



Solid Flooring Installation, Care & Maintenance Instructions

Read all of these instructions carefully before beginning. In addition to these instructions, the installer must follow all industry standard wood flooring installation guidelines as set forth by the National Wood Flooring Association (www.nwfa.org). Where these instructions differ from NWFA guidelines, these instructions take precedence. Installation by NWFACP Certified Installers is highly recommended.

PRIOR TO INSTALLATION

It is the installer's responsibility to ensure that all of these General Requirements are met prior to installation, and that all specific installation instructions below for the installation method you have chosen (Nail Down, Nail + Glue, or Glue Down). When installed according to these instructions, this Solid Hardwood Flooring is approved for use above grade or on grade (ground level), but not below grade.

Solid Wood Flooring is not recommended for installation over radiant-heated subfloors. Installing this Solid Wood Flooring over a radiant heat system will VOID ALL WARRANTIES.

It is the installer's responsibility to inspect the flooring for proper color, grade, visible manufacturing defects, damage, or otherwise unsatisfactory appearance. **Upon receipt of the flooring, open 1-2 cartons to inspect and confirm with the job supervisor AND the homeowner/end-user that the material is satisfactory. If any problem is found, do not open any additional cartons.** Other than the first 1-2 that must be opened to check the material, open cartons are not returnable. Contact your local retailer or distributor immediately. **Do not install damaged or visibly unsatisfactory material. Installing a plank constitutes acceptance of its appearance by the installer and homeowner/end-user.**

Note: in nail down installations of planks 5" and wider, adhesive is also required, using either the Full Spread or Glue Assist methods (see below under 'Nail + Glue Installation Instructions' for details).

ACCLIMATION

Only after occupancy-ready site conditions have been established (see below under 'General Requirements') should the flooring be delivered and acclimated to the site conditions. In addition to other requirements, permanent HVAC must be on and functioning normally for a minimum of 7 days prior to flooring delivery.

Do not begin opening cartons for acclimation until all parties, including the end-user, agree that the appearance of the flooring is acceptable. Opened cartons are not returnable.

Before opening cartons, calculate the number of cartons that will be needed for each room/area where they will be installed and distribute them accordingly. South & West facing rooms will generally have different temperature and humidity ranges than North & East facing rooms. Once the material is distributed, carefully open both ends of each carton by cutting slits in the packaging, being careful not to tear the packaging. Do not open the cartons other than the ends.

When the cartons are first opened, use a pin-type moisture meter and take 30-40 moisture content (MC) readings per thousand feet of flooring. Also, use a hygrometer to check the Relative Humidity (RH) in the space. Record all readings. Repeat this process (checking RH and the MC of the same planks checked previously) every few days until the moisture content has stopped changing and the wood has reached Equilibrium Moisture Content (EMC). Most jobsite conditions will require acclimation time of at least 5 days, but assessment of proper acclimation should be based on moisture content, not time.

GENERAL REQUIREMENTS – ALL INSTALLATION METHODS

Environmental Conditions

To help minimize moisture-related expansion and contraction, verify the following conditions prior to acclimation and installation:

- Permanent HVAC should be on and operational and maintained between 60-75°F with relative humidity of 35%-55% for a minimum of 7 days prior to delivery, during acclimation and installation, and throughout the life of the floor. Humidity levels below 35% or above 55% may cause movement in the flooring, gapping between pieces, cupping, cracking and other problems. Use of a humidification or dehumidification system may be required to maintain proper humidity levels, particularly in tropical, desert or mountain regions.
- All exterior walls, windows, and doors must be in place and the building envelope closed during acclimation and installation.
- All wet work such as painting, drywall, masonry, and concrete must be completed and dry.
- Basements and crawl spaces must be dry and well ventilated. Crawl spaces must be a minimum of 18” high from the ground to the bottom of the joist. Dirt floors in crawl spaces should be covered with a 6-10 mil black plastic to reduce moisture migration. Seams should overlap and be sealed with waterproof tape. Perimeter crawl space cross ventilation should equal 1.5% of the square footage. Vents must remain open year round.
- When installing on a wood subfloor over an unconditioned crawl space, use a Class II vapor retarder between the solid flooring and subfloor. No vapor retarder is needed when installing over a conditioned space.
- Exterior grading should be complete and drainage should move away from the building structure with a minimum drop of 3” in 10’.

Subfloor Conditions

Subfloors must be:

Clean - Subfloors must be scraped clean and free of debris. Sweep and /or vacuum all debris from the subfloor. Debris on the subfloor may cause over-wood and uneven surfaces in the finished floor, poor fit between planks, and poor adhesive bond in glue-down installations.

