

ENGINEERED WOOD INSTALLATION GUIDELINES



ATTENTION INSTALLERS – PLEASE READ CAREFULLY

CAUTION: DRY ENVIRONMENTS

Extra caution should be used installing engineered flooring in dry environments and regions. Please note that our engineered flooring products cannot withstand consistent exposure to less than 35% relative humidity. For this reason, the environment where the floor will be installed must be controlled and maintained within specified temperature and humidity ranges (see "Acceptable Job Site Conditions" on page 3). HVAC should be in place and operating to facilitate this control. Humidity may need to be added with a whole home humidifier to maintain relative humidity between 35-55%. Failure to follow these instructions could result in damage to your floor.

CAUTION: RADIANT HEAT

Please note that we do warranty our products over radiant heat systems with conditions. The radiant heating system must heat the surface of the floor evenly, and must not heat the floor above 80° F. Some radiant heat systems cause hot-spots and/or do not evenly distribute heat, please consult with radiant heating manufacturer on compatibility with wood flooring.

CAUTION: PROPER MAINTENANCE

Please ensure proper maintenance care products and procedures are used. Use of inappropriate cleaners or polish products could damage finish and void warranty. Not all products marketed as wood floor safe cleaners are appropriate for your specific surface coating. See "Maintenance" on page 11 for recommended maintenance procedures.

CAUTION: MOISTURE

Wood flooring is a hygroscopic material, meaning it will expand or contract depending on the amount of moisture it absorbs from or releases into its environment. Flooring installed in high, low, or unbalanced moisture environments can lead to peaking, buckling, gapping, or other product failure. Maintain the environmental relative humidity around the floor between **35-55%** and ensure there is proper moisture mitigation underneath the floor. Moisture issues account for most wood flooring problems. Note: moisture concerns which are a result of jobsite or seasonal conditions are not covered by the manufacturer warranty.

CAUTION: WOOD DUST

Sanding, cutting, and machining wood products produce wood dust. Airborne dust particles can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer and the National Cancer Institute classifies wood dust as a carcinogen in humans (<https://www.cancer.gov/about-cancer/causes-prevention/risk/substances/wood-dust>). Power tools should be equipped with dust collection to control dust in your work environment. Appropriate NIOSH-approved dust masks should be used along with safety glasses or goggles. Avoid contact with eyes and skin. First Aid: In case of irritation, flush eyes, or skin with water for at least 15 minutes.

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APPROVED INSTALLATION METHODS & PRODUCTS

FLOORING PROFILE	METHOD	RECOMMENDED PRODUCTS
3/8" Thick Engineered Wood Flooring	Glue down	Urethane or Modified Silane Elastomeric Flooring Adhesive rated for the thickness and width of floor. The glue manufacturer will specify the type of products warrantied as well as the correct trowel type and coverage based on flooring size/thickness/type. <i>Ensure you are using the correct trowel.</i>
	Float	Floating floor tongue and groove glue. Examples are Eurobond D3 Floating Floor Adhesive or Wakol D-6085 Tongue and Groove Glue.
	Nail down	18 Gauge 1/4" Crown Staple: 1-1/4" long minimum. Nailed every 4 – 6", and 1 – 2" from ends of the boards. <i>A glue assist is strongly recommended in addition to mechanical fasteners.</i>
1/2" Thick Engineered Wood Flooring	Glue down	Urethane or Modified Silane Elastomeric Flooring Adhesive rated for the thickness and width of floor. The glue manufacturer will specify the type of products warrantied as well as the correct trowel type and coverage based on flooring size/thickness/type. <i>Ensure you are using the correct trowel.</i>
	Float	Floating floor tongue and groove glue. Examples are Eurobond D3 Floating Floor Adhesive or Wakol D-6085 Tongue and Groove Glue.
	Nail down	16 or 18 Gauge Cleats: 1-3/4" – 2" long. Nailed every 6 – 8", and 1 – 2" from ends of the boards. 18 Gauge 1/4" Crown Staples: 1-1/2" long minimum. Nailed every 4 – 6", and 1 – 2" from ends of the boards. <i>A glue assist is strongly recommended in addition to mechanical fasteners.</i>
Greater than 1/2" Thick Engineered Wood Flooring	Glue down	Urethane or Modified Silane Elastomeric Flooring Adhesive rated for the thickness and width of floor. The glue manufacturer will specify the type of products warrantied as well as the correct trowel type and coverage based on flooring size/thickness/type. <i>Ensure you are using the correct trowel.</i>
	Float	Floating floor tongue and groove glue. Examples are Eurobond D3 Floating Floor Adhesive or Wakol D-6085 Tongue and Groove Glue.
	Nail down	16 or 18 Gauge Cleats: 1-3/4" – 2" long. Nailed every 6 – 8", and 1 – 2" from ends of the boards. 15.5 Gauge 1/2" Crown Staples: 1-1/2" – 2" long. Nailed every 6 – 8", and 1 – 2" from ends of the boards. <i>A glue assist is strongly recommended in addition to mechanical fasteners.</i>

