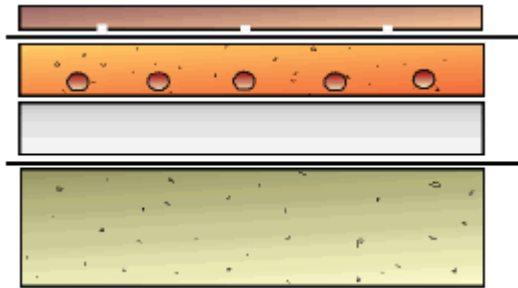


## 5. Underfloor Heating

- Whiteriver flooring is very suitable for installation over under floor heating. Because of the perfect heating guidance of the flooring of Whiteriver, the flooring gives you a warm environment next to the warm ambiance.
- Whilst installation of wood flooring over under floor heating requires a precise way of working, we have put together the main guidelines. When confirming to these guidelines you will be able to advise your client in the proper way of the complete process from delivery and installation to maintenance. It will make your client aware of what the floor requires to stay in condition
- Because there are many variations in underfloor heating there is not just one way of installation.
- When applying a system that does not fulfil below standing guideline, please send the information to Whiteriver and contact our sales department. Whiteriver will look if this system is usable for Engineered wooden flooring or not.

### 5.1. Basic guidelines for preparing the installation

- The heating pipes need to be on a minimum of 30mm below the surface of the subfloor.
- The subfloor needs to be of strong quality (tough surface mainly).
- Maximum moisture content of the subfloor (measured with CM measuring device)
  - Concrete 1.5% CM with UFH
  - Anhydrite 0.3% CM with UFH



### 5.2. Points of attention

- Damages in the subfloor always need to be repaired prior to installation. Any possible dilatations need to be done in the subfloor as well, in the same place as in the wooden floor.
- With installation over under floor heating, the flooring boards always needs to be directly glued on the sub floor with hard elastic glue Thomsit P-685 (or similar glue from other brands).
- After the subfloor is hardened out, the under floor heating can be started up for a time scale of at least 14 days. We recommend you to let the system work on  $\pm 2/3$ rd of the maximum capacity. In the middle of these 14 days the under floor heating needs to be heated to the maximum temperature for 2 days.
- About 2 days before the installation of the wooden floor, the under floor heating needs to be switched off, so the temperature of the subfloor will be around 20 degrees Celsius when installing the wooden floor. 2 days after installation (with installing unfinished flooring this will be 2 days after finishing the floor) the system can be switched on and the temperature can be increased with maximum 5 degrees Celsius per 24 hours.
- The standard guidelines with wood flooring over underfloor heating is that the floor can have a maximum heat resistance of  $0,17 \text{ m}^2 \text{ K/W}$ . This means that all flooring of Whiteriver is suitable over under floor heating, as they have a heat resistance of:
  - 18mm Engineered flooring boards  $0,11 \text{ m}^2 \text{ K/W}$
- The surface of the sub floor should never increase the temperature of 25 degrees Celsius. Always install heat detection pads under the floor on several places.
- Please notice that wood is a product brought by nature, shrinking or expansion can never be prevented for 100%.
- When the end user keeps up to these two guidelines standing below the boards will stay in best possible shape.
- Keep room temperature between 18 – 22 degrees Celsius
- Keep moisture content in the rooms between 40 – 60 %
- These two above standing points are for the responsibility of the end user, inform them about this. We always advise you to provide the end user with a moisture control system to keep up to this condition.
- Do not place any carpets or rugs over your wood floor when installed over under floor heating, because the floor cannot guide through the temperature coming from the underfloor heating.
- With under floor heating under a wooden floor, always keep in mind that minimum shrinkage, perhaps small closed cracks can come in the surface when not taking care of the moisture content in the area. Inform your customer about this.

### 5.3. Underfloor Cooling

- More and more systems can cool the floor in summer time with the same system as the underfloor heating. This system is low risk, the only thing that will need to be kept in notice is that there is a certain minimum / maximum between the relative humidity and the area temperature. Please find below the table that applies for this. Installation advise is similar as to underfloor heating.

