

---

# INSTALLATION GUIDELINES

---

## GLUE DOWN / NAIL OR STAPLE

### PLEASE READ ALL INSTALLATION GUIDELINES BEFORE PROCEEDING WITH INSTALLATION

#### A. INSTALLER/OWNER RESPONSIBILITY - IMPORTANT

Inspect all flooring material carefully for correct product and visible defects BEFORE INSTALLATION. Warranties do not cover visible defects once they are installed. (Based on industry standards a defect/irregular tolerance of up to 5% is allowed).

As all wood is unique, with no two pieces alike, review and compare the new flooring with the "sample board" from which the floor was selected to ensure it meets the homeowners expectations prior to the installation. If flooring is not acceptable, contact your distributor immediately and arrange for replacement.

It is the responsibility of the installer/owner to ensure subfloor and jobsite conditions are environmentally and structurally acceptable for wood floor installation. Problems or failures related to deficiencies in subfloor or job site damage after installation are not covered by our warranty.

- Receive the floor and make sure it meets owner's expectations.
- Grade out and separate any pieces with visible defects/irregularities.
- Test the subfloor and jobsite itself, including ambient temperature/ relative humidity and all other variables that may adversely affect a wood floor.
- Record the flooring moisture content upon delivery and at time of installation - RETAIN THESE RECORDS
- Acclimate flooring to appropriate site conditions. Follow *NWFA Installation Guidelines for Acclimation on Jobsite (Section I, Chapter 2)*
- Record and retain a permanent job record.

**IMPORTANT:** The product is designed to perform within a typical residential environment. Wood installed in areas where relative humidity is below 40% may cup and shrink. (A humidifier may be necessary to keep the relative humidity within recommended levels of 40% to 60% year round.) Flooring installed on wet subfloors may crown and buckle.

**CORRECT ANY OVERLY DRY OR WET CONDITIONS BEFORE INSTALLATION**

#### B. PREINSTALLATION/JOBSITE REQUIREMENTS

##### ACCLIMATION IS CRITICAL

Allow floors to acclimate to the appropriate jobsite conditions. Proper acclimation is particularly important in extremely dry climates (e.g. Utah, Arizona, Nevada, Idaho, Colorado). See *NWFA Installation Guidelines, Section I, Chapter 2 for more acclimation details.*

Upon delivery, check wood flooring moisture content (MC) with a moisture

meter to establish a baseline for required acclimation. Record MC at time of delivery AND at time of installation. RETAIN THESE RECORDS.

Out of the box acclimation is the most effective and recommended. If out-of-box acclimation is not possible, open boxes at both ends to allow air to circulate through planks. If planks are covered with plastic wrap, cut plastic at both ends to allow for proper air circulation. Allow planks to lay flat for a minimum of 3-5 days, or as long as necessary for the planks to meet the job site moisture conditions. Use a moisture meter to monitor the flooring and job-site conditions as they acclimate.

Room temperature and humidity of installation areas should be consistent with normal, year-round living conditions for at least ONE WEEK before installation of wood flooring. Room temperatures of 60°F to 80°F and a humidity range of 40% to 60% should be maintained year-round.

The moisture content (MC) of hardwood should generally be between 6% to 9%. If plywood is used for subfloor, the MC should be no more than 2% between wood flooring and plywood subfloor.

#### HANDLING AND STORAGE

Hardwood flooring should be one of the last items installed on any new construction or remodel project. All work involving water or moisture should be completed before installation of flooring.

Do not deliver wood flooring to the job site until the building is entirely closed and until appropriate temperature and humidity conditions have been achieved. Appropriate temperature and humidity conditions are defined as those conditions to be experienced in the building after occupancy.

HVAC should be in operation before, and during installation (refer to *NWFA Installation Guidelines Section I, Chapter 1, Part 1* for further information). Room temperature and humidity of installation areas should be consistent with normal, year-round living conditions for at least ONE WEEK before installation of wood flooring. Room temperatures of 60-80°F and a humidity range of 40%-60% is recommended year-round.