Flat - Subfloors must be flat to within 3/16” over any 10’ radius and 1/8” over any 6’ radius. Check the flatness using a straight edge, laser line or string line. Grind, scrape, sand or shim all high or low spots. On concrete subfloors, grind all high areas and fill low areas using a quality cementitious leveling compound. Ensure that all fasteners securing the subfloor are set flush.

Dry - Check and record all moisture, humidity and temperature conditions prior to installation. Visually check the jobsite for potential moisture problems. Look for signs of water intrusion around window and doors. Check for mold or fungus on walls and all other areas. Water intrusion may necessitate structural repairs and/or create conditions unsuitable for flooring installation.

- **Subfloors must be tested for moisture and vapor emissions. Never install wood flooring without testing first.**

- Plywood and composite subfloors should be checked using a calibrated moisture meter. Be sure to use the correct moisture meter setting for the species being checked. Carefully follow the moisture meter manufacturer’s operation instructions.

Moisture readings should not exceed 10% in any location and the moisture variation between the subfloor and the flooring should not exceed 2% at time of installation.

- Concrete subfloors must be fully cured, at least 60 days old, and should have minimum 6-mil polyfilm between the concrete and ground. Lightweight concrete can hold more moisture and may take longer to dry out to an acceptable moisture content. Note that concrete slabs more than 60 days old may still have moisture problems and must be tested prior to installation.
- Installations over concrete require the use of a Calcium Chloride test per ASTM F1869, or an in-situ Relative Humidity test per ASTM F2170 to test vapor emissions prior to installation. Test all areas where wood will be installed. The results of the Calcium Chloride tests should not exceed 3 lbs per 24 hours per 1000 square feet, and in-situ test results should not exceed 75% RH. Carefully record all results.
- NOTE: These tests give a snapshot of moisture conditions at the time of the test, but do not reflect the permanent year-round condition of the substrate. If Gluing Down on concrete that is on grade, it is highly recommended to use a Class I impermeable vapor retarder approved by the manufacturer of the adhesive you have chosen, even if you believe the concrete is dry. A concrete slab on grade that measures dry today may become moist in the future and cause floor failure. Manufacturer is not responsible for site related moisture issues.

Structurally Sound - Wood subfloors must be well fastened. Use screws every 6" and replace subfloor panels/boards as necessary to eliminate all movement and squeaking.

Acceptable subfloor types:

- CDX plywood - at least 5/8" thick for joist spacing up to 16" on center, minimum 3/4" thick for joist spacing greater than 16" on center (19.2" maximum). Plywood subfloors installed over concrete must be installed in accordance with the guidelines set forth by the National Wood Flooring Association (NWFA) - www.nwfa.org.
- OSB - at least 3/4" thick, PS 2-92 rated or PS 1-95 rated.
- Existing hardwood flooring over a suitable subfloor as outlined above. Existing floor must be well-fastened and smooth. The new floor must be installed perpendicular to or at a 45° angle to the existing wood floor.
- Do not install over concrete, gycrete, existing vinyl, resilient, Cork, Linoleum, particleboard, lightweight concrete, any existing floating floor, existing ceramic tile flooring, or any other subfloor not listed above.

Preparing the Perimeter

- Undercut door trim, jambs and casings to the thickness of the flooring plus any adhesive or underlayment being used.
- All wood flooring expands and contracts with changes in humidity. It is essential to install the floor leaving adequate expansion space between ALL sides of the flooring and ALL vertical obstructions, including door trim, jambs, studs, plumbing, cabinets, etc. This space will be covered with base molding. **Failure to provide adequate expansion space in any single location can damage the entire floor.**

- Minimum expansion space for 3/4" thick Solid Flooring is 3/4"

- If the floor span is greater than 20', field expansion space may be required. Refer to NWFA guidelines for further information.

Layout

Whenever possible, use an exterior wall as the starting wall. In any case, make sure that your primary working line is snapped straight with a chalk line. Do not use any wall as a working line, as walls are rarely straight.

On plywood subfloors, if the subfloor is fastened to joists or trusses, the flooring should be installed perpendicular or at a 45° angle to the joists/trusses. If the subfloor is solid wood planking, flooring should be installed perpendicular or at a 45° angle to the solid wood planking.

