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# Multiplank & Underfloor Heating (UFH)

## Subfloor heating

### Multiplank on top of subfloor heating

It is possible to install Heywood's engineered Multiplank floor in combination with underfloor heating.

But for this to work the indoor temperature must vary only gradually and to a limited extent to prevent the wood from shrinking or expanding.

A subfloor heating system is a 'slow' system: it takes longer for a room to reach the right temperature and also for the heat to leave the room again. The heating pattern of the occupants is very important: the more stable this is, the better.

Too much heat causes the wood to dry out and shrink. Rapid and major fluctuations in the temperature may damage the floor. Practical matters also play a role: rugs and carpets on the floor and cupboards with no space underneath can also cause heat to build up, possibly resulting in shrinkage joints and cracks. These can be prevented with the help of one or two tips on heating and interior design.

### Application of Multiplank

20/5,5mm Multiplank consists of a 5,5mm thick top layer of solid wood, which is glued onto a 14,5mm plywood underlayment at the factory. 15/4mm Multiplank consists of a 3,5mm thick top layer of solid wood, which is glued onto a 11,5mm plywood underlayment at the factory. In the following wood species, both types of floor can be used in combination with floor heating either as the main source of heat or as additional heating:

- Afrormosia
- Afzelia Doussié
- American Oak
- American Walnut
- European Oak
- Iroko
- Merbau
- Teak

The instructions you will need to follow are provided below.

**NOTE:** You must be very careful about making sure you adhere to the requirements imposed in terms of the climatological conditions. If the humidity in the room does not achieve the values stipulated, the chances of cracks forming in the top layer will increase significantly. Cracking as a consequence of this is not covered by the guarantee.

To assist in keeping the Relative Humidity between the optimal levels, we strongly recommend the use of a Humidifier with the correct capacity to help you in keeping your indoor climate in optimal condition.

## Installation methods

### Option 1:

The boards can be glued directly onto the cement screed. Make sure that the cement screed is formretaining and level. We recommend at least D20 cement. The flatness can be checked: the maximum height difference over 2 metres is 2 mm.

If you opt to glue the floor directly onto the cement screed (Option 1), we recommend that you take the following steps:

- Apply a primer and, if necessary, a liquid moisture barrier as well. You can do this, for example, by first applying one coat of Lecol PU280 primer, or something similar and then applying a second coat crosswise; this will act as a sufficient moisture barrier.
- Using a Lecol PU240 adhesive, or something similar, you should glue the boards on top within 24 hours with the help of a toothed T69 steel adhesive comb.
- Make sure that pressure is applied to the boards for 24 hours after being glued into place using at least a 20kg weight per m<sup>2</sup>.

### Option 2:

If the subfloor does not satisfy the above requirements, an (oak) mosaic intermediate floor should be installed.

Multiplank can then be glued and blind nailed onto this intermediate floor.

If you opt for installation using a mosaic intermediate floor (Option 2), you should take the following steps:

- Glue a mosaic intermediate floor onto the cement screed using a PU240 adhesive.
- Once the adhesive has set, sand the intermediate floor until it is even.
- Then glue the boards on top using a PU240 adhesive with the help of a toothed T69 steel adhesive comb and also blind nail the boards to the subfloor.



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## How effective is wood as an insulator?

Wood is an outstanding thermal insulator: unlike a stone floor, it does not feel cold. Although wood is slightly slower to heat up, it retains the heat for longer thanks to its excellent insulating properties.

However, to ensure good heat emission, the conductivity resistance (Rc value) of the wooden floor should not be too high. This is determined by the thickness and composition of Multiplank.

## Technical values

Rc value of Multiplank 20 mm: 0,118 m<sup>2</sup> K/W

Rc value of oak mosaic intermediate floor 8 mm: 0,044 m<sup>2</sup> K/W

Rc value of chipboard intermediate floor 8 mm: 0,050 m<sup>2</sup> K/W

Thermal conductivity of Duoboard 20 mm:  $\lambda = 0,17\text{W/mK}$

Thermal conductivity of oak mosaic 8 mm:  $\lambda = 0,18\text{ W/mK}$

Thermal conductivity of chipboard 8mm:  $\lambda = 0,16\text{W/mK}$

## Heating up before laying the wooden floor

- Before you use the subfloor heating unit for the first time, the sand/cement screed should be at least 42 days old. Set the temperature to 20 °C on the first day of use, and then raise it by 5 °C every day.
- Make sure that the supply water temperature does not exceed 45 °C. Maintain this maximum temperature for at least 24 hours per centimetre of floor thickness.
- The lowering of the water temperature should also be in increments of 5 °C every 24 hours until you reach a water temperature of 20 °C.
- The entire heating process takes 14 days – ensure good ventilation during this period to allow moisture to escape. Check the cement screed for residual moisture after this process. This must not exceed 1,8% for a sand/cement screed and 0,3% for an anhydrite floor; if a liquid moisture barrier is used, the maximum is 3%.

## Heating up after laying the wooden floor

- When laying the floor, the screed should be between 15 and 18 °C. Maintain this temperature for at least 5 days after laying, then you can slowly raise the temperature (1 to 2 °C every day) until you reach the temperature you desire or the maximum permissible temperature.
- The residual moisture in the floor must be no more than 1,8% for a cement screed and no more than 0,3% for an anhydrite floor.
- The maximum contact temperature of the cement screed is 28 °C. The contact temperature is the temperature of the surface of the cement screed / anhydrite floor, measured 3 heating days after setting the temperature (depending on the depth of the pipes).