**KEEP FLOORING DRY:** Protect flooring from moisture during storage and transportation. Store material in a flat, dry and totally enclosed area. Garages, exterior patios, for example are not acceptable areas to store wood flooring. The moisture content (MC) of hardwood should generally be between 6% to 9%. For wide width flooring (3 1/4" or wider), there should be no more than 2% difference in moisture content between properly acclimated wood flooring and wood subfloor.

#### C. SUBFLOOR TYPES AND CONDITIONS

Types: (Refer to *NWFA Installation Guidelines, Section II* for Subfloor Information)

- CD: Exposure 1 plywood, minimum 3/4" thick.
- Solid board: 1" x 6" wide, square edge, kiln dried.
- OSB: Exposure 1 (minimum 3/4" thick).
- Concrete (refer to *NWFA Installation Guidelines, Section II, Chapter 5 & 6*).

The subfloor must be clean, dry, and flat to within 3/16" per 10' radius. If necessary, sand or plane high spots, and fill low areas using a cement based patching/leveling compound. Secure any loose boards or panels to prevent squeaking. The surface temperature of the subfloor, at time of installation should be at least 59°F but never exceed 80°F.

Damage due to moisture issues is not a product failure and is not covered by our warranty.

**BASEMENT AND CRAWL SPACES:** Keep dry and ventilated. Crawl spaces must be a minimum of 18" from ground to underside of joists. Exposed earth should be fully covered by a minimum 6 mil black polyethylene vapor barrier with joints overlapped and sealed with a moisture resistant tape.

CONCRETE SUBFLOOR: New concrete should be completely cured for at least 50-60 days. Test for excessive moisture. A reading of over 3lbs./1000 sq. ft. by Calcium Chloride test requires the application of a vapor retarder.

Ensure concrete has a minimum of 3000 PSI Compression. Over a lightweight concrete (less than 3000 PSI) use a floating installation. To check for lightweight concrete, draw a nail across the top. If it scratches or indents, it is probably a lightweight concrete.

WOOD SUBFLOOR: When floating over a wood subfloor, cover wall to wall with an underlayment overlapped 8" at seams (follow underlayment manufacturing instructions). It is recommended to tape overlapped edges with a cellophane tape. To prepare wood subfloor for installation, re-nail any loose areas to prevent squeaking. Sand or plane high spots and fill low areas.

The moisture content (MC) of a wood subfloor should not exceed 12%. In general the moisture content of hardwood flooring is between 6% and 9% and the MC difference between the subfloor and flooring should not exceed 2% on a 3 1/4" or wider flooring.

OVER RADIANT HEATED FLOOR: Prior to installation over radiant heat systems it is important to refer to the *NWFA Installation Guidelines Section IV, Appendix H*. Failure to follow these guidelines can void your warranty and may produce unsatisfactory results. Use only over water-heated systems, not recommended over electrically heated systems.

**NWFA - National Wood Flooring Association:  
800-422-4556 (USA) / 800-848-8824 (Canada)**

Radiant Heat Subfloors can be concrete, wood or a combination of both.

The type of subfloor determines the subfloor preparation.

If the Radiant Heat subfloor is concrete the system should be fully operating at a normal temperature for a minimum of 21 days prior to floor installation, to dry out residual moisture.

The system must then be turned off 24 hours prior to installation and must remain off for 24 hours after installation so that the adhesive does not cure excessively fast. After the 24 hours, the system temperature can be gradually raised again (over a 7 day period) up to the desired level.

The maximum allowable subfloor surface temperature over radiant heat is 85°F.

Radiant heat is a dry heat. A humidification system is recommended to maintain wood flooring in its comfort zone. Surface checking, excessive gapping, etc. can be expected if the proper humidity level is not maintained between 40-60% year round, or the surface temperature exceeds 85°F.

To minimize the effect that rapid change in temperature will have on the moisture content of the wood floor, an outside thermostat is recommended.

#### INSTALLATION METHODS:

The following installation methods can be used over radiant heated floors:

GLUE DOWN - See *Glue Down Method on page 2*

Use over a approved subfloor. Use only approved adhesives – We recommend Simple Spread or adhesives. For grooves use Dri-Tac 8100 or Titebond T&G glue for groove.

