

# Carbon Heating Film Installation Instructions

Thank you for selecting our electric underfloor heating system. Before you begin installing please **read through these instructions carefully** & check that you have all the components required.

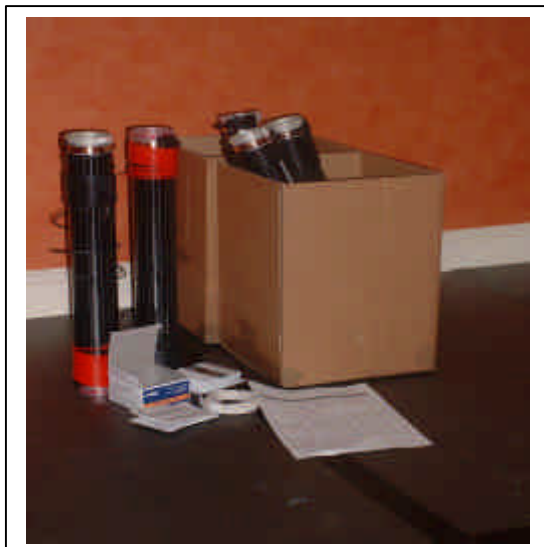
The system requires a mains voltage & must be connected by a suitably qualified person or electrician. All wiring must confirm to IEE 16<sup>th</sup> edition regulations.

Contents of heating kit:

- ❑ *Carbon heating film with cold connections made (each element is individually labeled with a letter or its length & corresponds to the drawing enclosed)*
- ❑ *6mm Depron Insulation*
- ❑ *Digital thermostat with floor sensor*
- ❑ *Floor plan showing element layout*
- ❑ *Flush mounted junction box & cable connectors*
- ❑ *Polyethylene sheet (moisture barrier)*
- ❑ *Factory test sheet with individual resistance readings*

## Installation

- First unpack & identify all components and check the layout, see supplied floor plan. (See Fig 1)



## Typical element layout

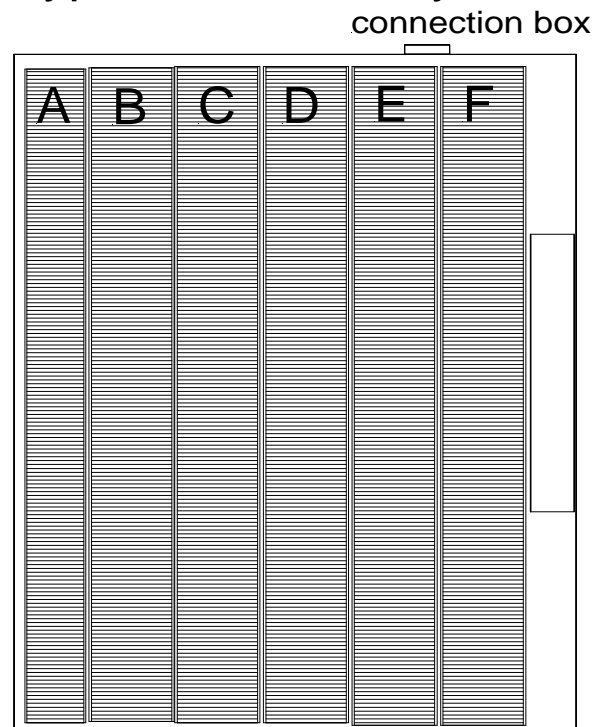


Fig 1

## Installation below 'floating' wood or laminate floor

- Make the electrical provision **as per the enclosed diagram**, a fused spur or combined spur/ RCD is recommended. The thermostat rating is 16amps & this is capable of controlling approx 3600 watts of heating film (most domestic installations are within this figure) but if the system supplied is over 3.6kw you will also require an electrical contactor to switch the load (your electrician will be able to advise you on this). Note - all electrical connections should be made in accordance with IEE 16<sup>th</sup> edition regulations & should be carried out by a person suitably qualified to do so.
- Ensure that the sub-floor (concrete or timber) is clean, dry & free from dust & debris. The floor should also be suitably level to take the kind of flooring which you will be laying – some types of wood plank flooring have a tolerance of just 1 or 2mm per linear metre & we strongly recommend that your floor fitter surveys the floor **before** the heating is installed.
- Once you are satisfied that the floor is level lay out the Depron insulation to cover the entire floor area & tape over the joints. If laying a double layer (recommended in conservatories & other areas with a high heat loss) the second layer should be laid at right angles to the first.