NOTE: A GLUE ASSIST METHOD IS RECOMMENDED



For all nail-down applications, it is important that your subfloor is clean, dry, structurally sound, and flat. Securely fasten any part of the subfloor that is loose or making noises. Always follow the correct nailing schedule. Squeaking, popping, creaking, and other noises are not warrantied as they are the result of environment and/or installation practices. To minimize the likelihood of noises over time we recommend using a glue-assist along with mechanical fasteners. For more information on glue assist see: https://youtu.be/WDsMY_sXfjc

IMPORTANT INFORMATION

ALWAYS INSPECT MATERIAL PRIOR TO INSTALLATION

Owner/Installer should carefully inspect material prior to installation. Wood is a natural product and as such will contain variations in grain, color, and individual characteristics from board to board. **Materials Installed with visible defects are not covered by warranty.** Any Unacceptable materials should not be installed. Rejection of material must be done on the full shipment of product, not box-by-box or piece-by-piece. Our flooring is manufactured within accepted industry standards, which allow deficiencies up to but not exceeding 5%. It is recommended to add 5% - 10% to order quantities to allow for sorting culling and installation waste. Please add 18% - 20% for installation on a diagonal across rooms.

ACCEPTABLE JOB SITE CONDITIONS

**As outlined by the National Wood Flooring Association*

Wood flooring installation is one of the last jobs of any construction project. The floor grade level should be noted so that the correct flooring thickness can be specified for the job. Prior to delivery of the wood flooring a site evaluation should be done. Check for and ensure the following:

- The building should be completely enclosed.
- All outside doors and windows must be in place and have latching mechanisms.
- The site should be at normal living conditions, whether it is under normal HVAC controls or temporary controls. The recommended temperature range should be between 60-80°F, and the relative humidity between 35-55%. This range should be consistently maintained throughout the life of the flooring.
- Be sure the flooring will not be exposed to extremes of humidity, heat, or moisture.
- All concrete, masonry, plastering, drywall texture, painting, and other wet work must be completed and thoroughly dry.
- The basement must be dry.
- Outside surface drainage should direct water away from the building.
- Crawl spaces must be dry.
- Crawl space must be a minimum of 18" from the ground to the underside of the joist.
- The crawl space ground surface (or thin "rat slab") must be 100% covered by a vapor retarder of 6-mil black polyethylene.

- Where the 6-mil black polyethylene ground covering is in place, the crawl space should have perimeter venting equal to a minimum of 1.5 square feet, per 100 square feet of crawl space.
- Vents should be properly located to promote cross ventilation.
- Unvented crawl spaces need ground covering of 6-mil black polyethylene, overlapped 6 inches, and be taped. Continuously operated mechanical exhaust and perimeter wall insulation or conditioned air supply and insulation must be provided.
- Check moisture content on subfloor and ensure it is within the appropriate levels.
- **Heavy medical equipment like wheelchairs and medical beds will damage the floor locking system and floor finish. Damage resulting from these devices is not warrantied.**

ACCLIMATION

- Where the correct job site conditions are present, the flooring can be delivered and stored in the rooms in which it will be installed. Engineered flooring should be acclimated in its original unopened box on the jobsite for temperature only. Boxes should be loosely stacked on the jobsite until they reach equilibrium with the temperature of the environment (which should be 60-80°F). Once all the flooring has reached the temperature of the room and installation is ready to begin, boxes can be opened. Only open as many boxes as can be installed within 24 hours of opening.
- For more information on acclimation, visit: <https://portercraft.com/wood-flooring->

[acclimation-guide/](#) Keeping the job site within the recommended temperature (60-80°F) and humidity (35-55% RH) will allow for proper acclimation. Deviation from the recommendations could cause damage to the flooring, which will not be covered by the warranty.

Moisture testing:

Subfloors (wood or concrete) should be checked by an appropriate method for establishing moisture content.

