

HARO Quality Flooring over underfloor heating and underfloor cooling



Underfloor Heating

Suitable systems: Hot water, electrical (no storage heater), infrared, panel heating made from prefabricated elements.

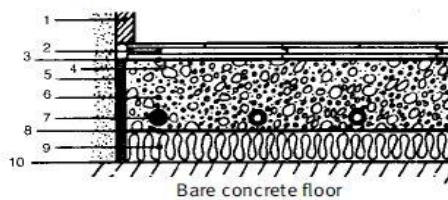
HARO Quality Flooring has a very favourable thermal resistance which ensures an economically efficient operation of the underfloor heating system. Extensive scientific research conducted by the Fraunhofer-Institut in Braunschweig, Germany, as well as our long years of experience substantiate the underfloor heating compatibility of HARO Quality Flooring.

Please observe the following information to ensure proper operation:

The total thermal resistance $1/\Lambda$ for the floor coverings should not exceed **approx. 0.15 m² K/W**.

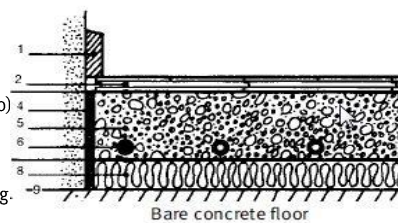
The surface temperature of the floor is **max. 29°C (84°F)** with a proper operation of the underfloor heating system.

Floating installation



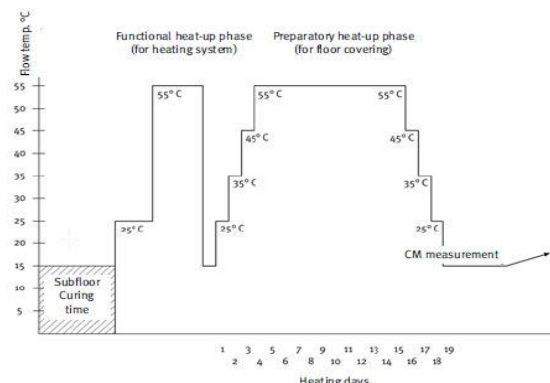
1. Skirting
2. HARO Quality Flooring
3. 2.5 mm corrugated cardboard or 2 mm roll-out-cork underlay (not applicable with Silent Pro)
4. PE film over subfloor
5. Edge insulation strip
6. Subfloor
7. Heating pipe or heating-cable
8. PE film
9. Heat insulation
10. Vapour barrier according to Standard and the state of the art

Glue-down installation



1. Skirting
2. HARO Quality Flooring
3. Primer and Special Glue
4. Edge insulation strip
5. Subfloor (65-70 mm thick)
6. Heating pipe or heating cable
7. PE film
8. Heat insulation
9. Vapour barrier according to Standard and the state of the art

1. The subfloor must be laid professionally as per German Standard DIN 18353. In this regard, also comply with the instructions for heated floor constructions issued by the Central Association of the German Construction Industry. The curing time before starting the **preparatory heat-up phase** which makes the subfloor ready for laying the floor covering is generally at least 28 days for a cement floor and at least 14 days for an anhydrite floor. The subfloor is ready for laying the floor covering when the **CM measurement** shows a moisture value of 1.8 CM % for cement floor and 0.3 CM % for anhydrite floor. Locking of pseudojoints and cracks in the subfloor by means of two-component artificial resin is imperative for both a glue-down installation and a floating installation of the floor covering. Expansion joints provided by the heating manufacturer must be taken over in the floor covering as well.
2. During the preparatory heat-up phase for laying the floor covering, raise the flow pipe temperature by 10°C (50°F) each day, starting from 25°C (77°F). Increase the temperature until the maximum heating temperature of 55°C (131°F) – or the system maximum if less than 55°C – is reached. Do not lower the temperature during the night!
3. Heat for 11 days without interruption at the maximum system temperature or at 55°C (131°F), respectively; do not lower the temperature during the night.
4. Reduce heat by 10°C (50°F) daily until temperature drops to 25°C (77°F) (still do not lower the temperature during the night).
5. **Now test the subfloor for moisture by using a CM measuring instrument.** The measurements must be taken at the designated measuring points. If this test shows that the subfloor is not yet ready for laying the floor covering, continue heating at a flow temperature of about 40°C (104°F) until the subfloor has the limit moisture content required for installation.



6. You can now install your HARO Quality Flooring: Please observe the applicable laying instructions: The surface temperature of the subfloor during installation must be at least 18°C(64°F) and the relative air humidity must be max. 65%.
7. The conditions specified above must be maintained for at least another 5 days after the floor covering has been installed.
8. The underfloor heating can now be run during the heating season.

Underfloor cooling

1. HARO Quality Flooring are suitable for the installation of underfloor cooling systems.
2. In order to avoid that condensation water will affect the floor, a **dew-point- controller** has to be integrated in the cooling system.

General

Directions for laying the floor covering and checking the subfloor are given in the Laying Instructions, which are included with the cartons.

During the heating season, **minor gaps** might develop between individual floor boards due to the climatic conditions prevailing in the room. This is not a quality defect. This occurrence can be minimised or avoided by maintaining a nearly constant room climate with a **temperature of approx. 20°C and a relative air humidity of 30 - 60%**. It is advantageous to use an electrical air humidifier operating on the evaporation principle, which also promotes the well-being of the inhabitants.

Please note: Covering the floor with carpeting may increase the total thermal resistance and cause an accumulation of heat between the floor covering and the carpet.

As it is impossible to take into account the entire vast range of underfloor heating system products, please address any inquiries to our technical department.

There is a wide range of panel heating systems that are composed of prefabricated elements. These systems are often designed using dry mortarless construction. The surface temperature of max. 29° C (77°F) must not be exceeded for these systems either. Laying a vapour barrier foil prior to the floating installation can only be avoided if the system is diffusion-permeable and not mineral based. This includes, for example, heating systems based on wood fibre, polystyrene etc. It is, however, mandatory to follow the manufacturer's specifications regarding installation recommendations.