HIRAM Habitat

Installation of HIRAM Habitat wooden flooring on underfloor heating

UNDERFLOOR HEATING BENEATH THE SOLID WOOD AND THREE-LAYER PLANKS FROM HIRAM HABITAT

1

HIRAM Habitat recommends the installation of a warm water underfloor heating system in combination with its wooden flooring, as it provides particularly efficient and even heat distribution. Compared to other heating systems, warm water underfloor heating operates at lower temperatures, which reduces energy consumption and warms the floors evenly.

The surface temperature of a wooden floor should not exceed 27°C. Gradually heating up and cooling down the system helps the wood adjust gently to the new temperature.

BEHAVIOR OF WOOD WITH FLUCTUATING HUMIDITY LEVELS

2

Wood as a natural material reacts to changes in humidity. It absorbs and releases moisture, which can lead to shrinking or expanding. The solid wood planks from HIRAM Habitat are dried to a moisture content of 8-10 %, and the three-layer planks to 7 % +/- 1 %, which corresponds to a relative humidity of about 40-50 %.

If humidity drops, as it often does in winter, gaps may appear between the planks - this is a natural process and does not indicate a reduction in quality. To prevent excessive shrinkage, humidity should not fall below 40 %. Humidity and temperature can be measured with a hygrometer. Using room humidifiers helps to stabilize the humidity level.

THERMAL RESISTANCE OF WOODEN FLOORS

3

The thermal resistance of wooden floors depends on the type of wood and the material thickness (see table on page 3). Harder woods like oak and ash have better thermal conductivity than softer woods like Douglas fir or pine.

In general, the thicker the floor, the higher the thermal resistance. This may require adjusting the heating system's flow temperature to achieve the desired surface temperature. However, the impact on energy consumption remains minimal.

1. Can underfloor heating be installed beneath a solid wood floor from HIRAM Habitat?

Yes, underfloor heating can easily be installed beneath a HIRAM Habitat wooden floor. We particularly recommend using a warm water underfloor heating system, as it ensures a gentle and even heating of the wooden floor. Electric underfloor heating systems can also be used but are generally less energy-efficient.

2. How does underfloor heating affect the wood?

Wood is a natural material that responds to fluctuations in temperature and humidity. Underfloor heating may cause the wood to shrink slightly, leading to small gaps between the planks. This is a natural process and not a defect.

3. What requirements must be met for installing underfloor heating?

Before installation, ensure that the subfloor—usually concrete—is completely dry. The moisture level in the concrete should not exceed 85 % relative humidity. Additionally, the underfloor heating should run for at least 30 days before laying the flooring to eliminate residual moisture in the screed or concrete. A moisture barrier is also required.

4. How long should the concrete dry before laying the wooden floor?

The concrete must be fully cured and dry, which typically takes 30 days. After this period, the underfloor heating should be activated to ensure any remaining moisture is released. A moisture measurement is mandatory before laying the wooden floor.

5. What is the maximum surface temperature for the wooden floor?

The surface temperature of the wooden floor should not exceed 27°C. This is essential to protect the wood and minimize the formation of gaps and cracks.

6. Can underfloor heating be used as the sole heat source?

Yes, underfloor heating can serve as the sole heat source, provided the room's heat loss is minimal. In poorly insulated buildings or those with high heating requirements, additional heating systems such as wall radiators or wood stoves may be necessary.

7. How does the thickness of the wooden floor affect the heating performance of the underfloor heating?

The thickness of the wooden floor has a direct impact on thermal resistance. The thicker the wood, the higher the resistance, meaning more heat must pass through the floor. In such cases, the flow temperature of the underfloor heating may need to be slightly increased without significantly affecting energy consumption.

8. Can I use underfloor heating under a floating wooden floor installation?

It is recommended not to install underfloor heating beneath a floating wooden floor. A fully bonded or screwed installation is more suitable, as it enhances heat transfer and stabilizes the floor.

Thickness in mm Structure/Wood Species	**Formula & Result (Rth)**
20 mm Three-layer/Top layer Douglas Fir	0,02 / 0,13 = 0,15
20 mm Three-layer/Top layer Oak	0,02 / 0,17 = 0,10
20 mm Three-layer/Top layer Ash	0,02 / 0,17 = 0,10
20 mm Three-layer/Top layer Silver Fir	0,02 / 0,13 = 0,15
20 mm Three-layer/Top layer Larch	0,02 / 0,13 = 0,15
28 mm Solid wood/Douglas Fir	0,028 / 0,13 = 0,22
28 mm Solid wood/Oak	0,028 / 0,17 = 0,16
28 mm Solid wood/Ash	0,028 / 0,17 = 0,16
28 mm Solid wood/Silver Fir	0,028 / 0,13 = 0,22
28 mm Solid wood/Larch	0,028 / 0,13 = 0,22
20 mm Solid wood/Oak	0,02 / 0,17 = 0,11
20 mm Solid wood/Ash	0,02 / 0,17 = 0,11
20 mm Solid wood/Douglas Fir	0,02 / 0,13 = 0,15
20 mm Solid wood/Silver Fir	0,02 / 0,13 = 0,15

Formula: Rth = Material thickness / Thermal conductivity

Wood species	**Thermal resistance**
Oak	0,17
Ash	0,17
Douglas Fir	0,13
Silver Fir	0,13
Larch	0,13