Bush Nelson Ltd
Stephenson Way
Three Bridges
Crawley
RH10 1TN

Warm Tiles

INSTALLATION AND OPERATING INSTRUCTIONS

Before starting installation read these instructions and the following 'Frequently Asked Questions' thoroughly. Retain the instructions for reference.

1. Personnel.

Warm Tiles should be installed by a suitably qualified, professional trades-person. Warm Tiles is not a 'do it yourself' product.
It is most important that the installer completes the Installation Record Form that forms part of this booklet.

2. Check the suitability of sub-floor.

Warm Tiles is usually installed onto a concrete sub-floor. If you intend to install Warm tile onto a wooden sub-floor, we recommend a fire resistant layer be installed between the cable and the sub-floor. This could be 6mm thick compound or foil backed insulating board (foil side up). We do not recommend installation onto asphalt sub-floors or any insulation material other than rigid boards.

3. Check the suitability of the screed.

Warm Tiles heating cable must be completely covered by a layer of screed. If you intend using a compound other than a cement screed, the suitability of the compound should be confirmed by the supplier.

4. Check the suitability of the floor surface.

Warm Tiles is suitable for use with ceramic and stone floors, including slate and marble. It is widely used with other floor surfaces, such as wood and vinyl, but in these circumstances we strongly suggest that the suitability of the proposed surface be approved by the supplier. When Warm Tile is used with floor surfaces other than ceramic or stone tiles our guarantee will only cover faults detected before the floor surface is laid.
We do not recommend Warm Tiles for use under carpeted areas.

5. Check that you have the correct Warm Tiles kit.

Each Warm Tiles kit is suitable for a clearly stated maximum and minimum square area. For example a WT9 is suitable for an area between 6m² (minimum) and 9m² (maximum). Calculate the area to be heated and make sure that it falls within the limits of the kit you have selected. Remember the area to be heated is not necessarily the same as the total area of the room as it should not include the areas occupied by permanent fixtures such as cupboards and baths.

6. Estimate the centres of the coils.

The heating cable will be laid in a zigzag pattern onto the sub-floor. Use the following formula to estimate the distance between coils.

$$\text{Distance between coils (cm)} = \frac{1500 \times \text{area to be heated } (m^2)}{\text{Output of the heating cable (W)}}$$

The distance can vary between 6cm and 12cm.

7. First electrical check.

Before starting installation and before removing the cable from its drum, the resistance of the cable should be measured and recorded on the Installation Record Form. Ensure that the reading taken is consistent with the nominal output of the cable.

An insulation resistance reading should also be taken between either end of the cold lead conductor and the earth braid using a 500V dc Insulation Resistance Meter (Megger). Readings in excess of 20 meg-ohms are acceptable. Again the reading should be recorded on the Installation Record Form

NEVER APPLY POWER TO THE CABLE WHILE IT IS ROLLED UP

8. Check the sub-floor.

Ensure that the surface of the sub-floor is clean and free from any debris or sharp objects and that the floor itself is mechanically sound and not cracked.

9. Cutting a groove for PVC pipes.

Both the controller probe and cold lead should be run through a plastic pipe of an appropriate diameter (typically 10mm diameter plastic hose). This is particularly important where the probe or cold lead pass from the floor to the wall. To keep the floor level as low as possible, grooves can be cut into the sub-floor to accommodate these pipes.

10. Priming the sub-floor.

The cement sub-floor needs to be primed with a suitable primer so it will bond properly with the screed. The primer also helps prevent the forming of air bubbles and water being extracted too quickly from the screed. Always follow the manufacturer's instructions.

11. Placing the mounting strip.

The mounting strips should be fixed to the sub-floor with nails or screws. The distance between the strip and the wall should be 200mm with the distance between the strips being 40mm to 50mm.

12. Placing the heating cable.

You have already calculated the centres for the heating cable coils. The heating cable should be laid onto the sub-floor in a zigzag pattern and secured with the mounting strips.
It is essential to avoid mechanical damage to the heating cable. If it is impossible to avoid walking on the cable, use soft-shoes and/or crawling boards.
When you have finished laying the cable, you simply stop. There is no requirement to return the end of the cable to the connection point.
It is vital that the cables are not allowed to touch or cross.
The hot/cold junction and the sealed end must be in the floor itself and not in free air.

13. Positioning the controller probe.

The controller probe should be mounted in a plastic pipe. The end of the probe should be a minimum of 500mm from the wall and 30mm from a heating cable. Remember to seal the end of the plastic tube with tape to prevent ingress by the screed.
When using Warm Tiles in a bathroom, it is normal practice to mount the controller outside the bathroom with the probe mounted in the bathroom floor.

14. Second electrical check.

Once the cable has been laid onto the sub-floor and before the screed is laid the following checks should be performed. All results should be recorded on the Installation Record Form.

a. Ensure that the resistance reading (ohms) is as recorded after the first electrical check
b. Measure the insulation resistance between either end of the cold lead conductor and the earth braid using a 500V dc Insulation Resistance Meter (Megger), ensure that the insulation resistance is still in excess of 20 meg-ohms.
c. Connect the cable to a 230V ac supply for a maximum of two minutes. Check that the cable is very slightly warm to the touch and measure the amperage pulled. Ensure that the amperage reading is consistent with the nominal output of the heating cable.

15. Record the layout of the cables.

It is good practice to take a photograph of the floor before the screed is applied. This will be a useful record should you need to carry out any work on the floor in the future (for example drilling holes).

16. Pouring the screed.

The screed should be prepared and poured in accordance with the supplier's instructions. The layer must be thick enough to cover the cable completely but thin enough for a maximum distance of 20mm between the cable and the floor surface. It is essential that all the heating cable, including the hot/cold junction, be contained within the screed.
Take great care to maintain the required distance between cables while pouring the screed.

17. Third electrical check.

Once the screed has been poured, the following electrical checks should be performed. All results should be recorded on the Installation Record Form.

a. Ensure that the resistance reading (ohms) is as recorded after the first electrical check.
b. Measure the insulation resistance between either end of the cold lead conductor using a 500V dc Insulation Resistance Meter (Megger); ensure that the insulation resistance is still in excess of 20 meg-ohms.

18. Tiling.

Once the screed has hardened, the ceramic or stone tiles can be applied.

19. Electrical connection.

The electrical connection instructions supplied with the controller should be followed.

20. Energising.

The system should not be energised within 28 days of the floor surface being laid. To do so may damage the heating cable.

21. Warranty.

Assuming correct installation, Warm Tiles will give many years of satisfactory service. In the unlikely event of a malfunction resulting from faulty manufacture, Warm Tiles is guaranteed for 12 months from date of purchase. The guarantee covers the full purchase price but not the cost of repairing or replacing the heating cable in the floor. An Installation Record Form is supplied with each kit. This should be completed at the time of installation and posted to Bush Nelson within 60 days of installation. Warranty claims will not be considered if the form has not been returned to us within the required time.