

## **Installer / Owner Responsibility (VERY IMPORTANT)**

INSTALLATION CONSTITUTES ACCEPTANCE of hardwood flooring, subfloor, substrate, the jobsite itself (including the ambient temperature and relative humidity at the time of installation), and all impacting variables that may affect a wood floor. Knight Hardwood distributes flooring; the flooring installer must complete the finished product. Many critical decisions must be made at the installation site, and therefore are the sole responsibility of the installer/owner. These include, but are not limited to; proper storage and handling, complete evaluation of site conditions including moisture testing of the site and flooring, acclimation of flooring to proper conditions, site preparation, flooring layout, milling, grade and color, proper installation methods, and cleanup. **DO NOT INSTALL** if there is any question as to acceptability of site conditions or flooring.

### **Site Conditions, Handling, and Storage (NWFA Installation Guidelines, Sec. I):**

Hardwood flooring may be installed above or on grade, not below grade. Floors should be installed after all other construction that may affect them is completed. All concrete, drywall, plumbing and any other “wet work” should be thoroughly cured. Factory finished flooring is finished woodwork, handle carefully to avoid damage.

**Keep flooring dry at all times.** (6-9% m.c.). Record flooring moisture content upon delivery and at time of installation, and retain these records. Provide good air circulation around pallets, and/or cartons. Do not stack flooring cartons more than three layers high, and maintain a flat stack. Acclimate JFS Flooring to normal living conditions; refer to NWFA Installation Guidelines, Sec. I, Ch. 2 for further information..

**HVAC** must be in operation before, during, and after installation (refer to NWFA Installation Guidelines, Sec I, Ch. 1). A temperature of 70 degrees F +/- 10 degrees and a relative humidity between 35-55% is recommended. Heating units and/or ductwork close to the flooring or subfloor may cause “hot spots” which must be eliminated prior to installation.

**Radiant Heat:** Wood flooring can be installed over radiant heat as long as you understand radiant heat and how it can impact wood flooring, what precautions to take, and what type of wood flooring to use. As these precautions and installation methods are very detailed, please consult NWFA Installation Guidelines, Sec. IV, Appendix H for details. Problems typically associated with radiant heat systems are excluded from coverage under the JFS warranty. In general, only 2-1/4" solid hardwood of very dimensionally stable species should be considered for use over radiant heat.

**Moisture conditions are the most important factor** in the success or failure of any flooring installation. Confirm proper drainage exists around the structure. In crawl spaces, exposed earth must be fully covered with minimum 6-mil polyethylene sheeting. Crawl space vents must be open at all times, and must equal at least 1.5% of the total square footage of the crawl space. Basements must be dry and remain dry.

## Subfloor Types And Conditions (NWFA Installation Guidelines, Sec II):

### General:

Subfloors must be clean, dry, flat (within 3/16" in 10'), and structurally sound. Correct any joints or areas that are not flat. Securely fasten any loose boards or panels.

### Wood: (refer to NWFA Installation Guidelines, Sec. II, Ch. 4)

CD Exposure 1 plywood and OSB Exposure 1 subfloor panels are appropriate subfloor materials (grade stamped US PS1-95). Solid board subfloors should be 1" x 6" nominal, Group 1 dense softwoods, #2 Common, KD. Minimum single layer subfloor thickness is 5/8" on 16" o.c. joists or 3/4" on 19.2" o.c. joists. The flooring must run perpendicular to the floor joists, or additional subfloor thickness is required.

Hardwood flooring should be between 6 and 9% moisture content, and the subfloor should be within 4% of flooring m.c. (2% on 3" or wider flooring). In no case should any wood moisture reading exceed 12%.

### Concrete: (refer to NWFA Installation Guidelines, Sec.II, Ch. 5 & 6)

Knight Hardwood solid hardwood flooring may be installed over concrete subfloors; refer to NWFA for details on alternate installation methods. Concrete must be tested for moisture. NWFA Installation Guidelines, Section I, Ch. 3, Part 3 should be consulted carefully. Moisture barrier and adhesive systems must be used correctly and must be compatible with each other (check with the moisture barrier/adhesive manufacturer for details). The stresses inherent in solid hardwood flooring make it impossible to guarantee perfectly straight pieces; this is not considered a defect. Installation with adhesives therefore may require a higher waste factor and/or alternative methods of achieving tight joints.

## Installation (NWFA Installation Guidelines, Sec. III, Ch. 9)

### Preparation

Allow 3/4" expansion space between the wood flooring and any walls or other obstructions. Undercut door jambs, casings, drywall, etc. Over the subfloor, install a layer of #15 building felt (or equivalent perm rating), overlapped 4" at the seams. See NWFA, Sec. I, Ch. 3, Part 2-A for more detail on acceptable moisture barriers.

### Layout

The best appearance is usually achieved by installing parallel to the length of the room, but always install perpendicular to the floor joists unless special subfloor conditions are met (see wood subfloors). While each job is unique, it is critical to establish a primary working line for the entire job (usually through the longest continuous area to be installed) and reference all flooring layout from that line. Always rack out the flooring before installing to avoid clustered end joints and repeating patterns. Work simultaneously from several cartons to achieve good color distribution.

### Fastening

Use caution to avoid edge and face damage during installation. Special footer plates are available for flooring tools to protect factory finished flooring faces and edges. Use backer boards of 1/2" plywood ripped to an appropriate width to establish straight lines. Backer boards should be secured to the subfloor and carefully aligned with starter lines. Use flooring fasteners (cleat or staple) minimum 1-1/2" (avoid conflict with concrete under subfloors and radiant heat systems). Air pressure should be regulated so the fastener seats properly, but does not split the tongue or wood below it. Nailing schedule is standard NOFMA,

for strip 8-10", 1-3" from end joints, for plank 8". Refer to NWFA Installation Guidelines, Sec IV, Appendix F.

Face nail only as required with 7d or 8d finish nails or cleats, 1/2" from the groove, predrilling the nail holes to prevent splitting. Nailing schedule is the same as with blind fasteners (above). Face nails should be countersunk and covered by molding or properly filled.

#### Adhesive/fastener Installation:

On wider width planks (4" and wider), combining adhesives and fasteners is an option to minimize flooring movement after installation. Underlayment paper must be omitted when using adhesives. Use a quality hardwood flooring adhesive recommended by the adhesive manufacturer for solid hardwood installations.

Follow all practices recommended by the adhesive manufacturer including vapor barrier systems, adhesive temperature, room temperature and humidity, proper ventilation, spread rate, open time, safety procedures and equipment, cleanup and cure time. Avoid allowing adhesive residue to dry on the face of the flooring. Special cleaners are available (from the adhesive manufacturer) to remove any residue.

If you have installation questions, contact Knight Hardwood Flooring Inc. or the National Wood Flooring Association ([www.nwfa.org](http://www.nwfa.org)).

Knight Hardwood Flooring Inc.  
1044 Van Buren Ave.  
Indian Trail, NC 2810