Engineered Hardwood Flooring Installation Instructions

Tip: Check for proper color selection and style prior to Installation. No claims will be accepted after installation

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. Make sure you are installing the correct color; no claims will be accepted for color once the material is installed. Please read the provided warranty for your product before installation.

The installer must determine that the job-site environment and sub-floor surfaces meet applicable construction and material industry standards. We recommend the use of National Wood Flooring Certified Professional Installers. The Manufacturer declines any responsibility for job failure resulting from deficiencies caused by sub-floor or job-site environment or installation related items. 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, 3M blue tape, hardwood floor cleaner, hammer, pry bar, color wood filler, straight edge, trowel and tapping block. **Failure to use a tapping properly when installing engineered flooring can /will cause splintering. NEVER STRIKE THE EDGE OF THE FLOORING WITH A MALLET/HAMMER OR IMPROPERLY USE THE TAPPING BLOCK.**

1.3 Putty and Filler Use

Please keep on hand like colored putty or filler as well as colored markers to touchup minor chips and nicks in the finished product. It is also advised to fill any allowable gaps before leaving jobsite

1.4 Recommended Installation Methods

All of our products* can be installed using the direct glue down method, the floating method and by the use of proper mechanical fasteners. However, we recommend that the product be direct glued for the best installation for the following reasons;

1) Approved adhesives provide enhanced vapor emission protection
2) Approved adhesives can provide increased Sound Transmission Class (STC)
3) Approved Adhesives may help to increase Impact Isolation Class (IIC)
4) Approved adhesives stop squeaking, crackling and other noises due to loose or improperly placed fasteners

*(Currently our Elm and **8mm** Birch products) are approved for direct glue down installations only

1.5 Recommended Adhesives

Adhesives from the following manufacturers may be used to install our products. However, this list is not an endorsement of any product and no warranty is provided by us that the adhesive will work for your intended purpose. We will also not be responsible for any damage or warranty claim that is the result of using any of these products. Your sole warranty and recourse is with the adhesive manufacturer of your choosing in regard to any claim that is the result of the use of any adhesive. Some adhesives contain water which can damage your flooring

Bostik's Adhesives for Hardwood Flooring
Capital Adhesives for Hardwood Flooring
Dri-Tac Adhesives for Hardwood Flooring
Franklin Adhesives for Hardwood Flooring
Mapei Adhesives for Hardwood Flooring MS
Taylor Adhesives for Hardwood Flooring
Sika Adhesives for Hardwood Flooring
Stauf Adhesives for Hardwood Flooring

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 30-50%.

• 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.

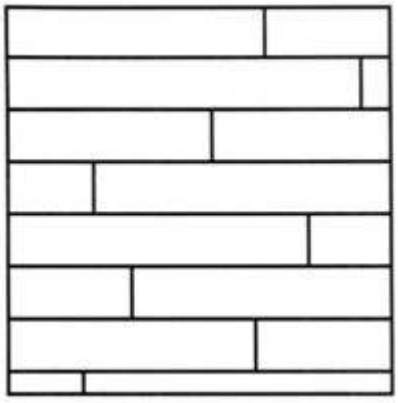
• During the final pre-installation inspection, sub-floors must be checked for moisture content using the appropriate metering device for wood and/or concrete.

• **Engineered flooring is typically ready to install upon delivery in most normal environments when the site temperature is maintained between 60-75 degrees and 30% - 50% ambient RH. Ambient temperature and humidity along with subfloor moisture content must be in synch with the moisture content of the wood.**

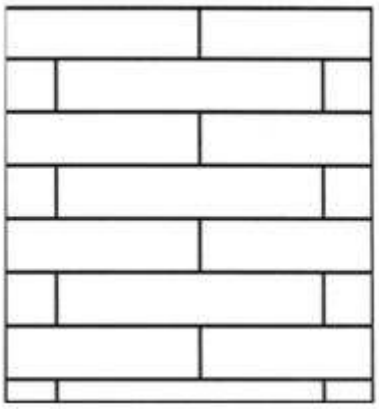
• Flatness required as follows- 3/16" in 10' or 1/8" in 6'. Floating floors requirements are more stringent, see section 4.4 for more details. Sand high areas and joints. If the floor is to be glued down, then fill low areas with the appropriate cementitious sub-floor leveling compound. The leveling material should provide structural soundness for the flooring being installed. Structural soundness is the responsibility of the installer

• Distribute lengths, avoiding "H" patterns and other discernible patterns in adjacent runs. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8-10" for 3" to 5" plank, and 10" for plank wider than 5" for better visual effects when possible. However, the length of the material may dictate end joint proximity. Close end joint proximity may affect structural stability on mechanically fastened installations if there is deflection of the substrate present.