General Tools and Accessories recommended (all installation methods):

- Pencil; Tape Measure; Safety Glasses; Utility Knife; Pin-type Moisture Meter; Hammer; Shim Wedges; Tapping Block; Rubber Mallet; Rags; Carpenter square; Pry Bar or Pull Bar; Prefinished Wood Filler; Scraper; Dust Mask; Chalk Box & Chalk; Recommended Saws: Power Miter Saw, Table Saw, Jamb Saw.
- FILLERS: if filler is needed to repair voids, do not use oil-based fillers, as these can permanently discolor the wood beneath the finish if too much is applied. Large voids between planks suggest problems that should be addressed by means other than filler. If the flooring is not fitting together correctly, STOP the installation and contact your Sales Representative immediately.
- Avoid the use of tape on the surface of the floor. Any use of tape may damage the finish. Instead, use strap clamps to pull and hold planks tight together. If you choose to use tape against this recommendation, use ONLY 3M Advanced Delicate Surfaces 2080EL Tape, and be sure to remove any tape within 20 minutes of application. Never tape temporary protective covering directly to the floor – only tape it to itself. Claims will not be accepted for damage to the floor surface caused by tape.

Once all of these General Requirements are met, continue the installation using the instructions for the type(s) of installation you have chosen (Nail Down or Nail + Glue).

NAIL DOWN (NAIL ONLY) INSTALLATION INSTRUCTIONS – not recommended for planks 5” and wider. In nail down installations of planks 5” and wider, adhesive is also required, using either the Full Spread or Glue Assist methods (see below under ‘Nail + Glue Installation Instructions’ for details).

This Solid Wood Flooring can be nailed to plywood, OSB and existing wood flooring meeting the requirements outlined above under ‘Subfloor Conditions.’

For Nail Down Installations, you will need the General Tools and Accessories, plus:

Nail set; Tack Stapler or 1" roofing nails (for felt); Pneumatic Finish Nailer with 15-16 gauge 1-½"-2" nails; Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 15-16 gauge 1-½" - 2" cleats or staples (always do a test plank to verify that fasteners are seating properly and not causing dimpling on the surface, fasteners must penetrate the subfloor by a minimum of 5/8"); Compressor with hose (if pneumatic tools are used); 15 lb. roofing felt, #15 hardwood floor underlayment felt, or Aqua Bar underlayment paper.

Nailing Down the Floor

1. After installing 15 lb. felt or Aqua Bar per the manufacturer’s instructions, measure out from the starting wall the width of one flooring plank plus the appropriate expansion space for that thickness of flooring. Mark two points toward each end of the starting wall and snap a chalk line along the full length of the wall through the marks.
2. Lay the tongue side of the first row of flooring along the chalk line. Face nail (top nail) the first row of flooring in place. Place the fasteners approximately 3/4" from the wall side (groove side) of the flooring board every 4" to 6". Continue the first row installation blind/edge nailing every 4" to 6" along the tongue and every 2" to 3" from every end joint. Note: Blind/edge nailing of the first row may require the installer to use finish nails or the pneumatic finish nailer along the tongue.
3. Continue the installation across the room, blind/edge nailing every 4" to 6" and 2" to 3" from each end joint.
4. Stagger end joints by at least 8". Avoid creating “H” patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start the next row, discarding any pieces shorter than 8".
5. Trim the last row of flooring to maintain the minimum expansion space at the far wall.
6. At the far (finish) wall, it may be necessary to face-nail the last 2-3 rows due to the angle of the stapler/nailer. The last row or two of flooring may need to be pulled together using a pulling bar.
7. Complete the installation by reinstalling or installing new base moldings.

NAIL + GLUE INSTALLATION INSTRUCTIONS – required when nailing down planks 5” or wider. When nailing planks 5” or wider, choose either the Full Spread application or the Glue Assist application as detailed below.

This Solid Wood Flooring can be nailed + glued to plywood, OSB and existing wood flooring meeting the requirements outlined above under ‘Subfloor Conditions’ using a Glue Assist or Full Spread adhesive application.

