



## Engineered Hardwood Flooring Installation Instructions

### 1 Important Information before You Begin

#### 1.1 Installer/Owner Responsibility

Carefully inspect all materials before installation. Materials installed with visible defects are not covered under the warranty. Do not install if you are not satisfied with the flooring; contact your dealer immediately. Final quality checks and approval of the product is the sole responsibility of the owner and installer.

The installer must determine that the job-site environment and sub-floor surfaces meet applicable construction and material industry standards. The Manufacturer declines any responsibility for job failure resulting from deficiencies caused by sub-floor or job-site environment. All sub-floors must be clean, flat, dry and structurally sound.

#### 1.2 Basic Tools and Equipment

Broom or vacuum, moisture meter, chalk line & chalk, tapping block, tape measure, safety glasses, hand or electric saw, miter saw, #2080 3M blue tape, hardwood floor cleaner, hammer, pry bar, color wood filler, straight edge, trowel.

### 2 Job-site conditions

#### 2.1 Handling and Storage.

- Don't truck or unload wood flooring in the rain, snow or other humid conditions.
- Store wood flooring in an enclosed building that is well ventilated with weather proof windows. Garages and exterior patios, for example, are not appropriate for storing wood flooring.
- Leave adequate room for good air circulation around stacks of flooring.

#### 2.2 Job-site Conditions

- Wood flooring should be one of the last jobs completed in a construction project. Prior to installing hardwood floors, the building must be structurally complete and enclosed, including installation of exterior doors and windows. All finished wall coverings and painting should be completed. Concrete, masonry, drywall, and paint must also be complete, allowing adequate drying time as to not raise moisture content within the building.
- HVAC systems must be fully operational at least 7 days prior to flooring installation, maintaining a consistent room temperature between 60-75 degrees and relative humidity between 35-55%.
- Engineered hardwood floor may be installed above, on, and below grade level.
- It is essential that basements and crawl spaces are dry. Crawl spaces must be a minimum of 18" from the ground to underside of joists. A vapor barrier must be established in crawl spaces using 6 mil black polyethylene film with joints overlapped and taped.
- During the final pre-installation inspection, sub-floors must be checked for moisture content using the appropriate metering device for wood and/or concrete.
- Hardwood flooring must acclimate for as long as necessary to meet minimum installation requirements for moisture content. Always use a moisture meter to monitor the flooring and job-site conditions as they acclimate, until the wood is neither gaining nor losing moisture.

### 3 Sub-floor Preparation

#### 3.1 Wood Sub-floors

- Sub-floor must be structurally sound and properly secured with nails or screws every 6 inches along joists to reduce the possibility of squeaking.
- Wood sub-floors must be dry and free of wax, paint, oil, and debris. Replace any water-damaged or delaminated sub-flooring or underlayments.
- **Preferred sub-floors** – 3/4" CDX Grade Plywood or 3/4" OSB PS2 Rated sub-floor/underlayment, sealed side down, with joist spacing of 19.2" or less; **Minimum sub-floors** – 5/8" CDX Grade Plywood sub-floor/underlayment with joist spacing of no more than 16". If joist spacing is greater than 19.2" on center, add a second layer of sub-flooring material to bring the overall thickness to 1 1/8" for optimum floor performance. Hardwood flooring should, whenever possible, be installed perpendicular to flooring joists.
- **Sub-floor moisture check.** Measure the moisture content of both the sub-floor and the hardwood flooring with a pin moisture meter. Sub-floors must not exceed 12% moisture content. The moisture difference between sub-floor and hardwood flooring shall not exceed 4%. If sub-floors exceed this amount, an effort should be made to locate and eliminate the source of moisture before further installation.
- Do not nail or staple over particle board or similar product.

#### 3.2 Concrete Sub-floors

- Concrete slabs must be of high compressive strength with minimum 3,000 psi. In addition, concrete sub-floors must be dry, smooth and free of wax, paint, oil, grease, dirt, non-compatible sealers and drywall compound etc.
- Engineered hardwood flooring may be installed on, above, or below-grade.
- Lightweight concrete that has a dry density of 100 pounds or less per cubic foot is not suitable for engineered wood floors. To check for lightweight concrete, draw a nail cross the top. If it leaves an indentation, it is probably lightweight concrete.
- Concrete sub-floors should always be checked for moisture content prior to the installation of wood flooring. Standard moisture tests for concrete sub-floors include relative humidity testing, calcium chloride test and calcium carbide test.
- Measure the moisture content of the concrete slab using a TRAMEX concrete moisture meter. If it reads 4.5% or above, then this slab must be checked using calcium chloride tests. Flooring should not be laid if the test result exceeds 3 lbs per 1000 sqft of vapor emission in a 24-hour period. Please follow the ASTM guideline for concrete moisture testing.
- As an alternative method of concrete moisture testing, In situ relative humidity testing may be used. Reading shall not exceed 75% of relative humidity.

