, simply wind the cable back and forward until the cable runs out, there is no need to return back to the thermostat as it is a twin core cable.

Note: It may be necessary after about half of the tying down of the cable to reassess the spacing to more or less, according to how much cable is left.

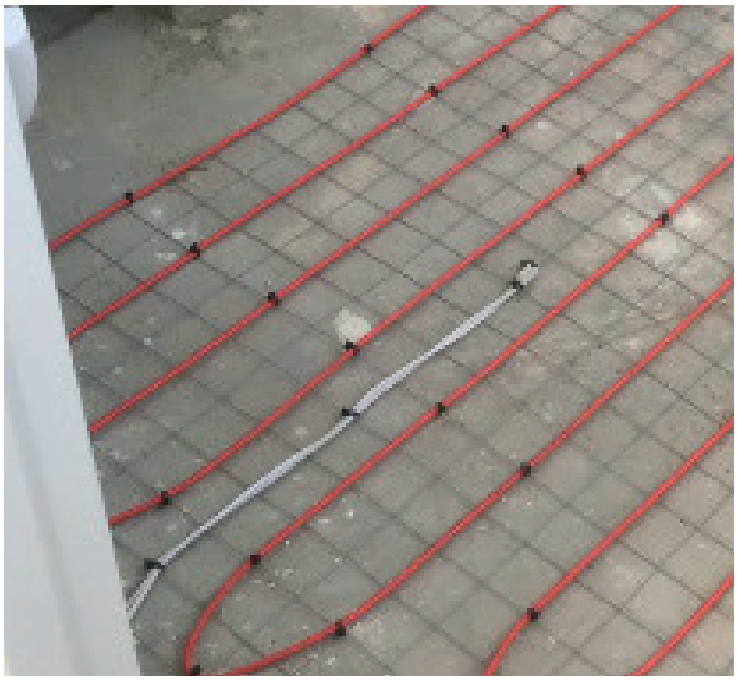
Note: All cable must be used and the cable must not be cut



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 theexposed 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.



Installation - continued

Step 7
Connect and switch on the cable alarm prior to screeding. The cable alarm must be turned on at all times when screeding or 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.



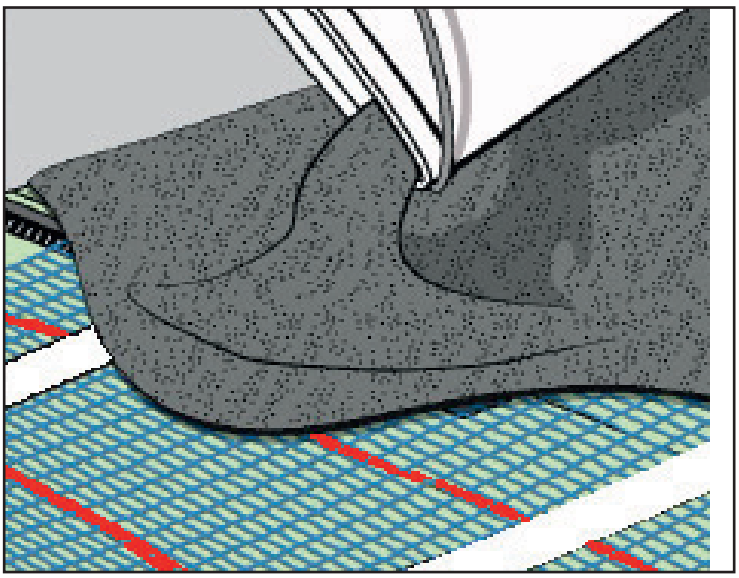
FAILURE TO FOLLOW THESE INSTRUCTIONS WILL INVALIDATE THE WARRANTY. PLEASE READ THE INSTALLATION GUIDE CAREFULLY.

Finalise

Step 9

You should now screed over the cable mat, taking care not to damage or dislodge the mat during this process.

When screeding over underfloor heating we recommend, where possible, using a slightly stronger screed mix than normal (1:3) as this will allow better heat penetration and conductivity.



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 of the layout of the mat prior to screeding. Complete the warranty form and return, along with photographs or diagrams, to Radiant Australia by post, email or using the online warranty registration