- Concrete slab moisture content cannot exceed 4 lbs. per 1,000 sq ft per 24 hrs. on an ASTM F1869 Calcium Chloride test and cannot exceed 70% RH on an ASTM F2170 in situ relative humidity test. The subflooring should be tested in 10 areas for every 1,000 sq ft to ensure adequate sampling. If the slab readings are outside these limits, proper moisture abatement should be performed.
- Plywood or wood subfloor should be tested with a pin or surface type meter and should not exceed 12%. The subflooring should be tested in 10 separate locations for every 1,000 sq ft to ensure adequate sampling.

Note: Local building codes may differ. Local building codes take precedence when more stringent over these recommendations, please follow all local building codes.

SUBFLOORS

The subfloor must be flat, meeting a minimum of 3/16" within 10' or 1/8" within 6' deviation from flat. For concrete subfloors, grind high spots or use cement based leveling material (min. compressive strength 3000 psi) to fill all low spots. Follow the leveling compound manufacturer's instruction. Leveling compounds must be allowed to thoroughly cure and dry prior to installation. The flooring installer is responsible for a level and flat subfloor.

CONCRETE SUBFLOORS

Concrete slabs should be of high compressive strength and constructed to prevent groundwater from permeating the concrete. Engineered

hardwood flooring can be installed on, above, or below grade. In addition, it can be installed on above ground, suspended concrete floors. The suspended concrete must be a minimum of 1 1/2 inches thick and must be structurally sound. The exception to this is lightweight concrete (which may contain excessive amounts of gypsum) having a density of 100 pounds or less per cubic foot. Test for lightweight concrete by using a nail to scratch the surface of the concrete.

If the concrete crumbles or turns to powder, it is not sound, and you should NOT install the hardwood flooring using a glue down method. Only a floating floor installation would be recommended.

If there is any question about concrete porosity or strength it is recommended to glue down one plank, let adhesive set for 24 hours and then pry the plank loose. If any concrete comes up with the plank, do not install using a glue down method. Concrete must have a minimum compression strength of 3,000 psi for direct glue applications.

CONCRETE SUBFLOORS WITH PLYWOOD

Always add a vapor barrier (such as 6-mil plastic over mastic or two coats of Wakol PU280) before installing plywood to the concrete slab.

Materials minimum: 5/8" (19/32, 15.1mm) CD Exposure 1 plywood subfloor panels (CDX), 4' x 8' sheets.

Note: Fasteners may be power-driven pins, pneumatic driven nails, screws, deformed pins, or other fasteners suitable for concrete application. Check with the fastener manufacturer for specification such as length, drill size, and/or shot load where applicable.

Installation method: Stagger panel joints allowing approximately 1/4" expansion space around all panels to prevent edge peaking due to compression caused by panel swell. Allow 3/4" minimum expansion space at all vertical obstructions. Panels should be mechanically fastened. For power load or pneumatic pressure information, contact your local supplier. Nailing requirements: minimum 32 shots per 4' x 8' panel. Areas with higher humidity may require additional fasteners. Ensure plywood is in full contact to the concrete/moisture barrier across its entire bottom surface.

****Ensure mechanical fasteners used on flooring do not penetrate below plywood and into vapor barrier.****

SCREED SYSTEM

Engineered 3/4" Wood Flooring: Engineered 3/4" wood flooring 7" or less may be installed directly to screeds at 6" on center. (For direct nailing to the screed: alignments must be in line with the recommended nailing schedule for the wood flooring material.)

See "APPROVED INSTALLATION METHODS & PRODUCTS" on page 2 for the recommended nailing schedule.)

For engineered products less than 3/4" thick: The screed system must be overlaid with a minimum 5/8" plywood (19/32, 15.1mm) CD Exposure 1 plywood subfloor panel (CDX), 4' x 8' sheets or 5/8" OSB underlayment properly spaced and oriented perpendicular to screed direction. All joints must be staggered.

DIRECT GLUING A PLYWOOD SUBFLOOR OVER CONCRETE

Always follow the adhesive manufacturer's recommendation for proper application, proper adhesive and correct trowel notch and spread rate.

Add the recommended vapor barrier product by the adhesive manufacturer before applying adhesive. Roll-on vapor barriers are recommended above all-in-one adhesive systems.