### Notes:

*Depron should be cut with an ordinary Stanley knife or similar*

*When laying out the Depron, leave a gap of about 30mm at the edge of the room where the cables are to be routed & in this gap fix a strip of 1 inch wide double-sided tape - this will help hold the cold cables in position as you work.*

- Leave or cut a gap for the cables along the edge where the connections will be made of about 30 mm in order for them to sit flush under the flooring.
- Only **LIGHT FOOTWARE** should be worn at this stage.
- Position the rolled up elements along the edge of the room as per the drawing supplied – each element will either be individually labeled to correspond to the plan, A, B, C, D.... etc or will have a label showing the element length.

- When you are satisfied with the positioning of the elements (ensuring that they will not overlap), roll out the heating elements and adjust positioning to obtain the best floor coverage. Lightly tape in position to avoid any movement. Elements can be laid either **copper face up OR copper face down**.



- Use a board or spare sheet of Depron to spread your weight when kneeling on the heating elements.
- Where the cable joins each element, a cut-out in the Depron will be required to allow the joints and cable to lay flat. Once in position secure with electrical tape. (See Fig 2 and 3)



Fig 2

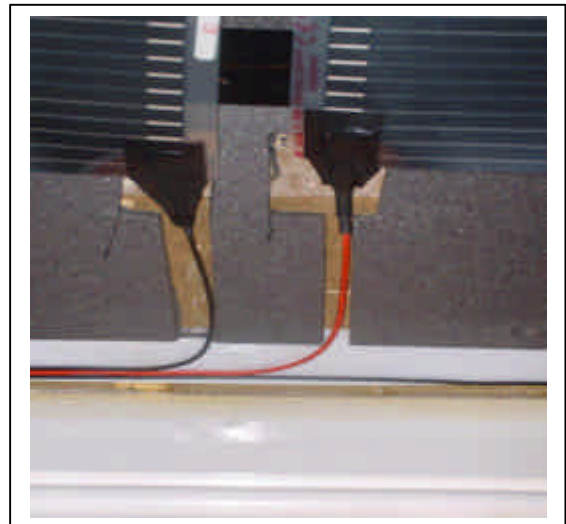
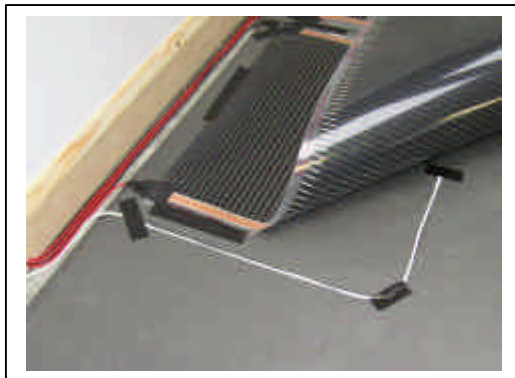
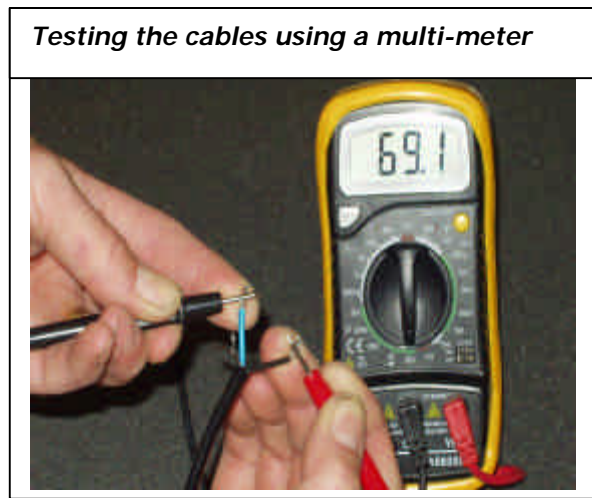


Fig 3

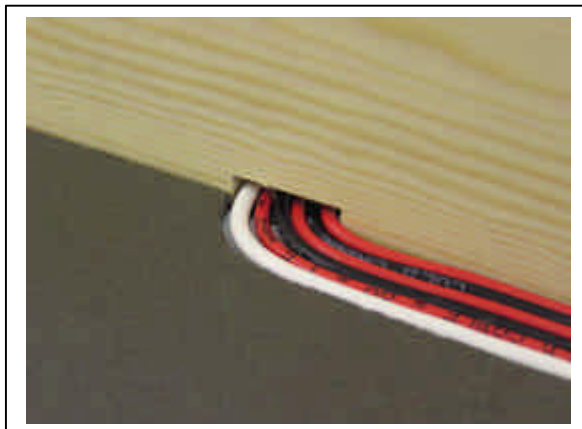
- Starting at the furthest point from the connection box, run the cold cables along the room perimeter, using double sided tape here will hold the cables in position while you work.
- Next position the floor probe (contained in the thermostat box) – this should be about 30-50cms into the room with the rest of the cable going back to the thermostat. Cut a channel in the Depron under one of one of the elements to position the floor-sensing probe, press the probe into the gap and tape in place. (See Fig 4) The sensor wire can be shortened or lengthened if required to suit your application, if shortening be sure to cut the end where the wires are exposed. **DO NOT cut the end with the plastic sensor probe.** The end of the probe wire is then connected directly to the thermostat.



