



TED TODD



UNDERFLOOR
HEATING
INSTALLATION GUIDE

CHAPTER 8 - UNDER FLOOR HEATING (UFH)

8.1 General Guidelines

Thermal resistance of wood varies with the species but is in the order of 0.13m² K/W. Wood naturally reduces heat transfer through the whole floor construction and thus wood flooring should only be considered over an UFH installation with full prior consultation with the heating engineer.

Please also note that most Ted Todd engineered floors are supplied with a moisture content (MC) of between 8% - 10%. After a period of time under an UFH installation the MC of the wood may drop to 6%-8% or lower. This could cause some shrinkage in the floor boards. Similarly, if the UFH system is switched off after installation (such as in the summer) the M/C of the floorboards may rise again causing some width expansion. For this reason, the MC of the wood floor must be carefully checked before installation and if necessary, extra acclimatisation should take place. Similarly, allowance should be considered for some expansion of the wood in case the heating system is switched off and the site's humidity rises again.

All of our engineered floors are suitable for installations with UFH systems. You must check with the manufacturer of the UFH system to ensure that the system can be properly controlled to ensure the maximum temperature of the timber floor (at any point) will not exceed 27°C.

All installations of Ted Todd wood floors over UFH systems must be accompanied by the installation of the Ted Todd Fidbox monitoring system allowing the temperature and humidity of the wood floor and sub-floor to be monitored and recorded.

It is important that you set the UFH system to make sure that it cannot in any circumstance cause a floor surface temperature that exceeds 27°C. The Ted Todd Fidbox system is essential and this can also be backed up by use of an infrared heat monitor. These are inexpensive and will allow you to calibrate the maximum running temperature of your heating system to a floor surface temperature of 27°C.

For water systems this is easily achieved by adjusting the flow-control valves regulator to a maximum water temperature that is commensurate with a floor temperature of 27°C.

For electric systems you will also need to set up the system so it is impossible for the floor temperature to exceed 27°C

Please note that the 27°C is across the whole floor and it is common for poorly installed systems to have hot spots. The calibration of both water and electric systems needs to be measured against the hottest areas in the floor. The sub-floor construction must have a heat-distributing layer that gives an even temperature over the entire surface of the floor area, in order to prevent high temperatures in certain spots.

Please also note that under floor heating systems are designed to operate as a "slow" heating source. The appeal is that they omit an even level of heat over a long period of time. The only circumstances within most properly insulated homes that a temperature of 22°C cannot be achieved with a floor temperature of 27°C is when the 22°C is demanded too quickly. In this respect if you use an under floor heating system like a conventional radiator, you will damage the floor as the short term temperature boost will cause excessive temperature in the floor



Please note that room temperature settings are NOT floor temperature settings. The UFH heating system must have its own control system at the floor level to prevent overheating.

The temperature of the floor only needs to exceed 27°C for a short period of time to damage the floor.

Early signs that the heating system is running too hot include: colour fade in the floor's natural tone, small longitudinal splits along the centre and ends of a plank. (This is normally prevalent around knots). If corrective action is not put in place quickly the hardwood layer in your floor will start to shrink. When this happens the hardwood layer will curl up at the edges. In extreme circumstances the dried out hardwood layer will move to such a degree that it becomes loose and will start to delaminate from the backing layer. When dried out hardwood layers become loose they will normally need to be replaced, however in some circumstances the wear layer can be glued back into place. (The additional use of a micro nail gun will hold the boards in place whilst the glue dries). Replacing wear layers is a professional undertaking and requires the removal of either the entire plank from the floor or in some circumstances the removal of the hardwood wear layer. This can sometimes be undertaken without damaging the finish on the floor. However, if the floor does not have bevels between each component, the floor will need to be refinished. The re-finish could be straight forward and only involve a light sand to the existing finish and then the application of additional coats of finish. Alternatively, in some circumstances the floor will need sanding back to bare wood prior to re-finishing.

Please note that all Ted Todd engineered wood floors are tested for adhesive bond strength. The bond performance between the hardwood layer and core meets all European standards. Wood floors that fail over under floor heating fail due to shrinkage in the hardwood layer of the board and not due to poor adhesion.

Where possible we recommend that all floors are glued to the sub floor with Ted Todd MS Flex adhesive but this will depend on the system and sub floor you have chosen. Please ensure the sub floor is rated to allow direct gluing of timber floors.

The ambient humidity and temperature should always be maintained.

Do not lay rugs / large items that will trap the heat over floors with under floor heating systems as this can cause excessive drying of the timber.

Some electric under floor heating systems are not suitable for installations with timber flooring, check with the manufacturer that the system will adhere to the above criteria.

8.2 Water Fed Systems

The UFH installer must ensure that all services running beneath the floor have been fully tested and commissioned before laying starts.

Once the screed is dry as specified in Chapter 2 - Moisture Testing, and prior to installation follow heat up procedure as below.

Please note that this is to check that the system is working properly and to dry out the installation screed. Under no circumstances should the system be run at these high temperatures once the wood flooring is installed.



Day 1 - 20°C

Day 2 - 30°C

Day 3 - 40°C

Day 4 - 50°C or the maximum planned operating temperature and maintained constantly for 7 daysDay 12 - 40°C

Day 12 - 40°C

Day 13 - 30°C

Day 14 - 30°C

Day 15 – Switch off heating system.

Allow 4 days before a final moisture reading is taken.

If more than 7 days elapse between the last cooling down day and the start of laying the flooring, the UFH system should be run at minimum operating temperature for 2 days. The system should then be switched off for at least 4 days before a further moisture check is carried out prior to laying.

Once this has been completed and moisture checks agree with recommendations and your sub floor is suitable for glue down installation follow guidelines in Chapter 6.3.1 Glue Down Installation. If your sub floor is not suitable for glue down installation, follow guidelines in Chapter 6.3.3 Floating Installation.

8.3 Electric Systems

Some electric UFH systems are not suitable for installations with timber flooring, check with the manufacturer that the system will adhere to the general guidelines.

If the system is suitable follow guidelines in Chapter 6.3.3 Floating Installation.

8.4 Heating Systems Over Suspended Floors

For installations where the UFH is suspended in joists or an overlay system, consult your supplier of the heating system to ensure it is rated for use with engineered wood floors and follow their installation instructions.

Always follow our general guidelines for UFH and check joist spacing as per Chapter 4 - Acceptable Sub Floors.

8.5 Underfloor heating in just part of a continual floor area.

If the UFH is to be installed in just part of a continuous floor area, (e.g. in an open lounge-diner area with UFH just in the lounge area) it is important that the floor area is separated.

There needs to be a break between the heated area and the non-heated area. The use of a Ted Todd "T" section is ideal for this purpose.

This is to avoid any potential problems with differential expansion or shrinkage between the two areas.



CHAPTER 9 - REACTION TO FIRE

All Ted Todd wood floors, with thickness 8mm or above, can be classified at minimum, according to BS EN 14342-2013, as Dfl-S1 when installed without an air gap underneath.

Most Ted Todd 20mm thickness 2-ply Oak floors can be classified, according to BS EN 14342-2013, as Cfl-S1 when installed with or without an air gap underneath.

Specification sheets, including the fire classification, for every Ted Todd floor are available upon request.

Please check the design specification for the project where the wood floor is being installed to ensure that the wood floor and the installation method does comply with the design spec.