For Nail + Glue Installations, you will need the General Tools and Accessories, plus:

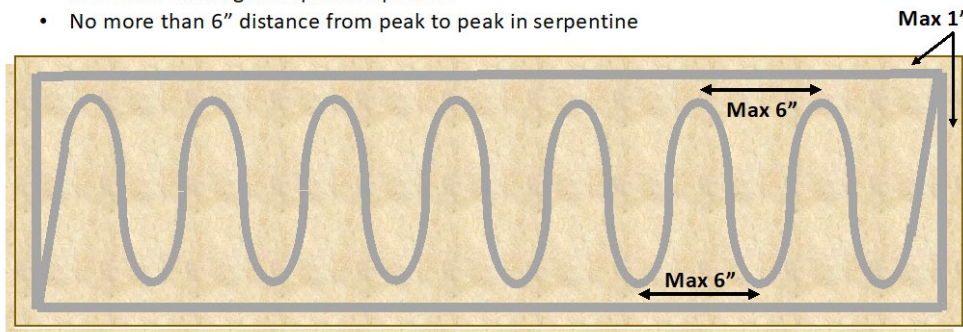
Premium Wood Flooring Adhesive: Franklin 771, 811, or 821, Bostik GreenForce, BEST, or VaporLock, or Bona R851; For Full Spread Application: adhesive trowel recommended by the manufacturer of the adhesive selected; For Glue Assist Application: adhesive applicator gun; Adhesive Remover: Pacific Pride Orange Adhesive Remover; Nail set; Tack Stapler or 1" roofing nails (for felt); Pneumatic Finish Nailer with 15-16 gauge 1-½”-2” nails; Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 15-16 gauge 1-½” - 2” cleats or staples (always do a test plank to verify that fasteners are seating properly and not causing dimpling on the surface, fasteners must penetrate the subfloor by a minimum of 5/8”); Compressor with hose (if pneumatic tools are used)

Nailing + Gluing the Floor -

1. Measure out from the starting wall the width of one flooring plank plus the appropriate expansion space for that thickness of flooring. Mark two points toward each end of the starting wall and snap a chalk line along the full length of the wall through the marks.
2. **Full Spread application:** trowel spread the adhesive on the subfloor along the chalk line wide enough to allow the first row of flooring to be installed, being careful not to cover the line.
Glue Assist application: apply a minimum ¼” thick bead of adhesive using adhesive gun to backs of planks, carefully following the ‘Serpentine + Perimeter’ pattern shown below. Failure to follow this pattern could result in movement, squeaking/popping sounds in the finished floor, and other problems.

‘Serpentine + Perimeter’ Glue Pattern for Glue Assist Nail Down Install

- Use minimum ¼” thick bead of adhesive
- Apply perimeter stripes along all four edges, within 1” of edge
- Fill center with tight serpentine pattern
- No more than 6” distance from peak to peak in serpentine



3. Follow the adhesive manufacturer’s recommendations for wet lay times before proceeding to the next step.
4. Lay the tongue side of the first row of flooring along the chalk line. Face nail (top nail) the first row of flooring in place. Place the fasteners approximately ¾” from the wall side (groove side) of the board every 4” to 6”. Once the face nails are set, use finish nails or the pneumatic finish nailer to blind/edge nail along the tongue of the first row, every 4” to 6” and every 2” to 3” from every end joint. Check to make sure the first row is still straight along the chalk line before proceeding.
5. **Full Spread application:** trowel spread enough adhesive to install 2-3 more rows.
Glue Assist application: apply adhesive to the back of each plank following the ‘Serpentine + Perimeter’ pattern.

6. Install the second row by sliding the groove side on to the tongue of the first row. Blind/edge nail it in to place, with fasteners every 4" to 6" and 2" to 3" from each end joint. Stagger end joints by at least 8".
7. Continue the installation across the room, blind/edge nailing every 4" to 6" and 2" to 3" from each end joint.
8. Stagger end joints by at least 8". Avoid creating "H" patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start the next row, discarding any pieces shorter than 8".
9. Most adhesives require that the installer clean the adhesive off the face of the flooring boards during the installation. Follow the adhesive manufacturer's recommendations for this procedure. If adhesive remover is needed, use only the recommended Pacific Pride Orange Adhesive Remover and use it only as needed to remove localized adhesive spots. Never use any adhesive remover to clean large areas.
10. Trim the last row of flooring to maintain the minimum expansion space at the far wall.
11. At the far (finish) wall, it may be necessary to face-nail the last 2-3 rows due to the angle of the stapler/nailer. The last row or two of flooring may need to be pulled together using a pulling bar.
12. Complete the installation by reinstalling or installing new base moldings.
13. Do not allow foot traffic on the floor for 24 hours after installation is complete.

INSTALLING BASE AND TRANSITIONS

Once the installation is complete, install base moldings and transition moldings to cover the perimeter expansion space. Never glue or fasten base or transition moldings to the flooring. Doing so eliminates the expansion space and can cause severe damage to the entire floor area. The flooring must be free to expand and contract underneath the moldings.