STAPLE / NAIL DOWN: See *Staple/Nail Down Method on page 3*

Install over approved subfloor. Be sure fasteners are not so long as to penetrate the heat source.

#### D. GENERAL INSTALLATION

REFER TO *NWFA INSTALLATION GUIDELINES, SECTION III, CHAPTER 8*  
The product can be installed above, on-grade or below-grade. Installation methods can be either: Direct Glue or Nail/Staple.

#### W IMPORTANT

Due to the extra width and length of planks, it is recommended to glue all end joints, regardless of the installation method. This can reduce excessive seasonal gapping. Use Dri-Tac 8100 or Titebond T&G glue.

Plan the layout: "Rack" out (dry-lay) the flooring before installing to avoid close end joints and to blend color and grain patterns. To blend the visual differences from board to board it is recommended to work from several cartons alternatively. Leave 1/2" gap at all vertical objects, undercut all door jams.

#### A NOTE ON MOLDINGS

Pre-drill and install quarter round and/or baseboard moldings. Molding must be of sufficient thickness to cover the required expansion space. **DO NOT FASTEN MOLDINGS TO THE FLOORING** but rather **attach to the wall**. Ensure that there is adequate space between the bottom of the molding and the flooring to allow it to freely expand and contract.

#### GLUE DOWN METHOD

We recommend Simple Spread urethane adhesive and Dri-Tac 8100 glue for the end joints for the installation of our products. Carefully read and follow the instructions provided by the adhesive manufacturers for the use and application of their product. The recommended trowel size is a V-notch 1/4" x 1/4". Check with your flooring retailer for other adhesives and sealers that are compatible with engineered floors.

#### W CAUTION

Adhesive that is allowed to dry on the plank surface can be difficult to remove and may leave a haze. Be sure to clean surplus adhesive off surface of plank as you go. Use a Urethane Adhesive remover for this purpose.

The first step is to find a starting line from the wall the width of 2 or 3 boards plus a 1/2" expansion space. Nail or fasten a holding board, i.e. 1" x 2' (1-inch x 2 feet) or 1" x 4' (1-inch by 4-feet) length of straight wood along the line, this will help keep the first rows straight and firmly in place. Apply the adhesive to the subfloor (including the T&G adhesive in end joints) and place the first plank down up against the holding board with the groove side facing the wall. Continue laying the first row using the tongue and groove method. Tighten all joints by the use of a wooden or plastic tapping block and soft mallet. Gently knock the boards in from the tongue side. Never use a hammer directly on the plank as this can cause damage to the finish. Use a pull-bar to pull the last row into place and tighten joints. **Remember to clean surplus adhesive as you work.** Continue laying the second row, staggering end joints of boards from row-to-row a minimum of 16" apart. If necessary use blue installers tape to maintain a tight floor. Repeat row-by-row using the same method until the entire section is complete. Remove the holding boards and complete the area from the starting boards to the wall.

COMPLETING THE JOB: Roll every 2 to 3 hours and on completion with a 100lb. to 150lb. roller to ensure all planks are flat and in contact with the adhesive. Remove blue installers tape within 3 hours. Remove any spacer wedges. Cover all expansion spaces along walls with coordinated moldings. Always nail moldings to the adjacent wall, not the flooring! Clean, sweep, and vacuum installed flooring before use.

## STAPLE/NAIL DOWN METHOD

Due to extra width and length of planks, it is recommended to glue end joints. Staple/nail-down installation uses supplemental adhesives. All end joints should be glued with Dri-Tac 8100 or Titebond T&G.

