

APPENDIX A - FLOOR HEATING AND COOLING

BerryAlloc vinyl planks and tiles can be installed with floor heating and/or cooling. However, some important remarks have to be considered to protect your vinyl planks and tiles, and to obtain the best results with your heating system. Both water-based and electric systems are compatible with vinyl planks and tiles, as a part of the subfloor construction.

For the installation of BerryAlloc vinyl planks and tiles on a subfloor with floor heating, the general installation instructions still apply. In addition to the general instructions, we advise the following steps regarding floor heating.

1. Preparation

1.1 Maximum capacity

Regarding electric heating systems, the capacity of the heating elements should not exceed 60 W/m^2 . Multiply the m^2 of the surface by 60 to find out what the maximum allowed effect is for the heating elements. For example : $26 \text{ m}^2 \times 60 \text{ W/m}^2 = 1.560 \text{ W} \Rightarrow$ Choose a heating system with a max. capacity of 1.500 W.

1.2 Thermal floor resistance

The maximum permitted surface temperature on the BerryAlloc flooring is $27 \text{ }^\circ\text{C}$ ($80 \text{ }^\circ\text{F}$). For water-based heating systems, this means that the heating system's supplier must calculate what the maximum incoming and outgoing water temperatures should be, to make sure that the surface temperature stays below $27 \text{ }^\circ\text{C}$ ($80 \text{ }^\circ\text{F}$). Additionally, we recommend using an IR-sensor for constant measurement of the surface temperature. Be aware that loose rugs and mats may function as heat accumulators. Ideally, there should be a gap of at least 3 cm between low-profile furniture and the floor.

When only one section of the floor has floor heating, but your vinyl planks and tiles continue in areas without floor heating, these areas always have to be separated by expansion profiles. The heated and non-heated areas will expand differently due to difference in surface temperature.

1.3 Underlays and moisture barrier

You always need to install a moisture barrier (ageing-resistant polyethylene foil) to prevent any condensation damage to your vinyl planks or tiles. This moisture barrier can be integrated in an underlay, or it can be laid separately. We recommend using an underlay with low insulating properties. Underlays can be used if they have a thickness of maximum 1.5 mm and a compressive strength of more than 400kPa. The Dreamtec+ and Basetec vinyl planks underlays are both good options. Don't use an underlay underneath products with an integrated pad. For these products a separate moisture barrier is necessary.

1.4 Water-based systems

To obtain a homogeneous heat distribution across the entire floor, the distance between the heating elements must not be greater than 30 cm. The depth of the elements is determined by the fitter of the floor heating ($> 4\text{cm}$).

1.5 Thermal resistance

The thermal resistance of a floor used in combination with underfloor heating should not be higher than $0.15 \text{ m}^2\text{K/W}$. Otherwise, the heat will not be able to transfer to the surface of the floor.

1.6 Combination of heating & cooling

Systems that combine both floor heating and cooling need special attention. If the temperature of the cooling water drops below the so-called 'dew point', it will cause condensation, which in turn can lead to mould growth. To protect the quality of your vinyl floor, and to ensure that your warranty remains valid, make sure that :

- the water temperature never goes below $18 \text{ }^\circ\text{C}$ or $64 \text{ }^\circ\text{F}$
- you limit the temperature difference between the floor and the surroundings to $5 \text{ }^\circ\text{C}$ or $41 \text{ }^\circ\text{F}$
- your cooling system is equipped with an automatic anti-condensation control system that adjusts the temperature of the ingoing water

Always ask your supplier of the heating/cooling system if it is compatible with vinyl planks and tiles flooring and if they are able to meet all the necessary requirements prior to installation!

1.7 Subfloor preparation

The subfloor must be sufficiently dry across its complete thickness when installing the floor covering. This should be maximum 1.8% according to the Calcium Carbide method for cement-bound floors and maximum 0.3% for anhydrite-bound screed. For newly spread screed, follow the guidelines of your installer for the drying and start-up period. A heating protocol should be presented and can be requested from the installer. Properly ventilate the room to evacuate the cleared moisture. Make sure your subfloor is dried out before continuing the installation of the BerryAlloc vinyl floor.

2. During installation

2.1 Climate conditions

The temperature for laying BerryAlloc vinyl planks must be minimum 18°C and maximum 25°C. If the room temperature is not 18°C, the floor heating has to be switched on at 50% until the room temperature reaches 18°C. Once the room temperature is 18°C, you can turn off the heating completely. The vinyl planks and tiles must be acclimatised for at least 48 hours before installation.

2.2 Installing

Install a moisture barrier according to the instructions above.

Install your vinyl planks and tiles (free floating with expansion gaps) according to the installation instructions in the manual or on the box. The latest version can always be found on www.berryalloc.com.

3. After the installation

When the installation is complete, or if the heating system has been turned off for more than 6 months, please consider the following:

- The first week: set the heating system at a low temperature, 18 - 22 °C (64-72 °F).
- The following week: the temperature can be increased gradually.