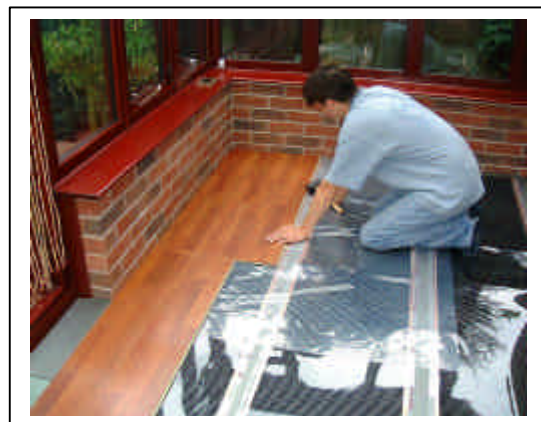
**Fig 4**



- Once the cables are in position they should then be resistance tested using a multi-meter & then joined in parallel at the connection box using the cable connectors provided. The best way to 'hide' the cables is behind the skirting. If the skirting boards are already fitted this can usually be achieved by removing a section & cutting a small recess for the cables – see examples below.



- When you are satisfied with the layout, cover the heating elements with the plastic sheet/moisture barrier provided.
- The electrical connections must be carried out by a qualified electrician & the enclosed certificate signed for the warranty to be valid.
- Resistance tests must be carried out on all elements before the floor is laid and readings on the guarantee certificate. Guideline readings are provided on the elements sheet supplied.
- Once the elements have been resistance tested you can then fit your wood or laminate flooring directly onto the film/moisture barrier in accordance with the manufacturers instructions – a separate underlay is not required.
- Lay the flooring as per the manufacturers instructions – during the process of laying the floor, a common sense approach should be taken not to damage any of the cables or elements such as using a spare sheet of Depron or board to spread your weight when kneeling.



**NOTE 1**

*Electric underfloor heating is designed to run at low temperatures & can therefore have a slower warm-up time than conventional heating. This can be countered by using both the comfort & economy settings on your thermostat rather than just simply switching it on or off – please see separate instructions provided with the thermostat for more details.*

**NOTE 2**

*If installed in new buildings & especially conservatories, the warm-up periods will be affected by the moisture content within the building – all new floor constructions & new buildings should be fully dried out before fitting wood or laminate flooring.*

**Electrical Notes**

To satisfy the requirements of an acceptable British Standard a double sheathed single core cable to BS.6004 must be used under floors.

The heating elements are designed to accommodate a **current carrying capacity of up to 10 amps** and are connected **in parallel** at the junction box.

Consideration must be given by the electrical contractor in respect of the individual heating circuit ratings relative to thermostat rating, circuit breakers and the need for switching contactors where time clock control is incorporated. Normal good wiring practice must be observed and the wiring must comply with the I.E.E. 16th Edition regulations. **The cables must be positioned so that they cannot come into contact with any heated part of the element.** It is recommended that all main distribution boards incorporate an RCCB device.

## Testing Procedure



A cold resistance test should be carried out at the thermostat position using an accurate ohmmeter. This should be recorded and if within the tolerance of +10 -5% can be taken as correct. See supplied sheet. Using the std calculation  $V^2/W = \text{Resistance}$ . Recheck the individual circuit loads do not exceed 2.4 Kw (10 Amps).

### Finally before leaving site:

- Fix mandatory labels to the distribution board. **MANDATORY LABELS**

**CARBON FILM  
UNDERFLOOR HEATING  
INSTALLED  
DO NOT  
PIERCE FLOORING**

Fit to room thermostats

### **WARNING**

THIS BUILDING IS FITTED WITH ELECTRIC UNDERFLOOR HEATING PANELS

Disconnect all heating circuits from electrical supply before working on the floor

**DO NOT PIERCE THE FLOOR WITH NAILS SCREWS OR OTHER FASTENERS**

Fit to consumer panel.

For help & advice please contact us on 01473 725743