

UNDERFLOOR HEATING FLOOR COVERINGS

DESIGN | SUPPLY | INSTALL | SUPPORT | TRAIN

Floor Coverings

When used with underfloor heating

Suitable floor coverings used with underfloor heating must be allow the heat to transfer through and also must be stable in their construction, so they do not become effected by the temperatures involved.

Although UFH will work with most floor coverings, some floor finishes are better than others in both terms of stability and also for the transference of heat, which itself depends on the floor finishes thermal resistance. Ideally the thermal resistance should have a TOG value less than 1.0, but sometimes a TOG value of up to 2.5 is acceptable.

Some heat sources are very sensitive to flow output temperatures and the floor covering needs to be considered as part of the design, a floor covering with a high thermal resistance would need the heat source to run at a higher temperature and could have an effect on the overall system efficiency and performance.

All floor covering materials and adhesives must be suitable for a contact temperature of at least 40 degrees and allow a degree of flexibility for different rates of expansion and contraction between different layers of the whole floor construction.

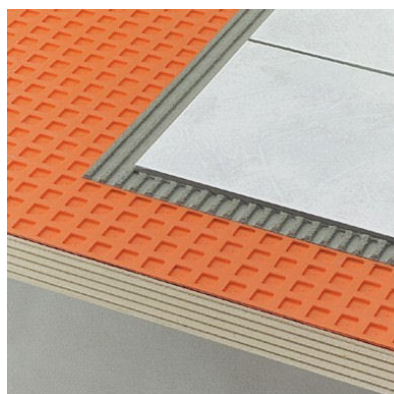
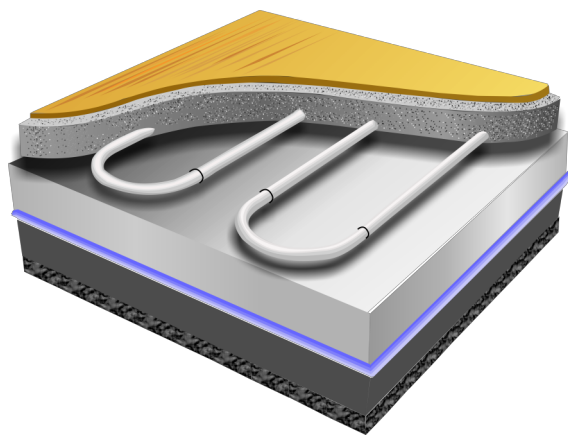
Ceramic and Stone Flooring

Due to their high thermal conductivity (low resistance) and (in the case of tiles) low thickness, ceramic flooring makes for one of the best floor coverings for use with UFH. In all cases a flexible tile adhesive such as BAL Fastflex must be used to avoid cracking of the tiles as the floor layers expand at different rates.

When using fragile ceramic flooring such as sandstone or limestone, a decoupling membrane such as Shulter Ditra should be used to allow greater movement between floor layers.

While allowing the heat to pass through due to low resistance, stone flooring can be heavy and this can lengthen the response time of the system, both when heating up and cooling down.

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Carpet

Underfloor heating can be used with most types of carpet, but both the carpet and underlay needs to be considered for its suitability for both heat transfer and heat tolerance.

The combined TOG value should not exceed 2.5, with the underlay itself not exceeding 1.0.

Carpet and underlay manufacturers have responded to the growing use of UFH, so products such as Duralay Heatflow underlay can provide the luxury feel that is desirable but with a TOG value of just 0.75.

All reputable manufacturers and suppliers of carpet should be able to advise on the use of their products with underfloor heating.



Laminate Flooring

Laminate flooring combines the beauty of wood with a highly water resistant board. This makes it ideal for use in kitchens, bathrooms as well as all living areas.

Typically the flooring itself is not thermally resistive and has little effect on the heat transfer to the room. As with carpet, underlays used with laminate flooring should have low thermal resistance.

Manufacturers will make recommendations regarding perimeter expansion gaps, it is very important to make sure these are met during installation.



Vinyl Flooring

Vinyl flooring works very well with underfloor heating, heat can easily pass through the relatively thin layer.

Generally vinyls have a low tolerance to heat, so should be avoided in harder to heat areas, or those with high heat losses. Most manufacturers state that the vinyl should not be heated above 26°C, meaning the maximum output from the floor would be below 65W/m².

It is very important to check with individual manufacturers regarding their products suitability to avoid issues with degradation of flooring, glues etc.

Solid Wood

For the rustic look, solid wood floors will often be specified. It is important to remember that as a natural product, they will move with changes in temperature and humidity. Typically shrinking in winter and swell in summer.

This will lead to gaps appearing between the boards, or if incorrectly fitted bowing of the boards. The narrower the thickness of the board, the less likelihood of this occurring.

Despite common misconceptions, these floors work very well with UFH. They are gently heated and the surface does not usually exceed 27°C and due to the surface not being dried out in the way a radiator or convector system would, UFH can actually prevent wood floors cupping.

The most important measure is the control of the moisture content of the flooring and this needs to be maintained at around 10% at the time of laying. Beech and maple are more prone to movement due to moisture than other species.

It is standard practice to screw or glue and nail the timber to battens or joists. Alternatively timber can be continuously glued to screed floors using recommended products. Boards should not exceed a total thickness greater than 30mm.

Engineered Boards

Engineered boards are the natural progression from either laminate or solid wood flooring, offering the beauty of a real wood floor.

An engineered board features a top layer of real wood, combined with a cross-ply laminate base for stability.

Unless installed over a screeded slab, engineered boards of less than 20mm thickness should be supported and fixed to additional decking material to give suitable structural strength. Underlays such as Duralay Heatflow are particularly suitable when installed as a floating floor over screed.

Conclusions

Most flooring can be used with underfloor heating, but manufacturers recommendations should always be sought in reference to product suitability and fixing methods.

Allowance and consideration for heat transfer, durability, expansion etc. must always be met.

Screeds must be thoroughly dry before the fitment of flooring, underfloor heating can help with this, but not forced otherwise damage to the screed itself can occur.



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