

Ondo on underfloor heating

(In addition to the Ondo installation & care instructions)

Ondo floors are ideally suited for use on underfloor heating systems, designed in accordance with DIN EN 1264 (series) "Surface-embedded heating and cooling systems with water flow -- Part 3: Design". Except wood types susceptible to movement such as beech.

In addition to floating installation, glue-down with Admonter Elastic has proven itself as an ideal installation system due to improved heat transfer and low gap formation.

When flooring is laid over unheated floors and in rooms without cellar space underneath, the installation of durable waterproofing and an active vapour barrier to prevent any damage due to rising moisture from the subsoil are important factors to take into consideration.

Both professionally produced wet and dry screed systems can be used. The screed has to be cured according to the manufacturer's instructions. The **residual moisture** as per the CM method at the time of installation **may not exceed 1,8% for cement screeds and 0,3% for anhydrite**. When other screed systems or chemical additives such as accelerators are used, the manufacturer's instructions must be followed. The corresponding relative humidity of the screed must be below 60% rH in any case. A corresponding relative humidity is considered the measured value in the state of equilibrium under a sufficiently large, sealed test surface on the surface of the screed.

Warm-water, low-temperature underfloor heating systems are basically recommended, whereas **29°C** as threshold value of the surface temperature according to DIN EN 1264 (series) and ÖNORM B 2242 may also not be exceeded in **the areas around the edges**. The same applies to electric surface heating with gentle heating characteristics, whereas every form of heat build-up through full-surface objects (such as shelves, futon beds, ...) should be avoided.

Please refer to the technical information table at www.ondo-naturholzboden.at for the respective heat transfer resistances of Ondo floors.

If no other specifications are given, screed and room temperature between 18 and 23 °C and relative humidity of a maximum of 65% at installation must be adhered to.

EN 15251:2012 "Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics" recommends a seasonal **relative humidity of about 30% to about 65%** for a healthy indoor climate. Natural manifestations typical to wood such as gaps and cracks or warping occur to a moderate degree at this humidity range. Longer-term deviations can be the cause of adverse health effects. Wooden floors then are prone to excessive changes in appearance, such as large deformations, and gap or crack formation. To keep the relative humidity at 30 – 65% throughout the year may require the use of mechanical humidifiers or a moisture recovery system in ventilation systems while heating takes place.

Please also refer to the **Ondo comfort diagram** at www.ondo-naturholzboden.at. In this regard, attention is drawn to the use of the Fidbox®, which provides a multi-year climate record and which is user-friendly to read.

Underfloor cooling - In terms of building physics, the installation of a room cooling system at floor level is not ideal, preferably it should be installed in the wall and ceiling area. Basically, Ondo Floors are suitable for laying over underfloor cooling systems if it can be regulated and detected so that a daily average of 65% relative humidity directly on the parquet floor is not exceeded and that the dew point is never even close to being reached. Although only to a moderate degree, the natural phenomena typical to wood such as gaps, cracks or warping as during heating should then also to be expected. **A single dew point measurement on the inflow pipe is in any case not sufficient!** Full-surface bonding with Admonter elastic adhesive is required.

Delamination tests as per Test Method HFA AA B 214 or IHD factory standard 482 "Testing the adhesion of multi-layer parquet" are suitable to examine the product quality of the adhesion of multi-layer parquet (condition as delivered).

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