

SOLID WOOD INSTALLATION GUIDELINES



ATTENTION INSTALLERS – PLEASE READ CAREFULLY

CAUTION: DRY ENVIRONMENTS

Extra caution should be used installing flooring in dry environments and regions. Please note that our flooring products cannot withstand consistent exposure to less than 35% relative humidity. For this reason, please note that monitored acclimation must take place in a controlled and maintained environment within certain 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 will void all warranties.

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 heat evenly, please consult with heating company on compatibility with wood flooring.

CAUTION: PROPER MAINTENANCE

Please ensure proper maintenance procedures and products are used. Use of inappropriate cleaners could damage finish and void warranty. Not all products marketed as wood floor cleaner are appropriate for your specific floor finish. See "Maintenance" on page 10 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 produces 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 a dust collector. If high dust levels are unavoidable and appropriate NIOSH-approved dust mask should be used. Avoid contact with eyes and skin. First Aid: In case of irritation, flush eyes, or skin with water for at least 15 minutes.

APPROVED INSTALLATION METHODS & PRODUCTS

FLOORING PROFILE	METHOD	RECOMMENDED PRODUCTS
3/4" Thick Solid Prefinished Wood Flooring	Nail Down	<p>16- or 18-Gauge Cleats: 1 3/4" - 2" long. Nailed every 6-8" and 1-2" from ends of the boards.</p> <p>15.5 Gauge 1/2" Crown Staples: 1 1/2" - 2" long. Nailed every 6-8" and 1-2" from ends of the boards.</p> <p>A glue assist is strongly recommended in addition to mechanical fasteners</p>

For any nail-down application, it is important that your subfloor is clean, dry, structurally sound and flat. Always follow the correct nailing schedule.

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 warranted 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

CAUTION: GLUING DOWN SOLID WOOD FLOORS

Solid wood flooring is a natural product with boards that are often not perfectly straight or flat. Using *only* a glue down method over a wooden subfloor to install solid product can result in gaps and/or flooring that is not maintaining full contact with the subfloor.

For the best results, we recommend using a flooring nailer in conjunction with glue to ensure the flooring is appropriately tight and secure to the subfloor.

Solid wood flooring should not be installed in below grade environments.

Glue down installation to concrete should only be done after properly testing the concrete for moisture. Concrete subfloors can test as dry but can start transmitting moisture at any time after the floor is installed. Use of a roll-on moisture barrier that is approved for compatibility with your glue (such as Wakol PU280, Mapei Planiseal, or Bona R540) is required.

Additionally, the force with which solid wood expands and contracts in response to moisture changes can be greater than the glue's bond strength and/or concrete flooring leveler's adhesion to the concrete slab. As a result, the flooring can buckle from the subfloor and/or the concrete leveler being pulled off the concrete, neither of which is covered by the product warranty. **For these reasons, it is especially important to keep the environment around solid flooring consistent and to mitigate moisture coming up through the concrete slab.**

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 for 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 is one of the last jobs of any construction project. The grade level should be noted so that the correct flooring 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 should be between 30-50%. 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 should be completed and thoroughly dry.
- 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 earth (or thin "rat slab") must be covered 100% 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 foster cross ventilation.
- Unvented crawl spaces need ground covering of 6-mil black polyethylene, which must be overlapped 6 inches and be sealed or taped and taped 6 inches up vertical obstructions. Continuously operated mechanical exhaust and perimeter wall insulation or conditioned air supply and insulation must be provided.
- Subfloors (wood or concrete) should be checked by an appropriate method for establishing moisture content. For concrete slabs moisture should not exceed 3lbs/1000sqft per 24 hours on a calcium chloride test and 75% on an RH test.

Note: Local building codes may differ. Local building codes take precedence over these recommendations. Follow all local building codes.

ACCLIMATION

- Plywood or wood subfloor should be tested with a pin or scan type meter; solid flooring should be within 2% MC of the wood subfloor prior to installation. The plywood or wood subflooring should not exceed 12%.
- Where the correct job site conditions are present, the flooring can be delivered and stored in the rooms in which it will be installed.
- Upon delivery, check wood flooring and subfloor moisture content to establish a baseline for required acclimation. After delivery checking a minimum of every 2 days is recommended. Proper moisture testing of wood flooring and subflooring materials will determine proper acclimation. The flooring is acclimated when it has reached equilibrium with the environment it will be installed in, not when it has been on-site for a certain length of time.
- Concerns related to the normal behavior of wood, such as gapping, buckling, or checking, are not covered under the warranty. Keeping the job site humidity and temperature consistent is crucial to avoid potential problems. Wood is a natural product and expands or contracts with gain or loss in moisture according to its physical properties. It is often best to acclimate flooring to the average of the yearly extremes of job-site humidity and temperature to avoid excessive seasonal gapping and swelling. It is also crucial to ensure steps are taken to reduce the overall range (high and low) in extreme conditions the floor will experience.

SUBFLOORS

The subfloor must be flat, meeting a minimum of 3/16" within 10' or 1/8" in 6'. The flooring installer is responsible for a level and flat subfloor.

