

Guidelines for underfloor heating/Heating protocol

Bijlard International

This heating and cooling protocol must, by preference, be carried out repeatedly before the laying or finishing of a (plastic floor, floor tiles, tiling, parquet, laminate flooring, marmoleum, etc.) floor.

Underfloor heating in this heating and cooling protocol is understood to mean a floor equipped with hot water heating. The floor must contain at least 25 mm of material above the water pipe.

In screed flooring already equipped with underfloor heating, cracking can occur due to the expansion and contraction caused by heat. To reduce the risk of this happening to a minimum, it is necessary to bring the underfloor heating slowly and regularly up to temperature. It is therefore advisable to follow the heating and cooling protocol described below.

An underfloor heating and cooling protocol is based on the water temperature from the heating installation and not a thermostatically-controlled temperature device in the space concerned. It is advisable to continue the process until the water has reached a temperature of no more than 40 °C. It is a general rule that the water should not reach a temperature higher than 40 °C. Plumbers often apply 55 °C maximum temperature . This can considerably add to the risk of cracks and detachment occurring. If it is not necessary to adhere to 55 °C, it is better to set the heating protocol to 40 °C. Never go above 55 °C. The risk of damage is huge. It is also very important to ensure the screed flooring has already achieved its final strength. This means cementitious screed flooring should not be heated within at least 28 days. This may be earlier for screed flooring bonded with calcium sulphate if necessary, dependent upon the mortar quality. Calcium sulphate has a higher internal bending strength.

How much earlier cannot be estimated because this is entirely dependent on the circumstances in which the floor has been dried. As rule of thumb, a calcium sulphate floor may not contain more than 3% moisture by weight. This must be determined using a calcium carbide meter.

NB:

Cracks usually arise during the cooling phase, not the heating phase. This means this phase is more important than the heating phase; therefore, cooling at the right pace must be considered.

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The heating and cooling protocol:

- Start with a water temperature that is 5 °C higher than the ambient temperature in the room concerned. The water temperature must be read from the heating installation.
- Increase the water temperature by 5 °C every 24 hours (or longer), just so long until the practical maximum water temperature of 40 °C has been reached (see comments for this).
- Hold the maximum water temperature stable at 40 °C for at least 24 hours.
- Afterwards, decrease the water temperature by 5 °C every 24 hours until the starting temperature has just been achieved again. Underfloor heating is being used more and more regularly to provide cooling as well as heating. For a similar system, it is important (certainly during high temperatures in the summer) that the cooling cycle is set to 15 °C on the heating and cooling unit.
- Should there be sufficient time, this cycle should be repeated several times.
- It is advisable to provide this heating/cooling protocol to the end user/consumer for the purpose of normal use after delivery. The heating and cooling protocol must also be followed after protracted downtime of underfloor heating.

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Heating protocol

Day 1:	Water temperature 20 °C	Day 2:	25°C
Day 3:	30°C	Day 4:	35 °C
Day 5:	40°C	Day 6:	40 °C

Cooling protocol

Day 7:	35°C	Day 8:	30 °C
Day 9:	25°C	Day 10:	20 °C
Day 11:		Repeat or complete	

By preference, repeat the procedure several times.

If this is not possible given the available time, commission the installation.

NB: This guideline is in agreement with the BA Directive 2.1 from Bedrijfschap afbouw

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