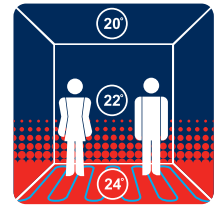
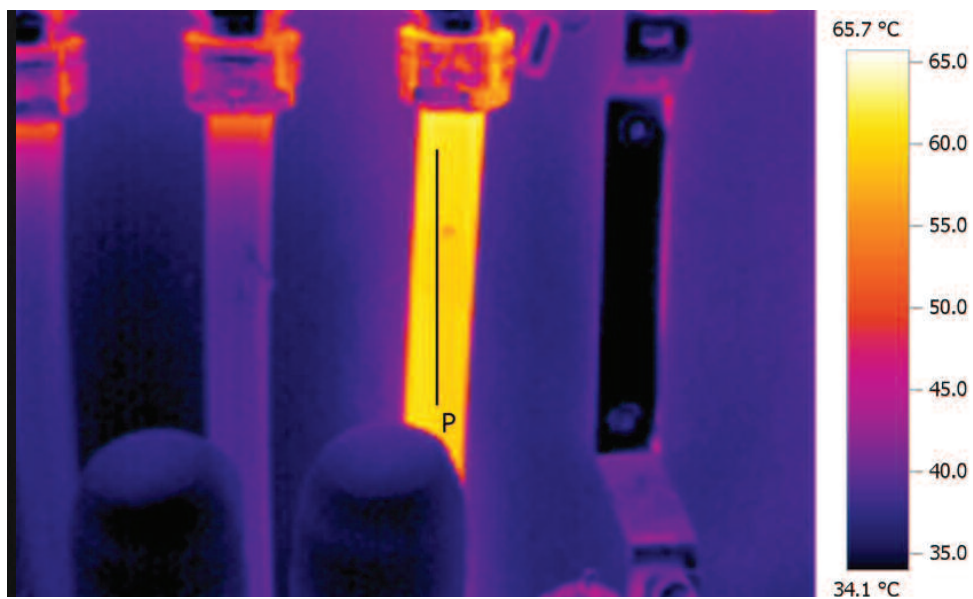
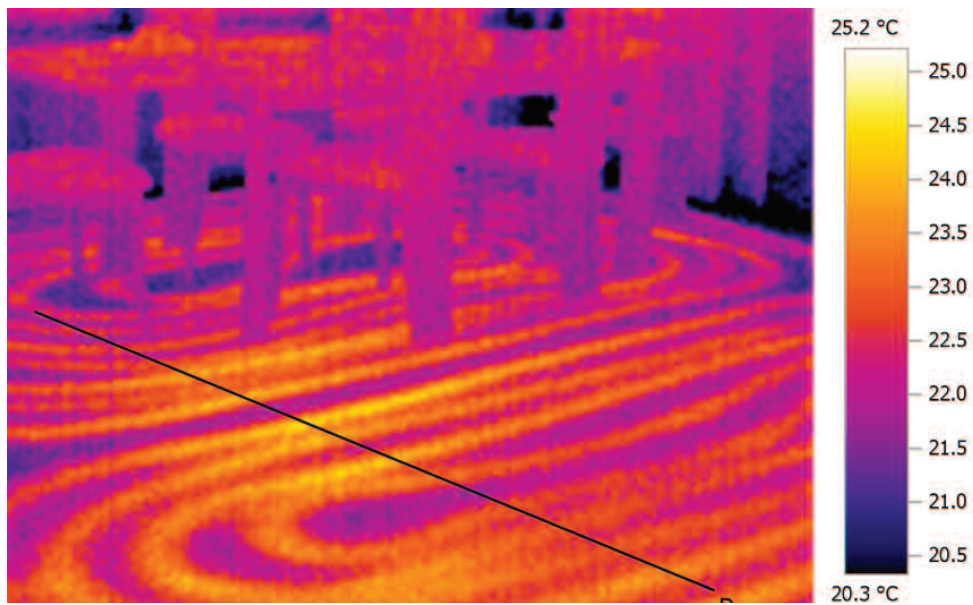


WOOD FLOORING HEATING PROTOCOL



GS UNDERFLOOR
HEATING

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Introduction

Following installation of your underfloor heating system, and prior to the installation of wood flooring the UFH system will have been tested. Once the UFH system has been tested the UFH engineer will set up an initializing schedule for the operation of your heating system.

Where there is a sub-floor consisting of concrete/screed, the UFH engineer will operate an initializing schedule in accordance with the UFH and screed manufacturers joint plan. Once the initial heating cycle has been completed the integrity of the screed is checked by the building contractor and any cracks are repaired.

During installation of wood floors the temperature of concrete/screed and/or wood based sub-floor must be between 15°C and 19°C. Underfloor heating pipes in heat dispersion trays, or pipes in pre-routed panels will be off at the time of installation. For screeds of 50 to 75mm thickness, in order to achieve 15°C to 19°C screed temperature, the UFH will either be off, or in particularly cold conditions the UFH may be on but with a water flow temperature not exceeding 25C*.

IMPORTANT:

In order to achieve optimum in-service performance from your hardwood flooring is essential to follow these guidelines.

Initial Schedule for UFH after Installation of Hardwood Flooring

- After the installation and finishing of the wooden floor is complete, the under-floor heating should not be switched on for 14 days, allowing the adhesives and finishes to cure naturally. (If there is a scheduled time delay between installation and application of the finishes, UFH must remain off during this period. A wood floor should not be heated until 14 days after the finishes have been applied).
- After this period, starting from the lowest setting, the water temperature may be increased gradually over three weeks until the required operating temperature is achieved (i.e. Floor temperature of 27°C or below).

