

CHAPTER 5

CONCRETE SUBFLOOR GUIDELINES

NOTE: Always follow the wood flooring and adhesive manufacturer's recommendation for a proper subfloor.

Part I – Concrete Subfloor Specifications

A. Subfloor Must Be Flat

1. Make sure the concrete slab is flat to the wood flooring manufacturer's specification. Typically, manufacturers will specify a flatness tolerance of 1/8" to 3/16" in a 10-foot radius.
2. If the slab is out of specification, consider grinding, floating or both. Many high spots can be removed by grinding, depressions can be filled with approved patching compounds, and slabs also can be flattened using a self-leveling concrete product.
3. When sanding or grinding concrete, care must be taken to minimize the amount of silica dust produced. OSHA recommends using dust-collection devices, or applying water to the concrete before sanding. Approved respirators may also be used to minimize the amount of silica dust inhaled.

B. Subfloor Must Be Dry

1. Refer Chapter 3, Moisture Requirements and Moisture Testing.
2. Concrete moisture meters and other tests can be useful in identifying moisture problem areas. However, NWFA guidelines specify using relative-humidity testing (ASTM F-2170), calcium chloride testing (ASTM F-1869) or calcium carbide (CM) testing (ASTM D-4944-04 and MilSpec CRD-C154-77) to identify the moisture content of the slab. See Chapter 3 and Appendix C.
3. If a slab tests too high in vapor emission to glue a floor down, consider using a vapor retarder type product, installing a vapor retarder and a plywood sub-floor or using an alternative installation method.
4. Concrete slabs with a calcium chloride reading of more than 3 require use a vapor retarder with a perm rating of 1 or less. It is strongly recommended to use an impermeable vapor retarder with a perm rating of .13 or less, such as 6 mil polyethylene film.

C. Slab Must Be:

1. Minimum 3000 psi
2. Free from non-compatible sealers, waxes, and oil, paint, drywall compound etc.
 - a. Check for the presence of sealers by applying drops of water to the slab, if the water beads up, there may be sealers or oils.

D. Do not attempt to glue a wood floor over a chalky or soft concrete slab.

E. Burnished, slick steel-troweled slabs may require screening with a 30-grit abrasive.

F. Specifications for Lightweight Concrete

1. Make sure the concrete is well bonded to the sub-floor. Check for hollow spots, cracks and loose areas.
2. As with on-grade concrete sub-floors make sure the concrete is clean, flat to specification and dry.
3. Over lightweight concrete (less than 3000 psi), if the flooring adhesive used has a higher shear strength than the concrete, use the **Floated Subfloor** installation method. (See Chapter 6.) If the psi of the concrete is unknown, use the **Floated Subfloor** installation method or contact the adhesive manufacturer.
4. Rule of thumb: Draw a nail across the top; if it leaves an indentation, it is probably lightweight concrete.