RADIANT HEAT SYSTEMS

This Solid Wood Flooring is not approved for installation over radiant-heated subfloors. Installing this Solid Wood Flooring over any type of radiant heat system will VOID ALL WARRANTIES.

CARE & MAINTENANCE

General Care of Wood Flooring

- Permanent HVAC should be on and operational and maintained between 60-75°F with relative humidity of 35%-55% throughout the life of the floor. Humidity levels below 35% or above 55% may cause movement in the flooring, gapping between pieces, cupping, cracking and other problems. Use of a humidification or dehumidification system may be required to maintain proper humidity levels, particularly in tropical, desert or mountain regions.
- Flooring should be one of the last items installed in a project. In order to protect the floors while other trades are finishing their work prior to final cleanup and turnover to the owner, use a breathable protective covering such as Ram Board or Floorotex. Do not use Red Rosin paper, and do not use polyfilm or other non-breathing coverings as they can cause damage from humidity buildup. Clean the floor thoroughly before laying the covering to ensure that no debris is trapped underneath. Tape pieces of protective covering together but do not tape them to the wood flooring.
- **Temporary floor covering should never be kept in place longer than a few (1-5) days.**
- All wood flooring changes color with exposure to light and air, especially in areas of direct sunlight. Areas covered with rugs will change much more slowly than exposed areas. To avoid dramatic color differences, it's best not to place area rugs for the first few months after installation, when the floor is changing color most rapidly. Once rugs are placed, they should be moved periodically so that previously covered areas can catch up to uncovered areas.
- Place walk-off mats at all entrances to collect dirt and debris that could damage or dull the flooring finish. Mats are also required in areas where people congregate and/or stand for long periods of time, such as in front of ovens, sinks, service counters, and cash registers.
- Install felt floor protectors underneath all furniture.

- In food service areas such as restaurants and cafeterias, top-coating a urethane-coated floor will help prevent against moisture damage caused by frequent spills. See below for recommendations on how to top-coat the specific flooring product you have selected.
- Do not allow people to wear spiked heels on the floor, which will damage even the hardest wood floors and finishes.
- Pet claws should be properly trimmed at all times.
- Work boots and shoes that may have pebbles lodged in the soles should be removed prior to entering.

Cleaning

- Sweep or vacuum frequently. Most damage to wood floor finishes is caused by debris that is walked on.
- All mats or rugs should be cleaned on a regular basis. They should also be moved occasionally to allow natural color changes caused by light to occur evenly in all areas. Do not allow soiled mats or rugs to stay on the floor as they can trap moisture on the surface.
- Clean the floor regularly with Bona Hardwood Floor Cleaner or Basic Coatings Squeaky Commercial Floor Cleaner. Never apply ammonia, vinegar, polishes, waxes, oils, oil soaps, or petroleum-based cleaners under any circumstances. Use adhesive remover only to remove spots of adhesive, not as a cleaner, and use only the recommended Pacific Pride Orange Adhesive Remover. Do not use abrasive cleaning implements or steam mops.
- Never wet-mop your floor, and always clean up spills and standing water as soon as possible. With water or any other cleaning agent, be sure to thoroughly ring out the applicator or mop prior to applying it to the floor. A damp mop is fine as long as the moisture is limited to an amount that will evaporate almost immediately. Moisture that is allowed to seep into the seams between the planks may cause damage to your flooring.
- If the floor will be cleaned professionally, the cleaning personnel must be thoroughly informed about all of these cleaning guidelines.
- With textured floors that have soil embedded in the wood grain, periodic deep cleaning with a power cleaning machine recommended for hardwood floors such as the Bona Power Scrubber or Basic Dirt Dragon may be required to thoroughly clean the floor.

Recoating

- When it becomes necessary to add an additional coat of protection to the floor, we recommend the Bona Prep or Basic Tykote systems in combination with the compatible two-component water-based finish, such as Bona Traffic HD or Basic Pure Matte. These systems clean and prepare the floor to receive the new topcoat, allowing for easy recoating without sanding. Follow the Bona or Basic recommendations carefully. Before proceeding, always do a test to ensure good adhesion of the new coat and to ensure that the gloss level of the new finish is satisfactory.
- In commercial/hospitality settings, top-coating a urethane-coated floor immediately after installation will provide cost-effective additional durability.

We want every customer to be happy and satisfied with their purchase. If there are claims or questions, or in the event that you are not totally satisfied with your hardwood floor, contact your local retailer first. If the retailer is unable to answer your questions you may contact us in writing at the following address: Attn: Customer Service, 9303 Greenleaf Ave., Santa Fe Springs, CA 90670.