N.B. Do not increase the water flow temperature by more than 5°C every five days,
OR the floor temperature by more than 1°C per 3 days.

- A similar schedule is followed at the start of each seasonal heating cycle (e.g. autumn/winter), with the floor temperature increased incrementally over 14 days until the normal operating temperature is achieved.

N.B: The change in water temperature is not controlled by changes in settings to wall thermostats which state ambient temperature, but instead is achieved by incrementally adjusting the temperature of the water flowing into the UFH pipes from mixer on the UFH manifold. The primary heat source (e.g. combi boiler) is also programmed to a suitable temperature. Where the UFH system also has a mixer on the manifold, the mixer must be appropriately set to prevent accidental overheating by the primary heat source. Your UFH engineer will be able to set up the system accordingly and advise on its operation for compliance with these requirements.



The water temperature needed to produce the required ambient temperature will vary according to factors such as insulation and building design. Your under-floor heating engineer will be able to calculate the maximum water temperature required to maintain a floor temperature not exceeding 27°C. They can further verify this by testing the floor temperature with an infrared surface temperature sensor once the floor covering (i.e. hardwood floor) is installed and UFH is operational.

Electric Under-Floor Heating

Many wall thermostats for electric UFH systems have a setting which is the target ambient temperature. Once the ambient temperature drops below the setting on the thermostat, the electric UFH system will heat the floor to raise air temperature. This type of thermostat setting acts like an on/off switch and can result in rapid heating of the flooring from unheated to maximum operating temperature in just a few hours.

A gradual increase in floor temperature can be achieved by using a thermostat on manual mode to raise floor temperature. This thermostat mode may indicate floor temperature or work within a range of 1 to 10. Simply commence heating the floor on the lowest setting and gradually increase the floor temperature in small increments over a period of three weeks until normal operating temperature is reached. As there are a wide variety of thermostats on the market, consult your UFH engineer to ensure that the thermostat selected can be used to control floor temperature and not ambient temperature only.

After the Initial Heating of Your Hardwood Floor

- During the life of the floor, the floor surface temperature must not exceed 27°C.
- Avoid the use of thick-pile rugs which prevent heat dissipating from the floor surface and result in higher floor temperatures beneath rugs. If rugs are used, operate the floor temperature below the maximum 27°C to accommodate the insulating effect of rugs. With well-insulated buildings only moderate floor temperatures are required to create a comfortable atmospheric temperature.
- Most electric under-floor heating systems can be installed with a floor sensor in the floor which acts as feedback and safety cut-out to ensure that the floor is not heated above the maximum permitted temperature. These must be installed correctly and the sensor type selected for wood flooring applications (as opposed to sensors for stone or ceramic which are heated to higher temperatures).
- A cool floor should never be heated too quickly. At the start of each seasonal heating cycle (e.g. autumn/winter), floor temperature can be increased gradually over two weeks until the normal operating temperature is achieved. This will allow the floor to acclimatize to the temperature change and reduce the risk of possible cracking or movement. In practice, this means that the under-floor heating system will operate on a temperature level that suits the season over a longer span of time rather than in an intermittent way (e.g. on/off). Remember that concrete/screed sub-floors and wood flooring store residual heat for a long time. The smaller the fluctuations in the water temperature, the better the consistency of the heating output.



Normal Seasonal Movement

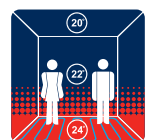
During the winter heating cycle small gaps may appear at the joints of the boards, and some small checking (i.e. fine cracks) may appear. These features are normal to real wood floors and are not considered defects. Normal seasonal movement will not affect the performance of your floor, but maintaining correct conditions will help to minimize seasonal movement.

Maintaining Suitable Indoor Climate

During the winter when heating is used the most, a very dry atmosphere can develop inside buildings. During the life of the floor, humidity is to be maintained between 40% RH and 60% RH. Monitor ambient humidity in the property using one or more small hygrometers.

- In order to maintain ambient humidity within this range, it may be necessary to add moisture to the atmosphere.

This can be achieved by the use of various types of humidifiers, selected to suit the property in question. This not only helps minimize the appearance of gaps and checks, but also contributes to a healthy environment in the building.



Summary

Before Installation of Wood Flooring

- Most screeds require a period of 30 days or more unheated (aka. Moisture curing). (Rapid curing screeds can be an exception).
- Initial heating/drying of the screed will be heated in accordance with a joint plan of the screed manufacturer and UFH engineer.

During Installation

- UFH will typically be off at the time of installation. During exceptionally cold conditions UHF may be on at a low frost setting. (e.g. screed temperature 15 C)

After Installation

- UFH remains off for 14 days after finishing of the wood floor, or set at a low frost setting in particularly cold conditions.
- After 14 days the UFH must follow an initializing schedule, with incremental increase in floor temperature starting at the lowest setting and increasing the water flow temperature by 5°C every 5 days, OR an increase of 1°C floor temperature every 3 days until normal operating temperature is achieved (e.g. < 27°C floor temperature, Typically 45°C flow temperature).
- At the start of each heating season (i.e. autumn/winter) follow an incremental increase of floor temperature over 14 days until normal operating temperature if achieved.
- Maintain ambient humidity in the range of 40% to 60% RH.

Technical Support

For more information and additional technical backup, please contact GS Underfloor Heating and we will be happy to offer our advice and experience. In addition, we are happy to speak with your builder or your installers to discuss any query or technical issue they may have.

Gerald Stow

Director

