CEILING HEATING
The complete ceiling heating solution, natural indoor heating warmth at low cost

Ceiling Heating
Now you can have comfortable heating in any building without the inconvenience, cost and unsightly hardware of conventional heating systems.

Flexel Ecofilm Ceiling Heating uses low temperature electric heating film installed in the ceiling to provide a natural, comfortable indoor heating warmth at low cost. It is rated at 200W/m². Ecofilm Ceiling Heating, unlike conventional warm water radiator systems which heat & circulate air, functions in the same way as the sun. The film emits heat energy in the form of thermal infrared waves. The energy waves are absorbed by the rooms objects (walls, floor, furniture and people) and only then are they converted to heat energy.

This modern, yet most natural, technology ensures that the heat is always created where it is most needed. This is the one great advantage of a radiant heating system, over conventional convection heating (which relies on the air being heated first before being transferred to an object).

Versatile Use
Ecofilm Ceiling Heating is suitable for both new build and renovation projects. It provides an ideal heat source in domestic applications in small rooms (i.e. attic conversions) as well as whole house heating. In the commercial environment it is ideal to heat larger rooms in shops, offices, school class rooms and corridors where it provides excellent heat distribution and obstruction free room layouts.
Safe, Silent, Invisible

Ecofilm Ceiling Heating is installed out of sight in the ceiling. The heating film is installed above the plasterboard, creating space in rooms for freedom of design and planning. Ceiling Heating operates using the large surface area of the ceiling at relatively low temperatures. This ensures that the room’s air remains fresh and condensation free, with no feeling of dryness. Being a radiant heat source no warm air convection currents are created which reduces the distribution of dust especially beneficial for asthma sufferers.

Guarantee & Peace of Mind

With over 6 million square metres of Ecofilm Ceiling Heating installed over a 40 year period, a lifetime of maintenance free warmth and comfort has been provided. Ecofilm Ceiling Heating is covered by a comprehensive 10 year warranty.

Gentle Warmth with High User Comfort & Economy

Ecofilm Ceiling Heating uses the whole ceiling surface as a low temperature radiant heat emitter (35 to 40°C). This produces the optimum heat distribution in any room. This means that it is possible to achieve the same heat comfort as a convection system but at a lower temperature. In most situations as much as 3°C lower! Generally, a reduction of temperature by 1°C lowers total heating costs by 6%.

Construction

Ecofilm Ceiling Heating is a unique construction especially developed for low temperature radiant heating. It consists of an ultra thin (0.2mm) film constructed from a specially formulated semi-conductive medium encapsulated in a plastic laminate which is hermetically sealed, moisture proof and electrically insulated.
<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Amount Supplied</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMP 25</td>
<td>Crimp Connector</td>
<td>25</td>
<td></td>
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<tr>
<td>CC25</td>
<td>Crimp Cover</td>
<td>25</td>
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</tr>
<tr>
<td>TAP66</td>
<td>Clear Insulating Tape for terminating cut elements</td>
<td>25mm x 66m</td>
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</tr>
<tr>
<td>CT15BL</td>
<td>Cold Tail Cable (Blue)</td>
<td>1.5mm² x 100m</td>
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<tr>
<td>CT15BR</td>
<td>Cold Tail Cable (Brown)</td>
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<tr>
<td>GD27</td>
<td>Green Bus-Bar Insulation Disk</td>
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<td>CT1</td>
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<tr>
<td>EFC300</td>
<td>Ecofilm 40W/Linear metre</td>
<td>300mm x 25m</td>
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<td>EFC450</td>
<td>Ecofilm 66W/Linear metre</td>
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<tr>
<td>EFC600</td>
<td>Ecofilm 100W/Linear metre</td>
<td>600mm x 25m</td>
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Installation
Before commencing installation please ensure that the insulation is correctly fitted. Insulation should be a glass fibre or mineral wool quilt and be 80mm or 100mm thick for intermediate ceilings and 200mm minimum in roof spaces. Foil faced materials or polystyrene must not be used. Ensure the insulation quilt is positioned to lie firmly on to the Ecofilm Ceiling Heating Film so as to minimize the air space between the element and the insulation.

Unroll the element on a clean surface and check for damage. Use a straight edge and cut the element to the required lengths ensuring only the clear area between the black bars is cut. Tape over the total width using the clear tape (TAP66).