Use minimum 5/8" plywood (19/32, 15.1mm) CD Exposure 1 plywood subfloor panel (CDX), 4' x 8' sheets. Cut the plywood panels into 16" x 8', 2' x 8' or 4' x 4' sections. Ensure the plywood lays flat to the concrete, this may involve scoring (kerf) the back of the plywood 1/2 the panel thickness every 12 inches.

Lay sections in a staggered joint pattern in the adhesive, with 1/4" spacing between sheets, and 3/4" minimum expansion space at walls and vertical obstructions. Ensure the plywood is flush to the concrete by checking for hollow spots. Additional weight may be needed to keep the plywood flat while the adhesive is curing.

FLOATED PLYWOOD SUBFLOOR OVER CONCRETE

Cover concrete with an impermeable vapor barrier such as 6-mil polyethylene plastic before installing the subfloor. Run edge of plastic sheeting up each wall at least 2". Overlap all seams and tape with waterproof tape. Use two layers minimum 1/2" (10mm) CD Exposure 1 plywood subfloor panels (CDX) 4' x 8' sheets.

To ensure flatness and improve workability of the plywood, rip plywood into 16" x 8', or 2' x 8' strips and kerf the back side. Place the first layer of plywood strips parallel to the longest wall. Leave 3/4" space between walls and plywood. Plywood panels should be spaced with 1/8" gaps between sheets.

Lay the second layer perpendicular or at 45° angle to the first layer. Use the same spacing requirements as above. Screw and glue (with elastomeric urethane, modified silane, or subfloor construction adhesive) the second layer to the first layer on 12" interior grid pattern with screws at least every 12" along the edges. Be careful to use a screw length that does not penetrate the vapor barrier.

WOOD SUBFLOORS

Preferred Subflooring: 3/4" (23/32", 18.3 mm) CDX grade Plywood subfloor/ underlayment (Exposure 1), 4'x8' sheets or 3/4" (23/32", 18.3mm) OSB subfloor/underlayment grade, PS2 rated, sealed side down, with joist spacing of 19.2" (488mm) on center or less.

Minimum Subflooring: 5/8" (19/32, 15.1mm) CDX Plywood subfloor/ underlayment (Exposure 1), 4'x8' sheets, maximum 16" on center joist construction. Follow panel manufacturer's recommendations for spacing and fastening.

Typical panel spacing and fastening for joist systems: 1/8" (3.2mm) around perimeter and fastened every 6" (150mm) on bearing edges and every 12" (300mm) along intermediate supports. Installation of flooring should not be made over joists spacing greater than 19.2" on center or parallel to the joists unless the subfloor has been properly reinforced, applying a second layer of subfloor paneling may be necessary to bring the overall subfloor thickness to 1 1/8". Test the moisture content of the wood subfloor and wood

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flooring with a pin-type or scan-type moisture meter. Wood subfloor moisture content must not exceed 12% and the wood flooring should be within 4% of the wood subfloor for engineered wood. If you are using the existing wood floor as the subfloor, install new flooring perpendicular to the existing flooring. Do not glue, staple, or nail down hardwood flooring over particle board. Do not install over existing glue down hardwood floors.

CERAMIC, TILE, AND TERRAZZO

All wax and sealers must be removed with an appropriate cleaner/ stripper. Ceramic tile and terrazzo should be abraded to allow for proper adhesion. Check for loose tiles by tapping and re-adhere. Fill grout lines with a compatible cementitious leveling compound. Consult adhesive manufacturer for compatibility with the flooring type surface you are installing over. Test adhesive for proper adhesion before installation.

Note: Wood floors can expand and contract beyond the strength of the underlying hard-surface material and break it loose. Your engineered wood floor's structural integrity is subject to the performance of the subfloor underneath and is not warrantied against failure of that subfloor.

RESILIENT TILE, RESILIENT SHEET VINYL

Material must be applied full-spread and secured to the subfloor. Do not install over perimeter glued floors. Do not install over more than one layer that exceeds 1/8" in thickness. Ensure material is securely bonded to its substrate. Install via full trowel glue method only. Do not install over more than one layer that exceeds 1/8" in thickness. Clean flooring with an appropriate cleaner and allow to thoroughly dry. If necessary de-gloss the floor using an abrasive pad to enhance the bonding of the adhesive. If wax or other coatings are present, completely remove the material with a quality stripper, rinse the floor and allow it to dry. Always check for proper adhesion bond prior to installing.

Note: Your engineered wood floor's structural integrity is subject to the subfloor underneath and is not warrantied against failure of that subfloor.