CONCRETE SUBFLOORS

Concrete slabs should be of high compressive strength (minimum 3000 PSI) and constructed to prevent groundwater from permeating the concrete. Solid hardwood flooring can be installed on or above grade but NOT below grade. In addition, it can be installed over above-ground, suspended concrete floors. The suspended

concrete must be a minimum of 2 inches thick and must be structurally sound. It is recommended to install a wood subfloor over concrete slabs.

PLYWOOD SUBFLOOR FASTENED TO CONCRETE

Plywood subfloors can be installed over and anchored to concrete for solid flooring to be nailed to as detailed in this section. Concrete subfloor must meet all requirements for flatness and moisture as detailed in these instructions.

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. It is the installers responsibility to ensure the fasteners are adequate for fastening plywood to concrete.

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

Installation method

1. Plywood sheets must first be acclimated to the proper moisture content of the space they are being installed in.
2. A Class 1 impermeable vapor barrier such as 6-mil polyethylene sheeting must be installed between the plywood and concrete, overlap all sheeting seams and tape with waterproof tape. Run plastic up walls and cut off at or above the top level of plywood.
3. Stagger panel joints by at least 2', allowing approximately 1/8" expansion space around all panels to prevent edge peaking due to compression caused by panel swell.
4. Allow 3/4" minimum expansion space at all vertical obstructions such as walls, beams, etc.
5. Panels should be mechanically fastened. For power load or pneumatic pressure information, contact the fastener tool manufacturer.
6. Nailing requirements, minimum 32 fasteners per 4' x 8' panel on a 12" x 12" grid pattern. Recommended to have one fastener every 6" along the edge and one fastener every 12" x 12" in a grid pattern on the interior of the panel.
7. Areas with higher humidity may require additional fasteners.

8. Ensure plywood is flush to the concrete across its entire sheet. Test for hollow spots by tapping on the plywood; there should be no hollow sounds or vertical deflecting in the plywood. It may be necessary to kerf the back of the plywood to ensure it lays flush. Depth of kerf should be no more than half of the plywood's thickness.
9. Pick the correct flooring fasteners length to ensure flooring fasteners do not penetrate to or beyond the bottom edge of the plywood subfloor. This could cause puncture of the moisture barrier underneath.
10. For plywood fasteners that require drilling holes, it is recommended to put a waterproof, flexible sealant in the hole before inserting the fastener to prevent moisture migration around the fastener.

SCREED SYSTEM

Solid 3/4" Wood Flooring: Solid 3/4" wood flooring 5" wide or less may be installed directly to screeds. Screed systems should be installed per the NWFA installation guidelines for screed subfloor systems. Solid flooring should be installed perpendicular to the direction screeds are laid.

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

For solid 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 (CDX) or OSB subfloor panel, 4' x 8' sheets properly spaced and oriented perpendicular to screed direction. All joints must be staggered a minimum of 2'.

For direct nailing of flooring 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. It is recommended to use a glue assist on 4" or greater flooring by putting a bead of elastomeric flooring glue between the screed and flooring planks. Otherwise, follow NWFA recommended guidelines for solid flooring installation over screeds.

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.

1. Plywood sheets must first be acclimated to the proper moisture content of the space they are being installed in.
2. Add the recommended vapor barrier product by the adhesive manufacturer before applying adhesive. It is recommended to use a roll-on moisture barrier rated for and designed to be used with the adhesive. At a minimum, it is required to have a moisture barrier designed to block concrete with moisture levels up to 95% RH or 18lbs / 1,000sqft / 24 hours moisture transmission.
3. Use minimum 5/8" plywood (19/32, 15.1mm) CD Exposure 1 plywood subfloor panel (CDX), 4' x 8' sheets.
4. Cut the plywood panels to 2' x 8' or 4' x 4' sections. Score the back of the panel sections 1/2" the sheathing's thickness on a 12" x 12" grid.
5. Lay sections in a staggered joint pattern in the adhesive, with 1/8" spacing between sheets, 2' minimum stagger between adjacent end joints and 3/4" minimum expansion space at walls and vertical obstructions.
6. Ensure the plywood is flush against the concrete by checking for hollow spots. Weights might need to be used to keep the plywood flat while the adhesive is curing.

FLOATED PLYWOOD SUBFLOOR

Always add a vapor barrier before installing the subfloor.

1. Use two layers minimum 1/2" (10mm), minimum CD Exposure 1 plywood subfloor panels (CDX) 4' x 8' sheets. To ensure flatness and improve workability of the plywood, it is often easiest to rip plywood into 16" x 8' strips and kerf the back side half the thickness of the sheathing.
2. Plywood sheets must first be acclimated to the proper moisture content of the space they are being installed in.
3. A Class 1 impermeable vapor barrier such as 6-mil polyethylene sheeting must be installed

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between the plywood and concrete, overlap all sheathing seams and tape with waterproof tape. Run plastic up walls and cut off at or above the top level of plywood.

