

Wood and Water Relationships

Wood is hygroscopic: It will absorb moisture and expand when exposed to high humidity and, conversely, expel moisture and shrink in low humidity environments, changing and balancing with its general surroundings. In the worst case, Beech wood will change the dimension of 0.31 % (only in width) in average per 1 % change of the wood moisture content. When Pollmeier flooring leaves the plant, the moisture content is 8% +/- 1%. This is the equilibrium moisture content for an environment of 45% surrounding humidity. This means the floor will not absorb or emit moisture if you maintain a humidity of 45% year round. If you maintain a humidity between 40% and 60% the floor will expand and contract a little. Please consider that not only a wood floor requires this humidity level, it is also the level that humans feel best at.

Handling and Storage

Moisture damages flooring! For this reason prefinished POLLMEIER flooring is always packed in Climate-Safe cardboard boxes and protected with stretch-plastic-foil.

Nevertheless

- Unload in dry weather.
- Never deliver or store flooring in rain, sleet or snow.
- Prevent condensation.

Kiln-dried flooring should be stored in an enclosed building that is well ventilated with weatherproof windows and located in areas where similar fine millwork is stored. The storage area within the building should be clean and dry. Continual dry heat may over-dry flooring, which may later result in buckled floors when the flooring is delivered to the job and installed without a proper acclimation or spacing.

Job site conditions

Check the job site before delivery. The building's interior must be thoroughly dry. If the average moisture content of drywall, sub-floors, ceilings, and framing is below 12 to 14 %, the building components are considered to be dry.

Please ensure the following conditions are met:

- The building is fully closed; all windows and exterior doors are installed.
- The proper sub-floor nailing base is installed.
- The heating/cooling system is operational (should be at least 3 days prior to installation start operational).

Installation of Beech flooring

Don't hesitate to hire a professional. Invest in proper installation so you'll be fully satisfied with the result and your floor will last a long time.

ACCLIMATION GUIDELINES

Upon delivery check the wood flooring's moisture content to establish a baseline for required acclimation. Acclimation depends on geographic location, interior climate control and time of year. Please consult with your NWFA or NOFMA rep for moisture content guidelines for your area. Always record the moisture content of the wood and atmospheric humidity of the living conditions at time of installation.

SUBFLOOR GRADE LEVELS

Above Grade: Solid strip and plank wood floors can be installed successfully above grade level.

On Grade: Solid strip and plank wood floors can be installed successfully on grade level.

Below Grade: Not for use below grade.

1. Subfloors

1.1 Glue-down application

Our recommendation for adhesive: Check with your local retailer or supplier for a high elastic polyurethane adhesive such as Sika's T-55 (full surface bonding) or Sika's AcouBond System (which meets noise insulation requirements). Other adhesives may also work, but please consult with the adhesive manufacturer for which species, lengths and widths the adhesive is recommended. Always consult the adhesive manufacturer when installing over light weight concrete or self-levelling compound. A consolidation compound is required, regardless of the adhesive manufacturer's directions when installed on lightweight concrete or self-levelling compound. (This includes, but is not limited to Sika's © Primer MB.)

1.2 Plywood-on-slab system

Sweep the slab. The slab must be sound, level, and free of dust. Tolerance should be flat to within 3/16" in 10'.

Cover the entire slab with 6-mil or heavier polyethylene film overlapping edges 4 to 6" and allow enough to extend under the baseboard on all sides. This system uses 3/4" or thicker sheathing grade exterior plywood as the sub-floor (size of the sheets is 4' x 8'). Stagger plywood and joints every 4' by cutting the first sheet of every other run. Loose lay plywood panels over the entire floor. Leave 3/4" space at all wall lines or vertical obstructions and 1/2" between the panels.

Fasten the plywood with a power-actuated concrete nailer or hammer driven concrete nails. Adhesive needs to be used to seal around the nail shank. Be sure to flatten out the plywood and fasten securely. Start at the centre of the panel and work towards the edges; use at least 32 nails per panel (every 12" on the boarder and at 12" on centre per 4' x 8' sheet).

Sweep the sub-floor. The sub-floor must be sound, level and free of dust and protruding nails. Tolerance should be flat to within 3/16" in 10'.

Roll out 15 lb. asphalt felt or building paper, lapping edges 4". Butt ends.