CAUTION: DO NOT SAND any existing resilient tile, sheet vinyl flooring, or flooring felt as they may contain asbestos fibers that are not readily identifiable. Inhalation of asbestos dust can cause serious bodily harm. Check local, state, and federal laws for handling hazardous material before attempting the removal of these floors.

RADIANT HEAT INSTALLATIONS

Engineered flooring can be installed over radiant heat floor systems if certain conditions are met and maintained. Radiant heating systems should be operational 7 days prior to installation. The system should be turned off at least 4 hours before installation begins. After adhesive is cured after installation, the temperature should gradually be increased. Heating should be even, and no part of the flooring surface should ever exceed 26°C/80°F.

Caution: Some radiant heat systems can heat unevenly and have hot spots, drying and heating the floor in excess of its design parameters. For this reason, it is important to consult radiant heating system manufacturer for compatibility with engineered wood flooring.

INSTALLING THE FLOOR

TOOLS NEEDED FOR INSTALLATION

All installations:

Broom, Tape Measure, Hammer, Flooring Mallet, Tapping Block, Chalk Line & Chalk, Hand Saw, or jamb Saw, Oscillating Saw, Jig Saw, Miter Saw, Table Saw, Recommended Hardwood Flooring Cleaner, Eye Protection, Moisture Meter (wood, concrete, or both), Transition and Wall Moldings, NIOSH-designated Dust Mask, Blue tape.

Add-on for Glue Down Installations:

Recommended adhesive and trowel, Rags for cleanup, and Adhesive remover.

Add-on for Nail Down Installations:

Appropriate Flooring Nailer or Stapler, Appropriate Fasteners, Trim Nailer, Compressor, and Hose.

Add-on for Floating Floor Installations:

Spaces, Wedges, Floating Floor Tongue & Groove Glue.

JOB SITE PREPARATION

Inspect the Flooring:

Inspect material from several boxes and get customer approval for appearance, color, and finish. Cull out pieces that may not be acceptable once installed. If the culled amount exceeds 10% of the flooring material, contact manufacturer before proceeding.

NOTE: We do not accept responsibility for any costs incurred when plank(s) with visible defects have been installed.

Installation is acceptance of the product.

Ensure the Environment and Subfloor are Correct: The environment must be between 60-80° F, and between 35-55% RH.

Check that the subfloor is dry, clean, flat, and structurally sound. Noises in the subfloor will not go away once flooring has been installed. Any deflection in boards or debris on the subfloor can cause noise in the flooring.

Note: Squeaks, cracking, popping, or other sounds are not covered under warranty, as they are a result of the jobsite conditions, subfloor conditions, age, or installation of the floor. Sounds can manifest on any nailed down, glued down, or floated wood floor. Proper subfloor preparation and flooring installation methods can help minimize these noises.

Heavy medical equipment such as wheelchairs and medical beds will damage the floor locking mechanisms and floor finish. Damage resulting from these devices is not warrantied.

Undercut Door Casings: Undercut all door casings 1/16" higher than the thickness of the flooring being installed. To do this, use a scrap piece of flooring as a guide. Lay it on the substrate and cut the casing with a handsaw, oscillating saw, or power jamb saw set at the correct height.

Blending of Cartons: To achieve a uniform appearance across the entire floor, we highly recommend that you open and work from several cartons at a time and dry-lay the flooring, mixing the planks from several cartons. This will allow you to blend the planks for maximum aesthetic appearance. Make certain the room is well lit to ensure color is correct and that any visual defects can be seen and removed.

Match Transition Moldings: For best appearance match all transitions and moldings to planks that have similar color and graining. Set these planks aside with the matching moldings for use as needed.

Layout of Flooring: "Racking the Floor" is essential to achieve a random appearance. Be sure to lay flooring perpendicular to the joists. Start by either using random-length planks found in the carton or by cutting four or five planks in random lengths, differing by at least 1.5 x the width of the flooring. As you continue working across the floor, try to maintain a minimum of 1.5 x the flooring width between end joints. (Example: 6" wide flooring x 1.5 = 9" spacing between joints). Randomly install different lengths to avoid a patterned appearance. Never waste materials; the end cuts from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

Expansion Space: Expansion space around the perimeter is required and should be equal at least equal to the thickness of the flooring material. For floating installation: the minimum expansion is 1/2" regardless of the thickness of the material, and after any 25' span in any direction add an additional 1/16" expansion space for every additional 3'.

INSTALLING THE FLOOR

These instructions only highlight essential information about the various approved installation methods as they relate to this engineered wood flooring.