4. Place the first plywood layer with edges parallel to wall, without fastening. Leave 3/4" space between walls and plywood. Plywood panels should be spaced with 1/8" gaps between sheets.
5. Lay the second layer perpendicular or at 45° angle to the first layer. Use the same spacing requirements as above.
6. Similarly, lay out and then staple/screw and glue (with urethane, silane or subfloor construction adhesive) the second layer to the first layer on 12" interior grid pattern. Be careful not to penetrate the vapor barrier.

WOOD SUBFLOORS

Preferred Subflooring: 3/4" (23/32", 18.3 mm) CDX grade Plywood subfloor/ underlayment (Exposure 1), 4' x 8' 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' x 8' 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 load 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 underlayment may be necessary to bring the overall subfloor thickness to 1 1/8".
- Test the moisture content of the wood subfloor and wood flooring with a pin type or scan type moisture meter. Wood subfloor moisture content must not exceed 12% MC and solid wood flooring should be within 2% MC of the wood subfloor.
- If using existing wood floor as subfloor, install new flooring perpendicular at a 90° angle 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.

Follow all nailing schedule recommendations found in this guide.

RADIANT HEAT INSTALLATIONS

Solid flooring up to 6" 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. System should be turned off at least 4 hours before installation begins. After installation, temperature should be gradually 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 which dry and heat the floor beyond what it is designed for.

For this reason, it is important to consult heating system manufacturer for compatibility with solid wood flooring. Wood issue resulting from its natural response to the environment, such as gapping or checking, are not covered under warranty as these are the result of physical properties of wood. The best way to mitigate against these issues is to maintain proper moisture in the house.

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, 3M Blue tape.

Add for Glue Down Installations: Recommended adhesive and trowel, Rags for cleanup, and Adhesive remover.

Add for Nail Down Installations: Appropriate nailer or stapler, appropriate fasteners, trim nailer, compressor, and hose.

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 the 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 30-50% RH.

Check that the subfloor is dry, clean, flat, and structurally sound. Noises in the subfloor will most likely not go away once flooring has been installed. Any deflection in boards or debris on the subfloor could 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 to some degree on any nailed down, glued down or floated wood floor. Proper subfloor preparation and flooring installation methods can help minimize these noises.

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 use a 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 planks aside with 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 at least 3/4".

INSTALLING THE FLOOR

These instructions only highlight important information about the various approved installation methods as they relate to this solid wood flooring. These instructions do not fully outline the process, layout, skills, or tools and techniques needed to install wood flooring.

For a comprehensive guide on the process of installing wood flooring please consult NWFA resources regarding wood flooring installation. These instructions supersede NWFA installation guidelines only where recommendations are specifically different and applicable to this product.

GLUE DOWN INSTALLATION

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

Solid flooring boards are often not perfectly straight. A flooring nailer is usually used to straighten these imperfections as a floor is being nailed into place. It is not possible to do this when gluing a solid floor over concrete. For this reason, gapping is to be expected to some degree with a solid glue down installation.

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Use an appropriate adhesive and the appropriate 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 to ensure 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 and trowel new adhesive.

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 permitting moving of 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: Solid flooring is not warrantied against squeaking, popping, or crackling when using staple-down or nail-down installation methods as noises are almost exclusively a result of jobsite conditions, subfloor conditions, age and installation.

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 places that experience significant swings in environmental moisture. Tongue and groove engagement should be checked for proper fit before installation. If excessive play is observed, then contact the manufacturer before installation.

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

USING ADHESIVE IN A NAIL DOWN INSTALLATION

For any solid flooring that is installed on or 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

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the subfloor, some adhesive manufacturers also make a roll-on moisture barrier compatible with their adhesive and wooden 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 AND 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 for proper fastener position 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 make sure 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 proud or over-driven past the wood surface. Make adjustments to your compressor, 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: Striking the tool too hard with a mallet or not having the tool 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 in 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 3/4" thick products: minimum length is 1 1/2".

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

After the subfloor has been properly 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 3/4" flooring, nail every 6" to 8" down the length of each board.

Boards should have a minimum of three fasteners per board and one fastener 3" from each end of the board.

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

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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 if necessary.

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.

COMPLETE INSTALLATION (ALL METHODS)

1. Clean the floor with an appropriate cleaner
2. Install or re-install any moldings or trim.
3. If the floor must be covered to protect from construction traffic, use a breathable material such as X-board, but be sure to sweep and clean the floor prior to laying any covering material. Impermeable coverings could trap moisture against the flooring, damaging it.

MAINTENANCE

- Install protector pads on bottom of all furniture.
- 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 abrasives and dirt.
- Do not use household/furniture dust treatments, sprays, oils, or polishes to clean the floor as they will contaminate the finish.
- Keep high heels and other shoe bottoms in good repair as they can damage 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 solid flooring or similar hard surfaces.
- UV cured oil finishes should be cleaned with a cleaner designed to fortify and nourish natural oil finish. An example of an approved cleaner is Bona Natural Oil Floor Cleaner.

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