#### 3.3 Sub-floors other than wood or concrete (Floating Installations Only)

- Ceramic, terrazzo, resilient tile and sheet vinyl, and other hard surfaces are suitable as a sub-floor for engineered hardwood flooring installation.
- The above tile and vinyl products should be level and permanently bonded to the sub-floor by appropriate methods. Clean surfaces to remove any sealers or surface treatments to insure a good adhesive bond. Do not install over more than one layer that exceeds 1/8" in thickness over suitable sub-floor.

## 4 Installation

### 4.1 Preparation

- To achieve a uniform color and shade mixture across the entire floor, open and work from several different cartons at a time.
- Stagger the ends of boards and maintain at least 8"-10" between end joints on all adjacent rows.
- Undercut door casings 1/16" higher than the thickness of the flooring being installed. Also remove existing moldings and wall base.
- Start installation parallel to the longest unbroken wall. An outside wall is often the best.
- Expansion space shall be left around the perimeter at least equal to the thickness of the flooring material. For floating installation, the minimum expansion space shall be 1/2" regardless of the thickness of the material.

### 4.2 Glue-Down Installation Guidelines

- Snap a working line parallel to the starting wall, leaving appropriate expansion space around all vertical obstructions. Secure a straight edge on the working line before spreading adhesive. This prevents movement of the boards that can cause misalignment.
- Apply polymer or urethane adhesive using a trowel recommended by your glue manufacturer. **Do not use a water-based adhesive with this hardwood flooring product.**
- Spread adhesive from the working line out to approximately the width of two or three boards.
- Install a starter board along the edge of the working line and begin installation. Boards should be installed left to right with the tongue side of the board facing away from the starting wall.
- #2080 3M blue tape should be used to hold planks tightly together and reduce minor shifting of floors during installation. Remove adhesive from the surface of the installed flooring as you work. All adhesive must be removed from flooring surfaces prior to applying #2080 3M blue tape. Remove #2080 3M blue tape within 24 hours.
- Thoroughly clean, sweep, and vacuum installed floor and inspect the floor for scratches, gaps and other imperfections. The new floor can be used after 12-24 hours.

### 4.3 Nail or Staple Down Installation Guidelines

- A vapor retarder of asphalt –saturated paper can be installed on the sub-floor before installing hardwood floor. This will prevent moisture from below and may prevent squeaks.
- Snap a working line parallel to the starting wall, allowing expansion space as specified above.
- Lay one row of boards along the entire length of the working line, with the tongue facing away from the wall.
- Top-nail the first row along the wall edge 2" from the ends and every 4-6" along the side. Counter sink the nails and fill with appropriate colored wood filler. Use narrow crowned 1"-1 1/2" staples/cleats. Fasteners should hit the joist whenever possible. To ensure proper alignment of flooring, make sure the flooring along the working line is straight.
- Blind nail at 45° angle through the tongue 2" from the end joints and every 6" in between along the length of the starter boards. Denser species may require pre-drilling the holes in the tongue. It might be necessary to blind nail the first few rows.
- Continue the installation until finished. Distribute lengths, staggering end joints as recommended above.
- Thoroughly clean, sweep, and vacuum installed floor and inspect the floor for scratches, gaps and other imperfections. The new floor can be used after 12-24 hours.

#### 4.4 Floating Installation Guidelines

- Sub-floor flatness is critical to the success of all flooring installations. A flatness tolerance of 3/16" in a 10-foot radius is required for all flooring installations.
- Install 2 in 1 or 3 in 1 underlayment. Follow underlayment manufacturers instructions. If it is a concrete sub-floor, it is required to install a 6 mil polyethylene film.
- Snap a working line parallel to the starting wall, allowing expansion space as specified above.
- Boards should be installed left to right with the tongue facing away from the wall. Install first three rows by applying a thin bead of PVA/Tongue & Groove glue in the groove on the side and end of each board. Press each board firmly together and lightly use a tapping block if necessary.
- Clean excess glue from between boards with a clean cotton cloth. Tape each board together at side and end seams using #2080 3M blue tape. Allow glue to set before continuing installation of subsequent rows.
- Continue the installation until finished. Distribute lengths, staggering end joints as recommended above.
- Thoroughly clean, sweep, and vacuum installed floor and inspect the floor for scratches, gaps and other imperfections. The new floor can be used after 12-24 hours.