## Heating during the season

- Raise the temperature very gradually at the start of the heating season, and lower it again very gradually at the end (1 to 2 °C every day).
- To keep the floor as stable as possible, do not create any difference in day and night temperatures.

## Key points

- The RH in the room must be between 40% and 65%. Measure the RH using a well-calibrated measuring device in a non-draughty room 10cm above the floor. NOTE: if the RH is too low, cracks may form.
- The cover on water pipes must be at least 30 mm thick to ensure a good distribution of heat.
- The maximum contact temperature of the cement screed is 28 °C.
- Heat the room at a steady temperature.
- Follow the heating protocol before, during and after installation.
- When you begin to turn up the subfloor heating again in winter, do so gradually (raise the temperature approximately 1 to 2 °C every day).
- If the cement screed is uneven and/or weak, use an oak mosaic intermediate floor.
- Sand an anhydrite floor beforehand with K24, remove all dust and always apply a primer.
- If there is a chance of rising moisture, or residual moisture exceeding 1,8% (for an anhydrite floor no more than 0,3%) with a maximum of 3%, then apply 2 x PU280 crosswise to act as a moisture barrier.



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- If there is no mosaic intermediate floor, the cement screed needs to be of excellent quality. It is essential that 20 kg of pressure per m<sup>2</sup> be applied to each board immediately after gluing into place.
- Use a two-component adhesive such as Lecol PU240 or something similar – ask your supplier for advice.
- Apply the adhesive using a toothed T69 steel adhesive comb.
- Do not place any rugs on top, or cupboards with no space underneath.
- Cracks and shrinkage joints are often caused by insufficient RH and/or an excessively high water temperature.

## Guarantee

We guarantee a stable product and also give a guarantee against delamination, excessive deformation and cracking. A Fidbox monitoring sensor should be installed in various locations of the floor. We may reject claims where these sensors have not been used.

Installation should be carried out in accordance with the above instructions.

The climate should satisfy the above requirements (RH between 40% and 65% measured 10 cm above the floor using a calibrated hygrometer; the contact temperature of the cement screed must be no higher than 28 °C).

**Cracking that does not exceed the quality description by more than 10% is not covered by the guarantee.**

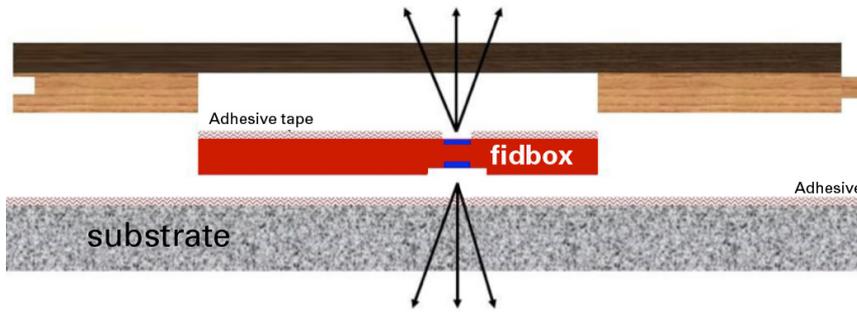


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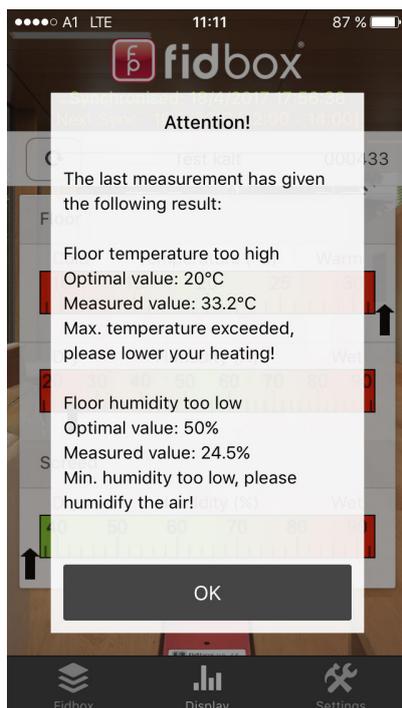
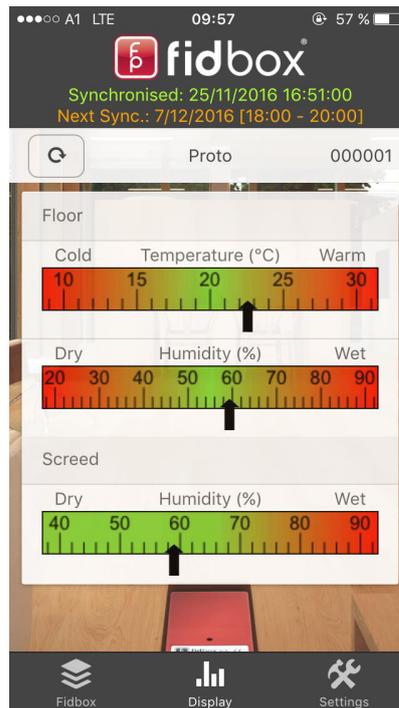


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Temperature °C + rel. humidity% from hardwoodflooring



Temperature °C + rel. humidity% from the substrate



Example of a Humidifier