These instructions do not fully outline the process, layout, skills, tools, and techniques needed to install wood flooring.

For a comprehensive tutorial on the process of installing wood flooring please consult NWFA (National Wood Flooring Association) resources regarding wood flooring installation.

These instructions supersede NWFA installation guidelines only where recommendations are specifically different and applicable to the individual product.

GLUE DOWN INSTALLATION

Before you begin using the following instructions, please refer to the Acceptable Job Site conditions and Job Preparation information mentioned above. Concrete slab must have a minimum compression strength of 3,000 psi for direct glue applications. Also ensure that moisture testing on the concrete has been performed and it is within acceptable limits.

NOTE: Use of a moisture barrier is strongly recommended when installing flooring in on-grade and below-grade concrete applications. Even if the concrete tests within moisture limits at the time of installation, concrete can take on or build up additional moisture due to subsequent environmental conditions. Problems due to elevated subfloor moisture are considered environmental and are not covered under warranty.

Use an appropriate adhesive and the proper trowel and spread rate according to the adhesive manufacturer's recommendations for the specific floor you are installing. The adhesive manufacturer specifies their product for the type, width, and thickness of flooring. The installer is responsible for ensuring the correct product is being used and for proper adhesion of the flooring to the subfloor.

It is recommended to glue starter rows in advance of the full installation. Accurate alignment is important. Uneven starter rows can cause sides and ends to gap in proceeding rows of flooring. Gaps left during the installation process are not covered under warranty.

Use medium to low tack masking tape (also known as "blue tape") to hold the boards tight together to prevent movement or gapping while the adhesive cures. **NOTE:** Remove tape from the surface of the flooring within 24 hours to prevent damage or markings from the tape.

Flooring straps and weights can also be used to hold flooring together and down while the adhesive cures.

Never spread more adhesive than can be covered by flooring before it skins over. If the troweled-out adhesive has skinned over, remove it and spread new adhesive product.

NOTE: Never strike a rubber mallet or hammer directly on the flooring to engage the tongue-and-groove. This practice can damage the

flooring and/or the finish. Use a tapping block or flooring straps if necessary.

Avoid getting adhesive on the surface of the flooring. If adhesive does contact the surface of the floor, remove the uncured adhesive with an approved cleaning solution recommended by the adhesive manufacturer. Some adhesives can damage the surface of the floor. Be sure to clean up wet adhesives as quickly and thoroughly as possible.

Foot traffic should be restricted for a minimum of 6-8 hours. Wait 24 hours before moving furniture onto the floor. Always follow the adhesive manufacturer's recommendations for dry/cure time.

Carefully remove the blue tape 24 hours after installation is completed. Do not wait more than 24 hours to remove tape since it could leave residue on the floor or damage the surface coating.

NAIL OR STAPLE DOWN INSTALLATION

Before you begin using the following instructions, please refer to the Acceptable Job Site Conditions and Job Preparation information above.

NOTE: Engineered flooring is not warrantied against squeaking, popping, or crackling when using staple-down or nail-down installation methods. Noise is generally a result of jobsite conditions, subfloor age, and installation issues.

Some squeaking, popping, or crackling is normal and possible when using staple-down or nail-down installation methods. These symptoms may be aggravated in dry conditions and in places that experience significant swings in environmental moisture. Tongue and groove engagement should be checked for proper fit before installation. If excessive play in groove is observed, then contact the manufacturer before installation.

To help mitigate noises, we strongly recommend using a glue assist in addition to mechanical fasteners. Please see our technical resources for information on this process.

USING ADHESIVE IN A NAIL DOWN INSTALLATION

For any engineered flooring and solid flooring that is installed above grade, an approved elastomeric (flexible) urethane or modified silane adhesive may also be applied in a "glue assist" to flooring boards that are being nailed or stapled down. This may help with noise (squeak) abatement.

The adhesive may be applied in a 1/8" or greater bead in a serpentine pattern to the underneath side of the board before nailing or stapling down. Alternatively, a 1/8" bead of glue may be applied directly to the subfloor in a serpentine pattern in front of the previously installed row of flooring. If a glue-assist method is used, underlayment should not be applied to the subfloor.

Adhesive should be in direct contact with both the flooring and subfloor. If a moisture retarder is needed on the subfloor, some adhesive manufacturers make a roll-on moisture barrier compatible with their adhesive and wood subfloors.