Staggered End Joints



Avoid H-Joints



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 flat, dry, structurally sound and free of wax, paint, oil, and debris. Replace any water-damaged or delaminated sub-flooring or underlayments. Flatness - – 3/16” in 10’ or 1/8” in 6’

• Additional requirements for flatness are required for floating floors as stated in installation guidelines

• **Preferred sub-floors** - 3/4" CDX Grade Plywood or 3/4" OSB PS 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 be installed perpendicular to flooring joists. If flooring is installed parallel with joists, then an additional layer of ½" plywood must be installed to meet minimum requirements of 1-1/8"

• **Sub-floor moisture check.** Measure the moisture content of both the sub-floor and the hardwood flooring with a pin moisture meter. Sub-floors should not exceed 12% moisture content. **The moisture difference between sub-floor and hardwood flooring should 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 clean, flat, dry, structurally sound, smooth and free of wax, paint, oil, grease, dirt, non-compatible sealers and drywall compound etc.

• Engineered hardwood flooring may be installed on, above, and/or below-grade.

• Concrete substrates must meet or exceed adhesive manufacturers guidelines for flatness – 3/16” in 10’ or 1/8” in 6’

• Additional requirements for flatness are required for floating floors as stated in installation guidelines

• 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. Lightweight concrete can be used if properly treated. Check with the adhesive manufacturer for the proper material to use

• 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 sq.ft. 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 (**This is the preferred method**). Reading shall not exceed 75% relative humidity.

3.3 Sub-floors other than wood or concrete

• 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 and abrade 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.

• Substrate must meet or exceed adhesive manufacturers guidelines for flatness

• Additional requirements for flatness are required for floating floors as stated in installation guidelines, see section 4.4 below

3.4 General Radiant Heat Installation Instructions

• To minimize the effect that rapid changes in temperature will have on the moisture content of the wood floor, NWFA recommends that an outside thermostat be installed. If one is not present, suggest to your customer that this should be considered. Unlike conventional heating systems, which switch on as needed, radiant systems work most effectively and with less trauma to the wood floor if the heating process is gradual, based on small incremental increases in relation to the outside temperature.

• Subfloors should have proper moisture tests according to the moisture testing procedures outlined in Chapter 3. Of the National Wood Flooring Association Installation instructions

• The essential requirement in proper applications of wood flooring over radiant heated systems is to avoid penetration of the heating element. Radiant-heated subfloor systems can be concrete, wood or a combination of both.

• If the subfloor is concrete and it has cured, turn the heat on, regardless of season, and leave it on for at least 5-6 days to drive out residual moisture before installation of the wood flooring.

• Some installation systems, particularly glue-down applications, require the heat to be reduced or even turned off before installation of the flooring begins, so the adhesive does not cure excessively.

• With water-heated radiant-heat systems, a pressure test must be performed and documented by a qualified plumber or the system installer prior to beginning the installation of the wood flooring.

• If flooring materials that conduct heat at different rates are on the same circuit or heating zone, check with the HVAC mechanical engineer before proceeding. Ensure that floor temperature does not exceed 82 degrees. The use of an in-floor temperature sensor is required to prevent the subfloor from exceeding the temperature of 82 degrees.

• Radiant heat is dry heat. A humidification system may be necessary to maintain wood flooring in its comfort zone of 30%-50% R.H.

• It is the responsibility of the Owner/Installer to determine the correct installation method over Radiant Heat. Please refer to National Wood Flooring Installation Guidelines - Appendix H for additional information

• Subfloors should have proper moisture tests according to the moisture testing procedures outlined in Chapter 3. Of the National Wood Flooring Association Installation instructions

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 6" between end joints on all adjacent rows when material permits.
• Undercut door casings 1/16" higher than the thickness of the flooring being installed. Also remove existing moldings.
• Start installation parallel to the longest unbroken wall. An outside wall is often used, however ensure all walls are straight/plum prior to beginning
• 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 (Recommended)

• 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 urethane adhesive using a trowel recommended by your glue manufacturer. **Do not use a water-based adhesive with this hardwood flooring product.**
• **Some adhesive residues can damage finish if left on too long. It is imperative that you clean off as soon as possible to avoid damage. Finish damage caused by adhesive residue is not covered by the manufacturer's warranty**
• 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 right to left with the tongue side of the board facing the starting wall.
• Continue installation in this method
• 3-M Blue Tape can 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 3-M Blue Tape. **Tape should never be allowed to remain on floor for an extended period and never overnight. No claims will be processed for tape damage.**
• Thoroughly clean, sweep, and vacuum installed floor and inspect the floor for scratches, gaps and other imperfections. **Do not apply any tape directly to the installed flooring to hold down floor protection.** The new floor can be used after 12-24 hours.
• Thoroughly remove all adhesive residue prior to leaving the job site. Be sure that any solvent used to remove adhesive is not directly applied to the floor. Any area wiped with a solvent rag must be re-wiped with a damp cloth to remove solvent residue
• Be sure to change rag/cloth frequently to avoid spreading adhesive residue

