

## FLOOR COVERINGS

### Overview

Most floor finishes are able to cope with a UFH system if the underside of the floor is well insulated. Care is required to check the floor finish manufacturer's maximum temperature limits against the maximum design floor surface temperatures for a given room or space.

Some finishes that are considered to be very hard wearing are actually quite sensitive to temperature and have similarly low surface temperature limits as for wood. For example, many vinyl tiles and plastic floor coverings fall into this category.

Some refurbishment projects, such as barn conversions, can require high heating outputs, where much greater care is required and hard floor surfaces such as tiles or stone may be the only options. The floor finish manufacturer should be able

to give specific applications. If carpet and underlay is used the combined resistance of the two would ideally be less than  $0.15\text{m}^2/\text{K/W}$  which is equal to a TOG\* value of 1.5. The value of the combined resistance must not exceed  $0.25\text{m}^2/\text{K/W}$  (which is equal to a combined TOG value of 2.5).

When selecting your floor finish, it is recommended that you check with the manufacturer to ensure that it is suitable for use with underfloor heating. Consideration should also be given to any adhesives that are to be used, as some will limit the floor surface temperature that can be achieved.

\* 1 Tog = Thermal resistance  $0.10\text{m}^2\text{K/W}$

Always refer to the floor covering manufacturer's instructions.

### Thermal Resistance of floor coverings with Underfloor Heating

Thermal Resistance	TOG	Floor Covering
$0.00\text{m}^2\text{K/W}$	0.0	2mm Vinyl tile, 5mm Ceramic tile, 3mm Epoxy Coating
$0.05\text{m}^2\text{K/W}$	0.5	25mm Marble, Cushion Linoleum, 5mm Underlay
$0.10\text{m}^2\text{K/W}$	1.0	9mm Carpet floor tile, 13mm Hardwood, 8mm Underlay
$0.15\text{m}^2\text{K/W}$	1.5	Medium pile carpet, Wood blocks, 22mm Timber laminate
$0.20\text{m}^2\text{K/W}$	2.0	Deep pile carpet with 5mm Underlay
$0.25\text{m}^2\text{K/W}$	2.5	Deep pile carpet with 8mm Underlay

Source: CIBSE Underfloor heating Design and Installation Guide

### Wooden Floors

There are many types of wood floor which are suitable for use with underfloor heating and there are also many different methods of installing wood floors which is also important. Advice should be sought from a specialist timber flooring supplier in order to get expert advice and suitable materials. Often flooring grade materials are sold and supplied in laminated form and this type of flooring enables a greater stability to be achieved by the use of cross-ply construction and also, this helps reduce the cost.

There may be instances where hardwood floor manufactures require the floor surface temperature to be limited (usually to  $27^\circ\text{C}$ ), and this can be achieved by using a floor surface temperature and appropriate thermostat and we'd always recommend that the wood floor manufactures advice should be obtained and followed.