Carefully remove any baseboard trim around the perimeter of room. Save for replacement after floor is installed. Cover wood subfloor wall to wall with the vapor retarder or 15 lb. asphalt saturated felt. Overlapped 4" at seams. This will not only retard moisture, but may help prevent squeaks. Snap a working line along the longest continuous wall allowing 1/2" expansion space. Direction of the planks should be at right angles to the joists for highest strength of flooring. Lay one row of planks along the entire length with groove facing the wall. If necessary, use spacing wedges to maintain expansion space. Top nail the first row, placing nails perpendicular to the surface as close as possible to the wall so that after completion the head of the nail will be hidden by the base molding. Apply T&G glue to all end joints. **Remember to clean surplus adhesive as you work.** Blind nail the other side of the plank through the tongue (use 1 1/2" length nails with a 3/4" ply subfloor) with the nail slightly inclined and the head driven flush. Staples should be placed 3" to 4" apart and cleats every 4" to 6" apart. All fasteners should be placed 1" to 2" of end joints. Hand nail the first row if necessary, then a nailing machine can be used. Start second row in the same manner. If necessary, cut the first board to stagger end joints of boards a minimum of 16" from row-to-row. From second row onward nailing is done on the tongue side only. Use a tapping block or soft-head mallet to engage tongue & groove. A hard-head mallet can damage the milling of the plank. The last row usually requires cutting the plank lengthwise to fit the space (remember to maintain the expansion gap). Nail the last row in the same manner as the first.

**COMPLETING THE JOB:** Once the nailing is complete, remove any spacing wedges and install the base molding. Always nail moldings to the adjacent wall, not the flooring! Clean, sweep and vacuum installed flooring before use.

## GLUE ASSISTED - NAIL DOWN PROCEDURE

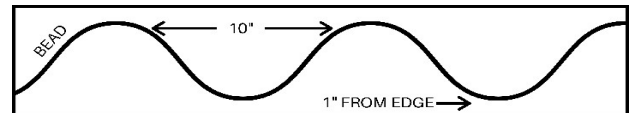
Nail down installations of wide planks (5" width or wider) over a wood or OSB subfloor may require additional bonding to increase stability, firmness, and help prevent plank movement leading to cupping, crowning, and a noisy floor. When installing wide planks, we recommend a combination of glue along with the recommended fasteners to make the floor more stable and help avoid 'creaking' – noisy floors – and other issues.

*When installing on a wood subfloor that is over a 'finished' room below, a moisture retarder – i.e. Aquabar, Kraftpaper – is often not necessary, enabling the glue to be adhered directly to the subfloor rather than the paper.*

Apply a 1/4" thick serpentine bead of glue on the back of the plank (F1) and then press plank into place before applying recommended fasteners and following required fastener schedule. Recommended glues for nail down procedure: Bostiks – Chem Calk 900, Liquid Nails, Sika – Pro Construction Adhesive.

**NOTE:** Do not allow adhesive to dry on the surface of the floor. Clean as you go. Wipe any wet adhesive from the flooring with a lightly dampened, clean cloth. If adhesive has dried, use mineral spirits on a clean cloth.

Figure 1:



## GLUE ASSISTED - (FLOATING STYLE) NAIL DOWN PROCEDURE

If you cannot or do not want to glue your flooring to the subfloor (such as when installing over an unfinished area below where a moisture retarder is required), another option is a 'floating style' glue assist. Apply bead of glue to the tongue & groove joints ONLY (as with a floating application). Then press planks into place before applying fasteners following required fastener schedule. Recommended glues for floating style procedure: DryTac – TNG-8100, TiteBond T&G Glue.

**NOTE:** Do not allow adhesive to dry on the surface of the floor. Clean as you go. Wipe any wet adhesive from the flooring with a lightly dampened, clean cloth. If adhesive has dried, use mineral spirits on a clean cloth.

**Stapled or nailed-down products are not warrantied against squeaking or popping sounds.**

Inspect the completed floor for any scratches, nicks and minor gaps. Use touch-up kit, filler or wood putty as needed.

**TOOLS:** Some standard tools you may need include: Tape Measure, Wooden Tapping Block, Rubber Mallet, Power Saw, Blue Painters Tape, Wood or Plastic Spacers, Pry Bar, and Chalk Line.

**FOR STAPLE/NAIL DOWN:** Air-Stapler/Nailer with appropriate nail down adapter. Use a prefinished foot to protect finished edges.

**NOTES:** For areas larger than 20' x 20', more spacing between rows may be needed depending on geographical area, site environment and time of year. (Refer to *NWFA Installation Guidelines, Section III, Chapter 9*).

Seasonal gaps can be expected, especially on wider planks. This is normal and not a defect.

