

Eswa Floor Foils

Eswa foil elements can be installed in wood constructions only. After the heating calculation is completed the type of elements and their position have to be decided. It is important to know the width between the joists and length of each room between the joists, electrical installation, vents, ducts, etc., cupboards and other heavy furniture that could restrict the heat transfer from the floor.

Installation: to obtain a good floor heating system it is very important that the installation is correctly designed and installed. It is also critical that the carpenter and the electrician co-operate fully so that the finished installation works correctly. Care must be taken of the following:

- (a) Eswa heating elements must be installed carefully to ensure that they are not damaged. Avoid creasing.
- (b) it is important that the wooden floor material is as dry as possible. The drying out procedure described later must be followed.
- (c) The specified minimum air space between the floor and the heating element must be maintained.
- (d) The heating elements shall be so positioned that they are not installed under walls, cupboards, shelves or fixed furniture that could restrict the heat emission from the element.
- (e) Always follow national requirements and installation instructions.

Normally the floor heating installation should cover the total heat loss. If this is not possible the installation can be supplemented with Eswa ceiling heating.

Eswa floor elements are available in widths of 400 and 600mm with perforations along each side so that the widths can be reduced to 330 and 510 mm.

Both 60 and 90 W/m² elements can normally be used, provided that there is a permanent air space between the element and the underside of the floor of at least 20mm for 60 W/m² and 40mm for 90 W/m² elements.

It should be possible to choose suitable sized elements for all kinds of wooden floors. The only possible building change which may be necessary, is to add insulation to the floor so that it is fully insulated under the elements. This will reduce the heat loss downwards. The fitting of the floor must be done very carefully so that air above the elements cannot escape through gaps or holes left in the floor construction.

The general electrical wiring must not be in direct contact with the Eswa elements and should preferably be run in the unheated areas of the floor. With a good standard of thermal insulation the heating demand should be well provided for by an Eswa floor heating installation.

FALSE FLOORS ON CONCRETE

Eswa floor heating can be installed on top of concrete floors. A strong vapour barrier is first rolled out on top of the concrete floor and wooden battens, at least 50mm high, are fixed at appropriate centres. Between the battens a 24mm layer of thermal insulation is then laid and on top of this the elements are rolled out. Following this the new floor can be fixed. In this way an air space of approximately 25mm between the element and the floor can be maintained. With a construction like this element with 60 W/m² can be used.

Installing Eswa from above.

When the floor construction is open and accessible from above the normal method of installation Eswa floor heating elements is to roll the elements out directly on top of the thermal insulation between the floor joists. The joist spacing c/c is normally 400 or 600mm. It is therefore necessary to fold the nailing strips along the perforation allowing the element to fit in between the joists. Where the joist are running straight across the building, the air space between them should be filled with insulation under walls between rooms that are crossing the joist runs. This will ensure that the heat in the floor under one room is not convected into another.

Installing Eswa from below.

In floor constructions where the flooring material is already fixed to the top of the joists the Eswa elements have to be installed from below. The thermal insulation is then pushed into place. The element is simply stapled in the nailing strips near the perforation, to the side of a joist, whilst hanging freely downwards. The edge of the element is stapled at a distance from the underside of the floor boards such that the air space above the element will be correct when the element is bent 90° upwards. The nailing strip on the opposite side is then stapled to the adjacent joist. After the elements are in place the thermal insulation can be pushed carefully up to the top. It is very important that the insulation is not forced up against the elements as this will reduce the air gap.

FLOOR COVERING

Most types of floor covering materials can be used in conjunction with heated floors. Suppliers of floor coverings should always be informed that floor heating is being installed so that the right kind of material is chosen. It is important that the floor coverings and types of glue are compatible and of an accepted quality. Normal floor coverings can be of linoleum, vinyl, carpets or thin laminated parquet.

Generally the use of fully seasoned timber is recommended. The use of wet materials and unprofessional labour is likely to cause subsequent problems. Glues for floor coverings must be capable of withstanding a temperature of approximately 40 °C.

Parquet can be used as a floor covering. Because wood is a living substance there is always the possibility that it will shrink causing cracks to occur between the panels. The best result with Eswa floor heating will be obtained if a thin, laminated type of parquet (15mm) is laid floating on top of, for example, a chipboard floor combined with Eswa elements with area load. If a thicker parquet is laid directly on the joists there is a greater risk of shrinkage occurring between the panels. To obtain the best results, the following points should be observed.:

- (1) The heating elements must be positioned so that they provide as even the transmission as possible across the floor. Use of electronic thermostats will provide the most even surface temperature.
- (2) The building should be as dry as possible during installation.
- (3) The normal requirements for reducing the humidity in the building before the floor is covered are important. Before laying thin parquet on top of chipboard or similar the heating elements should be operated for two or three weeks.
- (4) It is important that the floor panels are installed in such a way that cracks or other noises are avoided. This can best be achieved by gluing the boards to the joists in addition to nailing them.
- (5) Parquet on a sub floor should be laid floating and glued together without being nailed to the subfloor. The glue must be able to withstand a temperature of at least 40 °C. Between the parquet and the subfloor a thin paper felt should be laid.

- (6) Floor heating installed directly onto the ground in a basement should be left on at low temperature even in summertime, to avoid the risk of moisture damage.
- (7) This is not intended to be a complete installation instruction. In addition you should follow the recommendations from the producer and distributor of the flooring materials.

ELECTRICAL INSTALLATION:

The installation of Eswa floor heating must always be carried out in accordance with National Regulations and installation rules. Other electrical wiring in the floor should be located in areas where the Eswa elements are not installed or below the thermal insulation under the Eswa elements.

ESWA SANDWICH FLOOR:

The Eswa sandwich floor is a special solution for rooms or buildings where the existing floors are badly insulated and cold. It is not normally possible to provide full heating in this way, so there must be supplementary heating in the room.

An Eswa sandwich floor shall be installed in accordance with National Regulations and installation rules. They should only be installed in dry rooms and the following points must be observed:

- (1) The subfloor under the Eswa elements can be of concrete, light weight concrete or wooden material. The subfloor must not have a 'u' value better than 0.8 w/m^2 . This is equal to approximately 30mm of mineral wool in a wooden construction. If the subfloor is timber, this should be thoroughly dry otherwise the elements may be destroyed by the materials distorting.
- (2) The surface of the subfloor must be even and clean before the installation takes place. Existing vinyl or linoleum can be left on the floor if it is even and undamaged.
- (3) If the subfloor is concrete or light concrete, a plastic sheet, at least 0.15mm thick, should be rolled out first.
- (4) With a centre distance of 600mm min. 3 mm thick and max. 50mm wide strips of hardboard or wood are fixed to the floor.
- (5) The elements are then rolled out between these strips. The elements should cover as large a proportion of the free area of the floor as possible. The element area load must not be more than 60 w/m^2 .
- (6) Immediately thereafter the floor should be laid. This can be 22mm chipboard or similar. The boards should always be glued on all four sides and laid in accordance with the materials suppliers instructions. A small gap should always be maintained between the wall and the new floor boards because timber will always move in accordance with changes in humidity and temperature. If it is desired to nail the new floor this should only be done through the fixing strips of the Eswa elements or in areas where no elements are installed.
- (7) Whilst the Eswa elements are being covered the installation electrician and/or carpenter should remove their shoes to avoid damaging the elements. The elements must not be left uncovered after they have been rolled out.
- (8) Electrical installation must be carried out in accordance with national regulations and installation rules. The illustrations show some examples. Depending on building construction and electrical regulations the wiring can be open or concealed cable installations or in flexible conduit.