Ecofilm elements should be fitted with the copper facing downwards and ensure that only the clear border area is in contact with the joists. Allow a minimum clearance of 12mm from the heated part of the element to the joist. Staple the element to the joists on both edges through the clear border area. For ceilings with metal joists locate the film with double sided tape. Unroll the element, stapling both edges at 400mm intervals keeping the element taught and smooth to prevent creasing.

To attach the cold tails, the wiring should be first connected to the crimp before the being attached to the element.

Next bare the connecting leads and insert singly or in pairs into the cylindrical ferrule of the crimp connector.

When a single cable is being crimped, double the cable over to give the same volume of cable to be crimped.

Using the Flexel crimping tool complete the crimp connection so that the W form of this tool is to the seamed side of the ferrule.

The metal crimp connectors (AMP25), with cables attached, can then be fixed to both copper conductors at one end of the element; taking consideration of wiring colour convention.

The connector crimp should be attached using the crimping tool CT1 with two diagonal applications. Firstly from the hinge side of the crimp and then from the open side, to ensure that the whole area of the crimp is in contact with the element and pressed flat.

Normal pliers must NOT be used to install crimps. Fitting the crimp with the barrel to the same side as the copper electrode will assist locating the wiring harness.
Once completed, crimp covers must be fitted to insulate each crimped connection. Finally secure cover with a cable tie.

Cold tail wiring should be securely clipped and positioned so that they cannot come into contact with any heated part of the element.

A minimum clearance of 150mm should be allowed on either side of electrical fittings, noggins or other transverse obstructions.

Vapour checks should only be used where considered absolutely necessary. Where specified by the architect, these must cover the entire room with joints overlapped and taped and are best provided in the form of a clear polythene membrane.

The ceiling boards should be installed immediately after the installation of the heating film and a resistance check carried out. In certain cases where access is available Ecofilm can be installed from above.

Note: When deciding connection layout individual branch circuits should not exceed a rating of 10Amps.

<table>
<thead>
<tr>
<th>Watts/lin metre</th>
<th>Total Width (mm)</th>
<th>Active Heating Width (mm)</th>
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<tbody>
<tr>
<td>40</td>
<td>300</td>
<td>200</td>
</tr>
<tr>
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<td>350</td>
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<tr>
<td>100</td>
<td>600</td>
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FAQ

Q. Will ceiling heating give a comfortable heat distribution? I am concerned about a hot head and cold feet.

A. Radiant ceiling heating will provide an invisible, effective & efficient form of radiant heating. Just like radiant floor heating systems, and the top of your head won't feel any warmer than normal.

Q. Will ceiling heating be expensive to run?

A. No. Ceiling heating provides a natural radiant heating effect. Using a large surface area of the ceiling as a relatively low temperature heat emitter it provides the optimum heat distribution. This means the same heat comfort as a convection system can be achieved but at lower temperature therefore saving energy.

Q. Will the heat from my ceiling heating not just go upward through the roof and be wasted?

A. No. Ceiling heating installations have a thick layer of thermal insulation installed directly above the heating film. This reflects the heat down into the living space providing the heating comfort where it is required.

Q. How would I control my ceiling heating?

A. Ceiling heating is controlled by a standard room thermostat in each heated room. Care should be taken to ensure that the thermostat loading is not exceeded in a large room installation. Where it is a suitable rated contactor should be installed to switch the load.

Q. Are there special electrical requirements required to install ceiling heating?

A. No. A qualified electrician who can follow the comprehensive installation instructions provided should have no problem installing ceiling heating. All installations should be wired via an 30mA RCD for safe operation.

Q. Are there any special tools required to install ceiling heating?

A. Yes. The Flexel crimp attaching the cold tail cables to the element must be installed using the CT1 crimping tool. These are precision engineered to provide a perfect connection. Normal pliers should NOT be used for this operation.

Q. Do I have to cover the whole ceiling area with Ecofilm element and if so, how do I install light fittings and ceiling support cross-noggins?

A. No you do not have to cover the whole ceiling area. Ecofilm ceiling heating element is rated 200W/m². Once you have calculated heat loss calculations for the room, you only need to install the equivalent amount of film to overcome heat losses. On a “standard” room this may be approximately 40% of the ceiling area.

The film should be distributed over the ceiling to provide optimum heat distribution. This will allow space to accommodate light fittings and support noggins.