

RADIANT FLOORS



CONSTRUCTION BOARD - 10MM

Reinforced Radiant Floors Construction Boards Verses Plain Extruded Polystyrene Boards When Used With Electric Underfloor Heating

For this purpose the cementitious reinforced thermal construction board shall be referred to as Radiant Floors board and the non reinforced insulated board referred as XPS (extruded polystyrene)

Thermal value... Why is it important?

The thermal properties of the insulation board is the fundamental key in saving heat energy .If used with underfloor heating a significant increase in performance of heat-up times of tiles can be as great as 15 times faster than if no insulation is used.

The thermal value of both types of board - Radiant Floors "cement reinforced" and XPS "non reinforced", get their insulation properties from the extruded foam.

The thermal value of the extruded foam can vary depending on the manufacturer and the type of blowing agents used. Some Manufacturers quote results based on DIN testing standards whilst others quote current BS EN standards. The different testing standards will give different results which are confusing when comparing results.

- **The thermal properties of Radiant Floors boards are tested to BS EN 13164 2007 giving current and accurate data**
- **XPS boards (dependant on manufacturer) prefer quoting DIN testing standards which often show more favourable results that may not be accurate if tested to BS EN standards**

Point loading... Why is it important?

When laying insulation sheets on to any floor substrate, it goes without saying that the sheets will be walked upon by the fitter/installer during installation. It is the action of the installer kneeling and standing onto the sheet that produces a point load. This can crush or even snap the insulation if it is not reinforced. In situations where an electric under floor heating cable is installed point loading becomes a serious problem. The use of plain XPS provides no reinforcement below the electrical heating cable, therefore any force or weight applied can press the cable down and sink it into the insulation. If the insulation is crushed /compressed the thermal value of the insulation is reduced, also if the cable is forced into the insulation this will reduce the performance of the heating element due to the reduction of exposed surface area of the heating cable as it sinks into the XPS board.

- **Radiant Floors boards have excellent point loading capabilities supporting elemental parts**
- **XPS boards only have a poor point load and will compress easily especially when the point load surface is reduce**

Rigid construction... Why is it important?

For ease of application it is much easier to lay a lightweight rigid sheet over an uneven substrate as it will span slight unevenness easily. Problems arise when a using XPS boards less than 20mm thick, as they are flexible and will follow any undulation in the floor substrate. As with all boards that are laid onto floors, an amount of force needs to

be applied to the sheet to firmly fix it down into the adhesive. With cement reinforced boards this works fine as the force is distributed evenly, but when force is applied to an XPS board, the area where the force is applied is the only area that gets forced into the adhesive resulting in an undulating surface.

- **Radiant Floors boards are lightweight yet very rigid providing easy installation**
- **XPS boards are extremely flexible making installation difficult**

Impact resistance ...Why is it important?

With every installation, the insulation sheets will have to be Moved/Carried and possibly cut to fit. This movement of the boards especially in confined spaces where there are fixed objects i.e. Bathtubs/Kitchen units, walls etc can cause the boards to become damaged through impact against hard surfaces. With a reinforced Radiant Floors board the damage will be extremely slight compared to a plain XPS foam sheet that can suffer substantial damage and snap easily.

- **Radiant Floors boards have an impact rating up to 2 joules energy and will not become unusable as a result of accidental knocks and scrapes**
- **XPS boards have a tendency to break very easily resulting in a lot of unusable sheets**

Fire Resistance... Why is it important?

The choice of materials used for walls, floors and ceilings can significantly affect the spread of flames and its rate of growth. As part of the building regulations B2 document schedule 1 and legislation it is important to install products with a good fire rating

- **Radiant Floors Boards are approved to BS 476 part 6 and 7 and are accredited with a Class O fire rating providing excellent protection against the spread of flames**
- **XPS boards only achieve Class F offering no protection against the spread of flames**

Anti Static Coating... Why is it important?

Static which is created by friction is a common problem with extruded foam. The result of electrostatic in foam attracts dust to the foam surface and restricts adhesion of all tiles and finishes. The action of sweeping the dust from the surface can create more static and increase the problem of surface dust.

- **Radiant Floors boards have an Antistatic surface coating reducing dust settlement over the board surface**
- **XPS boards can hold electrostatic and may attract dust to its surface resulting in poor tile adhesion**

Conclusion

Great consideration should be taken when installing Underfloor heating. Using an inferior insulation board could result in the heating system performing badly and even result in the delaminating of the finished tiled surface. Radiant Floors Thermal Substrate Boards are a versatile thermally efficient construction board providing far greater benefits than XPS non reinforced insulation boards which are not designed as a Tile backer board and are NOT to be interpreted as a Construction Board.