NOTE: It is the responsibility of the installer to prepare the subfloor and ensure that it is clean, dry, structurally sound, and flat. It is the responsibility of the installer to ensure a clean, sound, and quiet flooring installation.

USE OF PNEUMATIC STAPLERS & NAILERS

Occasional noises within the flooring are inherent to all staple/ nail-down installations and can change as environmental changes occur and as the floor ages. This is not a manufacturing defect and is therefore not covered under our warranties (see warranty brochure for complete warranty coverage).

You can help reduce squeaking, popping, and crackling by being sure that the subfloor is structurally sound, does not have any loose decking or joists, and is swept clean prior to installation. You should also be sure that your stapler or nailer is setting the fastener at the correct depth, not damaging the planks, and that you are using the correct nailing schedule.

When used improperly, staples or cleats can damage wood flooring. If the tool is not adjusted properly the staples/cleats may not be positioned at the proper angle or depth and cause blistering,

peaking, squeaking, creaking, or buckling of the floor. Some tools may require the use of an adapter to adjust to a proper fastener angle based on the flooring thickness.

Test the tool on a piece of scrap material first:

Set the stapler/nailer flush on the tongue side of the plank and install a staple/cleat. The crown of the staple/cleat should sit flush within the nail pocket (the crease above the tongue) to prevent damage to the flooring and to reduce squeaking. It is important to ensure the fastener is positioned directly in this pocket, not above or below it. It is also crucial to ensure the fasteners are flush with the wood in the nail pocket, not sticking out from or over-driven into the wood surface. Adjust your nailer or stapler as necessary to maintain proper fastener position (re-check and adjust often). The manufacturer is not responsible for damage caused by mechanical fasteners

NOTE: Hitting the nailgun too hard with a mallet or not having the nailer planted squarely and firmly against the flooring piece can damage the flooring resulting in scratches, gouges, and/or crushed edges. Crushed edges may not be readily apparent but may manifest as splinters and splinters releasing from the edge of the floor over time. Continually check the floor as you nail to ensure there is no damage.

MINIMUM FASTENER LENGTHS

For 3/8" thick products: minimum length is 1¼".

For 1/2" thick products: minimum length is 1½".

For 5/8" thick products: minimum length is 1½".

For 3/4" thick products: minimum length is 1½".

Read and follow the manufacturer's instructions for complete set-up and operation of nailing equipment.

After the subfloor has been thoroughly cleaned and prepared, cover the subfloor with 15lb asphalt felt paper or other NWFA approved moisture retarder (unless using a glue assist method). This material will help to keep the floor clean, reduce noises, and help to retard moisture from below.

Blind nail/staple at a 45° angle into the nail/staple pocket on the tongue side. For 3/8" and 1/2" flooring, nail or staple every 4" to 6" down the length of each board. For 5/8" and 3/4" flooring, nail

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every 6" to 8" down the length of each board. Boards should have a minimum of three fasteners per board and one fastener 3" or less from each end of the board.

NOTE: Accurate alignment is important. Uneven starter rows can cause sides and ends to gap in subsequent rows of flooring.

Flooring should be continually inspected throughout the installation process. Planks with visible defects in them should be removed and culled from the flooring. This includes planks that are damaged during installation.

Maintain a minimum space of 1.5x the width of the product between end joints of one row to those in the adjacent rows (for example: 9" spacing on a 6" wide floor). Randomly install different lengths to avoid a patterned appearance, stair-step, and "H"-joints. If needed use a tapping block to help engage the boards together until the tongue-and-groove is flush and tight and no gaps are present between adjacent planks.

NOTE: Never strike a rubber mallet or hammer directly on the flooring to engage the tongue-and-groove. This can damage the flooring and/or the finish. Use a tapping block if needed.

Depending on the width of the flooring this first row or two and last rows may have to be face-nailed with finish nails and glued into place. Countersink nails and fill with appropriate colored wood filler and remove excess filler from surface with a clean rag and approved cleaner.

FLOATING INSTALLATION (ENGINEERED ONLY)

Before you begin using the following instructions, please refer to the Acceptable Job Site conditions and Job Preparation information above.

IMPORTANT NOTE: Floating installation is only applicable to 4" and wider width flooring.

Floating floors must be glued together using D-3 rated PVA glue commonly referred to as tongue and groove adhesive. DO NOT USE wood glue or carpenter's glue for floating applications. It will cause installed flooring to creak and snap when walked on. Take care to ensure proper expansion around the edge of the floor, especially at pinch points like doorways and corners. As rooms can move independently, it is recommended to break

the flooring in doorways between different rooms and cover the resulting expansion gap with a t-molding.

