

Junckers Batten Sports Floor Systems

D 1.0 General Information

D 1.2 Batten System Information

Specifier's Information

Laying Instructions

Introduction

This data sheet describes the general conditions for specification of Junckers Batten Sports Systems.

Wood quality

Prefabricated substructures for Junckers batten sports systems consist of battens of high-quality wood: either strength-graded softwood or laminated wood with a moisture content of max. 14 %. If the structure includes resilience pads these are fixed to the battens in the factory.

Packing of battens

The packing material for substructures must be of a dimensionally -stable material such as plywood or chipboard. Alternatively, plastic wedges may be used, either alone or in combination with the aforementioned materials. Fine adjustment is achieved using up to 3 layers of bitumen based felt, equivalent to a layer thickness of max. 5 mm.

On unscreeded concrete surfaces bitumen based felt under the packing is always recommended. This ensures that the packing is more firmly placed and the felt also reinforces the moisture barrier, which is exposed to a heavy load on unscreeded concrete surfaces.

The packing is attached to the substructure using nails, which should fix every layer in the packing and must not be in contact with the concrete. The placing and number of packing pieces is specified in the Specifier's Information for each floor system.

Levelness

Battens and joists must be straight with no distortion. After installation the top surface of the battens or joists may deviate a maximum 2 mm from flat level under a 1.5 m straight edge (UK: 3 mm under a 3 m straight edge), both across and along the individual battens or joists.

Expansion gaps at walls and fixed objects

The minimum expansion gap at walls and fixed objects must be 30 mm in order to allow for movement of the floor, but also to provide for ventilation of the substructure. In the case of especially wide spans it may be necessary for a gap of more than 30 mm to be formed. This is calculated at 1.5 mm per m width at each side and 1mm per m length at each end of the floor. For floors less than 7.5 m wide the minimum expansion gap size can be reduced to 15 mm.

10-board rule

In order to minimize stress or gaps in the floor due to fluctuations in the environmental conditions within the building, the boards must be laid according to a 10-board rule. This indicates the measurement of 10 boards when laid and should be checked continuously during the installation and afterwards. → Fig. 2

The 10-board measurement is chosen on the basis of the expected maximum relative humidity in the building when in use throughout the year. The size and location of the floor, i.e. ground floor or floor division, may also have an influence on the choice of the 10-board measure.

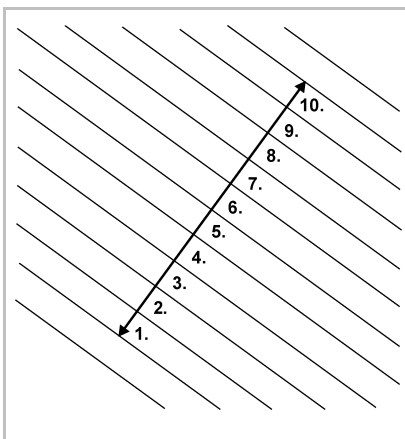


Fig. 2

Requirements of machine nails

Where machine nails of the T-nail type for nailing of solid boards are required, the specification is as follows:
Approx. 5 mm T-shaped head and a length of 65 mm and thickness of 2.5 - 2.6 mm.

Fig. 3

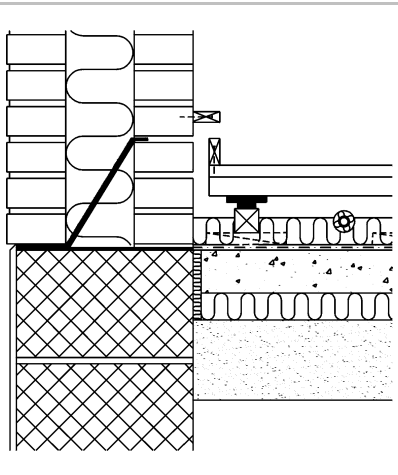


Fig. 4 - Cross-section of ground floor at facade

Nailing

Nailing must comply with the prescribed 10-board rule. Secret nailing of boards is recommended, at an angle of 45° using machine nails of the dimensions given in the Specifier's Information for each floor system. However, the three outermost rows of boards and board ends at walls must always be nailed from above with a nail in each row of stave. To ensure that the nail has the necessary shearing strength it is important to adhere to Junckers' requirements of machine nails. → Fig. 3.

Alternatively, the boards can be secret nailed using 2.8 x 65 mm lost-head wire nails. A lost-head wire nail is used in each board in each batten. Hand nailing always requires pre drilling using a 2.0-2.5 mm drill.

Laying of floors more than 12 metres wide should always begin from the middle of the room, so as to minimize any movement of the floor.

Thermal insulation and pipes in the subfloor

Several Junckers batten sports systems provide good opportunities to incorporate thermal insulation. It should be ensured that between underneath of the boards and the insulation is sufficient ventilation so there is no risk of fungal attacks in the flooring construction. All central heating, cold and hot-water pipes under floors must be carefully insulated using at least 20 mm mineral wool or similar. It must be ensured that there is a sufficient space between underneath of the board/batten and the pipe insulation to allow for unimpeded vertical movement of the floor. → Fig. 4

Moisture protection

Concrete subfloors

At ground level and in floor structures subject to a risk of residual moisture protection against dampness from both within the building and the ground is required. A moisture barrier is established by laying a damp-proof membrane, 0.15 mm PE membrane or 1000g polythene directly on the concrete before laying out the battens. The residual moisture contained in the concrete should not exceed 65 % RH (UK: Concrete moisture max. 75 % RH acc. to BS 8201, when checked by measurement). → Fig. 4

Wooden subfloors

For renovation projects where new floor systems are laid on existing wooden subfloors, it must be ensured that the entire structure has been designed to the correct specifications regarding moisture. Usually, no additional moisture protection must be applied on top of the existing sports floor, as this may cause the risk of fungal attacks in the subconstruction.

Ventilation of subfloor

In general, batten sports floor systems should be installed using skirtings with ventilation slots, to ensure adequate ventilation of the substructure. Moreover, to minimize the consequences of environmental fluctuations in the building as much as possible, the same climate should be maintained both above and below the floor surface.

For small floors up to 400-500 m² the expected relative humidity range will usually be complied with through natural ventilation via the aforementioned ventilation slots. By natural ventilation we mean the air flow will be as a consequence of movement of the floor surface during normal sports activities.

It is important to arrange mechanical ventilation for larger floor surfaces. This ventilation can either be combined with the sports hall's heating system or established as a separate system.

For larger floors mechanical ventilation can be omitted if a floor is laid in ideal conditions. However, the following conditions must be fulfilled:

The residual moisture in the concrete subfloor and the relative humidity of the building must not exceed 50 % RH and must thus be in balance with the average of the humidity range 35-65 % RH. The room temperature must be 20°C. The moisture barrier is established as two crosswise layers of 0.15 mm PE membrane with 300 mm overlaps.

In all circumstances it is important that the ventilation slots at the walls be retained and that the moisture-protection instructions are observed.