4.3 Nail or Staple Down Installation Guidelines

For products over 5" in width use the glue assist method when using the nail/staple down method. Refer to the NWFA Technical Manual – Section V. for complete details.
If nail/staple down is over a conditioned space below that is maintained at the same conditions as is above living space the use of a vapor retarder is not required. Subfloor must be tested for moisture and be within the normal moisture content for the region.
If the space below is NOT conditioned then a liquid applied or similar Class II Vapor retarder compatible with the adhesive is required. Follow directions of the applied product and allow for proper dry time prior to installation of the wood flooring.

SETUP and Use of Nail/Staple Guns – Proper set up and adjustment of the fastener device is critical. Tool should be properly adjusted and air pressure correctly set to ensure the fastener is seated properly in the pocket and sits flush. Test the gun with a sacrificial piece of flooring to properly adjust the profile of the gun, check the depth of the fastener and make adjustments as needed. The fastener should not damage the tongue or the surface of the face of the flooring. Look for any raised bumps above the fastener this is known as dimpling.



The construction and use of substrate products like OSB has continued to increase even though the actual nominal thicknesses have reduced in many instances. There can be noises such as squeaking, popping and crackling associated with mechanically fastening an engineered hardwood floor to these substrates. Our products are not warranted against the above referenced noises or against nail or staple pull through from the substrate
• A vapor retarder of asphalt - saturated paper should be installed on the sub-floor before installing hardwood floor. This will retard 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 and blind-nail the first row (hand nail if necessary), using appropriate fasteners. Blind nail at 45° angle through the tongue 1"-3" from the end joints and every 4-6" in between along the length of the starter boards. Each succeeding row should be blind-nailed whenever possible. Use narrow crowned staple (under 3/8") 18-20 gauge thickness fasteners - Length of fasteners as follows: 1 ½" staples for ½" or 9/16" flooring or 1"- 1 1/4" cleats designed for engineered flooring. 3/8" flooring would use a minimum 1 ¼"' staple or 1" cleat.
• Spacing of fasteners should be as follows - Staples should be placed every 3" - 4" and cleats should be placed every 4" - 6". All fasteners should be placed within 1" -2" of end joints. **1/2" crown - 15 1/2-gauge staples typically used for solid wood flooring should not be used as they may damage the flooring.** To ensure proper alignment of flooring, make sure the flooring along the working chalk line is straight.

• 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. **Do not apply any tape directly to the installed flooring to hold down floor protection.** The new floor can be used immediately after installation.

4.4 Floating Installation Guidelines
• Sub-floor flatness is critical to the success of a floating floor installation. **A flatness tolerance of 1/8" in a 10-foot radius is required for floating floor installation.**
• 2n1 underlayment must not exceed 2mm in thickness and should be high density
• Follow underlayment manufacturer's instructions for either a wood or concrete subfloor application. If concrete sub-floor, it may require the addition of a 6 mil poly film if the underlayment does not have a minimum of a 6 mil poly film attached. Do not tape seams of poly over wood subfloors.
• Minimum expansion space at all vertical surfaces is ½" (12.7 mm)
• Use adhesive such as Franklin's Titebond Tongue and Groove adhesive or similar product as recommended by your retailer/distributor
• 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 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.
• Continue installation as above by applying a thin bead of glue in groove side and end groove of every board throughout installation
• Clean excess glue from between boards with a clean cotton cloth and water, frequently changing the water and rags to avoid a haze.
• Tape each board together at side and end seams using 3-M 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. Stagger on the first three rows should be 16"s or greater: thereafter stagger planks a minimum of 6" s and avoid stair-stepping.
• Maximum span without a transition is recommended to be 40 ft in any direction. Additionally, it is recommended that transitions be installed at any doorway or opening 36 inches or less. Without the use of t-molds buckling of the floors or separation may occur at doorways
• Thoroughly clean, sweep, and vacuum installed floor and inspect the floor for scratches, gaps and other imperfections. **Do not apply any tape directly to the installed flooring to hold down floor protection.** The new floor can be used after 12-24 hours depending upon the allowed cure time of the adhesive.

– **Check jobsite thoroughly for any adhesive residue left on flooring.**
– **Check to make sure all chips and nicks are properly colored.**
– **Check to ensure all acceptable gaps are filled with like-colored putty.**

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