

# Guidelines for Glue Down Installation with Underfloor Heating

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When installing timber flooring over underfloor heating, additional requirements for both the underfloor heating system and the flooring being installed must be adhered to. This will minimise the risk of any issues and ensure longevity of product.

## SELECTING THE RIGHT TIMBER FLOOR

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The natural properties of timber flooring cause it to retain the warmth produced by underfloor heating systems and conducts it into the room which optimizes the efficiency of the system.

### Installation Method

From our experience, a glue-down installation method is more effective than a floating method with underfloor heating systems due to improved heat conductivity.

### Thickness

The thickness of the flooring has some impact on the speed of the underfloor heating system, however thicker products will generally perform better with underfloor heating due to greater structural strength.

### Species

- Oak is a strong and stable hardwood species with low thermal resistance (high conductivity) making it ideal to use with underfloor heating.
- Some hardwoods are not recommended for use with underfloor heating as they are sensitive to heat which can cause joint openings and warping. Some of these species include Beech, Maple, Ash, Kempas, Jatoba.
- Soft broadleaf and pine species are not effective heat conductors and will reduce the effectiveness of the underfloor heating system.

Most of Forté's timber flooring ranges are suitable for underfloor heating. Ensure you check the product specification sheet to confirm suitability before proceeding with installation however.

## UNDERFLOOR HEATING SYSTEMS

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Always ensure that the chosen underfloor heating system installer has proven experience of installation with timber flooring, and that the company supplying the system recommends installing under timber flooring with glue-down installation method.

### Approved Systems

- ✓ Water heated pipe (Hydronic) Underfloor Heating systems set into a concrete slab or screed.
- ✓ Electric heating systems set into screed.  
(The screed must be structurally sound and free from laitance).

### Systems not Recommended

- ✗ Electric Blanket systems
  - These systems are not designed to cope with the movement of a timber floor that is glued down.
  - The speed of sudden temperature changes with these systems can cause stability issues with your timber flooring (such as splitting, warping, cracking).

- ✘ Water heated pipe (Hydronic) with exposed water pipes
  - The speed of sudden temperature changes with these systems can cause stability issues with your timber flooring (such as splitting, warping, cracking).

For any other system, please contact Forté Customer Care for specific recommendations.

## DESIGN REQUIREMENTS

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- The underfloor heating system must be laid throughout the entire area that the timber flooring is to be installed (even if the heat demand does not justify it). If this is not possible, then it may be possible to separate the area while allowing for expansion. Contact Forté Customer Care for more information.
- Ensure the system is designed to minimize 'hot spots' by consistent spacing and height positioning of pipework/wires in the slab/screed of the entire underfloor heating system.

### Hydronic Systems

- **Spacing:** Distances between heating tubes should not be more than 150mm.
- **Height:** The surface of the slab/screed from the heating tubes may not be less than 45mm and the recommended thickness is 60mm. Ensure the slab/screed thickness is consistent to ensure even heat distribution.

### Electric Systems

- **Height:** The surface of the screed should be at least 8mm above the cables.
- To ensure accurate temperature readings and regulate the surface temperature, we recommend temperature probes to be installed within the underfloor heating sub-floor system. There should be a probe located in each zone/room where there is underfloor heating.
- When using a screed, ensure it is approved by the manufacturer for use with timber flooring.
- The slab/screed must be structurally sound and free from laitance.

## COMMISSIONING THE UNDERFLOOR HEATING SYSTEM FOR TIMBER FLOORING INSTALLATION

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It is required to remove as much moisture as possible from the slab/screed before proceeding to installation. The underfloor heating should be working at least 3 weeks before flooring is to be installed to allow enough time for commissioning and subfloor preparation.

Always follow the underfloor heating manufacturers guidelines and if these conflict with our guidelines, please contact Forté Customer Care for more information.

1. Begin commissioning by increasing the system temperature in daily increments of 5°C until the system reaches 27°C (this should take 5-6 days).
2. The system should be kept at 27°C for at least 48 hours.
3. The system should then be cooled in daily increments of 5°C until it has reached its lowest level and then turned off.
4. Keep the system turned off for 48 hours.

## SUBFLOOR PREPARATION

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- The screed must be level, clean, and crack-free. If any cracks have appeared after the heating up cycle, they must be carefully glued together with synthetic resin.
- *Skip this step if the Underfloor heating system is a screed system.* Test the moisture levels of the concrete slab and if they are above 70% RH, then apply moisture barrier until the slab is below 70% RH (ensure the moisture barrier used is compatible with underfloor heating).
- Once the slab is below 70% RH, turn on the underfloor heating again, and increase in daily increments of 5°C until the installation surface temperature is 15°C.
- **The installation surface temperature should be maintained at 15°C during installation and kept at this temperature until at least 48 hours after installation has been completed.** Allowing changes in temperature (particularly overnight) can cause the wood to lift off the adhesive affecting the adhesive bond.

## INSTALLATION

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- Follow the guidelines for installation as per **Glue Down Flooring Installation Guide for Professionals – Engineered Plank.** Ensure the adhesive you use to install the parquet is suitable for use with underfloor heating.
- Ensure the temperature is maintained at 15°C for 48 hours after the installation has been completed.

## CARE & MAINTENANCE WITH UNDERFLOOR HEATING

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- **AT ALL TIMES**, ensure there are no sudden changes of temperature with the underfloor heating system. Ensure there is a maximum of 2°C increase/decrease per day.
  - If the underfloor heating is completely switched off (e.g. a holiday home), it should be heated back up gradually using the 2°C per day guidelines above.
  - **If these guidelines are not followed, there may be some cupping and/or other issues with the flooring.**
- Large rugs or any object covering the flooring that is restricting heat dispersion from the system should be avoided. The “accumulated” heat caused by these objects may lead to surface cracking, shrinkage/cupping, and coating breakdown of your timber flooring.
- Timber is a natural product and is affected by its surrounding conditions. Exposure to conditions outside of the below parameters may result in movement (i.e., shrinkage causing gaps), breakdown of surface coating, hairline cracks in the veneer. Avoid extreme changes in temperature or humidity.
  - Surface temperature: Should not exceed 27°C.
  - Room temperature: Should be maintained between 13°C to 24°C.
  - Humidity: Relative humidity should be maintained between approximately 30 – 60%, but never below 25% or exceed 85%.
  - Forté strongly recommend the use of a humidification or dehumidification system to prevent the relative humidity going outside of these parameters.