**We recommend, if possible the use of a NWFA (National Wood Flooring Association) certified professional when installing the product.**

After Installation it is important to maintain the environmental conditions in the home within the ranges outlined in these instructions (see *PRE-INSTALLATION/JOBSITE REQUIREMENT, Section B on page 1*). Failure to keep the humidity and temperature within the recommended ranges can result in damage to the floor.

## E. CARE & MAINTENANCE

The product is a high quality, natural wood engineered flooring with a waterbased, lacquered surface finish.

**NEVER USE a wax or oil based cleaning product on a Lacquer finish.**

*\*We recommend Bona® cleaning products. Bona (also known as BonaKemi®) is widely regarded as the best cleaning solution available. Visit their website: [www.mybonahome.com](http://www.mybonahome.com) to find out more about their products.*

All purpose cleaners are **not** recommended as they can dull your floor's finish or leave a hazy residue.

Today's hardwood floors are quick and easy to maintain; and with a little preventative maintenance, can look beautiful for years to come. All hardwood floors should be cleaned regularly. Simply sweep, dust mop, or vacuum to remove grit and dirt. When necessary, clean floor with Bona® hardwood floor cleaning product (carefully follow Bona cleaning instructions). Avoid using a wet mop as over time this can damage the finish. Remember: water and wood do not mix.

### DOs:

- Sweep, vacuum, or dust mop regularly.
- Immediately wipe up liquid spills with cloth or paper towels.
- Maintain with Bona® hardwood floor cleaner for un-waxed/un-oiled finishes.
- Use felt protectors or furniture coasters under heavy furniture.
- Close curtains or blinds to limit direct sun exposure.
- Maintain room temperature (60-80°F).
- Maintain relative humidity in room/building between 40-60% year-round.
- Caster wheeled chairs should have wide casters.
- A protective mat should be placed under office chairs.
- In areas with icy or snowy winters, extra protection against **salt** and **grit** may be needed.
- Place mats and throw rugs at doorways, exteriors and interiors to help prevent the tracking of grit, dirt, and sand.
- Remember that cleats, sports shoes and high heels can dent any floor surface.
- Place an area rug in front of the kitchen sink to catch water.

### DON'Ts:

- Use oil base soaps.
- Use paste wax based products (NEVER wax a lacquered finished floor).
- Drag sharp wooden legs or metal furniture legs as it can scratch/dent hardwood floors.
- Expose to direct sunlight for extended periods of time as it may dry/fade natural wood.
- Use steam cleaners. They are not recommended for use on natural wood flooring.
- Place porous flower pots or vases on the floor.
- Use steel wool or scourers.
- Move heavy furniture without protecting wood flooring by slipping a piece of cloth or pile under the legs or bottom of items.
- Wet-mop a wood floor. Standing water can dull the finish, damage the wood, and leave a discoloring residue.

COLOR CHANGE: Normal exposure to sunlight, heat, air conditioners, etc. will bring about natural changes in the original color as the floor ages. If possible, use blinds or drapes to protect floor from excessive sunlight. When some areas of the floor are covered, as in large furniture pieces and area rugs, the change under these pieces can be lighter than the surrounding floor, as they are not exposed to the same conditions. This is normal and is not a defect. Rotating the position of area rugs and furniture from time to time will allow

the covered areas to slowly adjust in color to the surrounding floor.

SURFACE CHECKS: During the winter months of low humidity, minor surface cracks (checks) may appear in wood flooring, then often close up again in the summer months when the humidity is higher. This is a normal characteristic of natural wood and not a basis of a complaint against the manufacturer, especially if there is no structural failure. To minimize checking, follow the guidelines for maintaining the environment in the home on *page 1*.

SEASONAL GAPS: Seasonal gapping can be expected, especially on wider planks. This is normal and not a defect. Throughout its life wood will naturally expand and contract in response to the wet and dry seasons and also from the environmental conditions in the home. To keep these dimensional changes to a minimum, maintain the home temperature and relative humidity within the range outlined in *Section B, Pre-installation/Job Site Requirements on page 1*.

DISCLAIMER: We are not related or affiliated with Bona USA, Inc. and does not gain monetary benefit by referring Bona products. Recommendations are voluntary and solely based on our own experience. Bona and BonaKemi USA Inc. are registered trademarks of their respective owners.