1.3 Installation over wood joist construction

Outside cross ventilation in the foundation walls must be provided through vents or other openings with no dead air areas. A surface cover throughout the crawl space (100%) of 6-mil polyethylene film is essential as a moisture retarder.

Subflooring: With 3/4" thick strip flooring use either kiln dried 3/4" boards of No. 1 or No. 2 Common Pine or other dense, Group 1 softwoods suitable for subfloors over wood joists, or exterior sheathing grade plywood. If plywood, 5/8" (19/32") or 3/4" (23/32") performance rated products are preferred. Also, 3/4"

(23/32") OSB is a comparable substrate. Thinner materials cannot be recommended as a preferred subfloor material.

Install subfloor panels as recommended by the panel manufacturer. They should be installed with grain of faces at right angles to joists, nailed every 6" along each joist with appropriate nails and with appropriate spacing at panel ends and edges unless otherwise recommended by the panel manufacturer.

For a board subfloor, use only flat, dry $\frac{3}{4}$ " dressed square edge boards no wider than 6". Lay diagonally across the joists; allow $\frac{1}{4}$ " to $\frac{3}{8}$ " expansion space between boards. Don't use tongue and groove boards. Nail to every bearing point (includes blocking) with two 8d common nails. All mitered joints must rest on joists. Mark location of joists so flooring can be nailed into them. Good nailing is important. It keeps the boards rigid, preventing creeping sometimes caused by shrinkage in subfloor lumber. Without adequate nailing it is impossible to obtain solid, non-squeaking floors.

2. Direction of finish flooring

Always install the flooring in the direction of the longest dimension of the room or building, this minimizes the total amount of the tangential expansion of the floor. If a hallway parallels the long dimension of the room, begin the flooring by snapping a chalk line through the centre of the hall and work from there into the room. Use a slip-tongue to reverse direction when you complete the hall later.

3. Starting to lay the floor

Location and straight alignment of the first course is important. Place a strip of flooring $\frac{3}{4}$ " from the starter wall, groove side toward wall, and mark a point on the sub-floor at the edge of the flooring tongue. Do this near both corners of the room, and then snap a chalk line between the two points. Nail the first strip with its tongue on this line. The gap between that strip and the wall is needed for expansion space and will be hidden by the shoe mould.

Lay the first strip along the starting chalk line, tongue out, and drive 8d finishing nails at the ends of the board and $\frac{3}{4}$ " out from the wall and nail every 12". The shoe moulding will cover the nail heads. Nail additional boards in the same way to complete the first course.

4. Rack the floor

Lay out seven or eight loose rows of flooring end to end in a staggered pattern with end joints at least 12" apart. Watch your pattern for even distribution of long and short pieces and to avoid clusters of short boards. Stagger end joint a minimum of 6" between pieces on adjacent rows. Avoid H-joints.

Fit each board snug, groove-to-tongue, and blind nail through the tongue. Countersink all nails. After the first or second row you can change from hammer to a floor-nailing machine. Use a nailing machine with barbed fasteners (1 $\frac{1}{2}$ " or 1 $\frac{3}{4}$ " cleats). Fasteners are driven through the tongue of the flooring at the proper angle. Put the boards of the next rows together by placing the tongue into the previous groove. Shoot a nail every 8" in the flooring and nearby the joints on both sides.

Continue across the room, ending up on the far wall with the same $\frac{3}{4}$ " space as allowed on the beginning wall. It may be necessary to rip a strip to fit. Avoid nailing into sub-floor joints. For every 10' over 20' width please allow additional $\frac{3}{4}$ " expansion.

We recommend using steel-washers for the additional expansion evenly spaced throughout the floor if the room is over 20' wide and expansion is expected (which depends on the expected expansion in certain environments). For bordered joints put one washer at each side of the joints and every 8" in length. In some areas, additional spacing may not be necessary.

5. Shoe moulding

Nail this to the baseboard, not the flooring, after the entire floor is in place.

Tips for easier and better flooring installation

Work from the left to the right. In laying strip flooring you will find it easier to work from your left to your right.

Short pieces. For best appearance always use long flooring strips at entrances and doorways. Incorporate as many short pieces as possible at random in the floor. Do not group them in one area.

Reversing direction of strip flooring. Sometimes it is necessary to reverse the direction of the flooring to extend it into another room or hallway. To do this, join groove edge to groove edge, using a slip tongue (*spline*) and glue this into the grooves (see drawing). Nail in the conventional manner.