GETTING STARTED - Adjust all door casings and wall moldings for proper clearance cutting anywhere necessary to allow flooring to slide under without being pinched or held. Plan to leave an expansion space at all walls and vertical obstructions. For a floating install, the minimum is 1/2", or the same thickness of the floor, whichever is greater. After any 25' span in any direction, add an additional 1/16" expansion space for every 3'.

Make sure subfloor is level to within 3/16" in 10' or 1/8" in 6'. Some floor movement, deflection and hollow sound in a floating installation is considered normal. Sweep subfloor thoroughly and remove any paint or drywall mud.

Install proper underlayment of 1/8" closed-cell foam, cork or approved resilient underlayment. Some underlayment products do not act as a vapor barrier. When using the floating method over concrete slab install a 6-mil polyethylene vapor barrier underneath the underlayment, overlapping sheets by 6" and taping all seams with moisture resistant tape.

Do not install a floating floor underneath heavy, permanent fixtures like kitchen islands, cabinets, or built-in shelving. Treat these as vertical obstructions, lay the floor up to them and cover an appropriate expansion space with trim molding or caulk.

Do not attach the floated flooring to the subfloor in any way, such as with a mechanical fastener or adhesive. The floor must be free to move without anchor points.

Ensure baseboards and wall moldings like base shoe or quarter round are not nailed, caulked, glued, or otherwise attached to the flooring in any way.

Transition moldings such as T-moldings used between rooms should be glued on only one of their sides so that the floors they join are not attached together. Similarly, other transitions should NOT be attached to both the flooring and what it is transitioning to.

When gluing the flooring together, place a 1/8" continuous bead of glue on the bottom edge of the end and side grooves. Remove any excess glue with a damp towel. If you see glue come up

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between the planks when you put them together, you are using too much glue.

It is recommended to first glue two rows of flooring together to use as a starting row. Use a long box-level or straight edge to ensure the starter row is straight while the glue cures. Periodically check the floor for straightness as you install.

You can use medium to low adhesion blue tape to temporarily hold boards in place as you work across the floor. Carefully remove the tape 24 hours after installation is completed. Do not wait more than 24 hours to remove tape since it could leave residue on the floor or damage the surface coating.

DO NOT ROLL FLOOR - this will loosen glued joints.

Ensure that the appropriate expansion space has been left around the entire perimeter of the floor. This is especially crucial at pinch-points like corners and doorways.

COMPLETE INSTALLATION (ALL METHODS)

- Clean the floor with an appropriate cleaner
- Install or re-install any moldings or trim.
- If the floor must be covered to protect it from construction traffic use breathable material such as cardboard but be sure to sweep the floor prior to using this material.

MAINTENANCE

- Install felt protector pads on the bottom of all furniture in contact with the floor.
- Place rugs at all points of entrance to capture abrasives and moisture. Shake out rugs regularly.
- Use protective mats below rolling chairs and heavy furniture.
- Use non-marring wheels and casters meant for hard surfaces
- Use colorfast mats that are non-rubber. Check mat manufacturer guidelines to ensure they will be non-marring and will not leave a residue on your new floor.
- Vacuum with a brush attachment or sweep and/or dust mop regularly to remove dust and dirt.

- Do not use household/furniture dust treatments, sprays, oils, or polishes to clean the floor as these will contaminate the finish.
- Keep high heels and other shoe soles debris-free and in good repair to reduce damage to the floor. Cleats and other sharp pointed shoes should not be worn on the floor.
- Keep animal nails trimmed to prevent scratching.
- Wipe up spills immediately with a dampened cloth and follow up with approved cleaner.
- Remove stains with a cloth dampened with approved cleaner.
- Remove standing water and other liquids immediately.
- Use a neutral pH floor cleaner made for engineered flooring or similar hard surfaces.

NOTE: Damage, including but not limited to mold, mildew, and discoloration, to the subfloor caused by moisture from above the installed floor seeping to the subfloor is not covered under warranty.

DO NOT USE THE FOLLOWING CHEMICALS OR TREATMENTS

- Cleaners with Wax, Polish, or Oil
- Acrylic products
- Vinegar (with or without water)
- Dish soap and water
- Multi-Purpose Cleaners
- Ammonia
- Bleach
- Steel Wool or Scouring pad
- Steam Cleaners
- Vacuums with beater bars
- Wet sweeper pads