

Solid Hardwood – Nail Down Installation

INSTALLER/OWNER RESPONSIBILITY

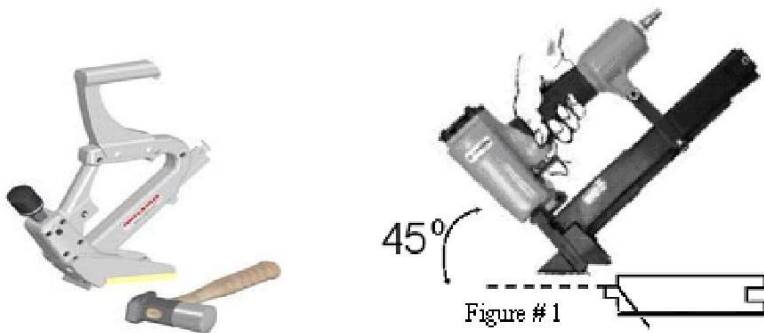
Solid hardwood floors are a product of nature and therefore, not perfect. wood floors are manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. All hardwood flooring may contain manufactured and or natural defects.

- The installer assumes all responsibility for final inspection of product quality. This inspection of all flooring should be done before installation. Carefully examine flooring for color, finish and quality before installing it. If material is not acceptable, do not install it and contact the seller immediately.
- Prior to installation of any hardwood flooring, the installer must determine that the job-site environment and the sub-surfaces involved meet or exceed all applicable standards and recommendations of the construction and materials industries. These instructions recommend that the construction and subfloor be dry, stiff and flat. The manufacturer declines any responsibility for job failure resulting from or associated with sub-surface or job-site environment deficiencies.
- Prior to installation, the installer/owner has final inspection responsibility as to grade, manufacture and factory finish. The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.
- When flooring is ordered, 5% must be added to the actual square footage needed for cutting and grading deviation allowance.
- Should an individual piece be doubtful as to grade, manufacture or factory finish, the installer should not use the piece.

TOOLS & ACCESSORIES CHECK LIST

- Broom
- Hand saw
- Table Saw, Jig Saw & Circular Saw
- Flooring Nailer
- Tape Measure
- Hammer
- Chalk Line
- Moisture Meter

NOTE: When using a mechanical nailer, follow the nailer manufacturer's instructions regarding the use of proper adapters and fasteners. Improper fasteners, machines and air pressure can cause severe damage. We will be not responsible for damage caused by tools or misuse. Several makes and models of mechanical nailers are available. **Important:** Because flooring profiles vary slightly by manufacturer, modifications to your machines available shims or spacers may be required. Simple modifications can be made to most adapters with duct tape or shim material in order to assure that the proper fastener depth and angle are achieved without applying too much pressure on the tongue. Practice on a piece of scrap flooring and make necessary adjustments prior to installation. See figures 1 - 2 for illustration of proper fastener placement, depth and angle.



Nailing Guidelines

Improper pressure settings and failure to use proper adapters can cause severe damage to the flooring. The correct fastening machine and air pressure setting will properly set the nail in the nail pocket (figure #2).



Figure # 2

NAILING GUIDE

Inadequate nailing may lead to cracks and noisy floors by allowing movement of the flooring.

SIZE FLOORING	SIZE NAIL TO BE USED	SPACING
3/4" Thick Solid T&G STRIP	2" barbed flooring cleat (16-18 gage), 7d or 8d flooring nail, or 2" 15 gauge staples with 1/2" crowns	8"- 10" apart
3/4" Thick Solid T&G PLANK	2" barbed flooring cleat (16-18 gage), 7d or 8d flooring nail, or 2" 15 gauge staples with 1/2" crowns	8" apart

Blind nail along the length of strip/plank and near the ends (1"-3").
Minimum of 2 nails per strip/plank.

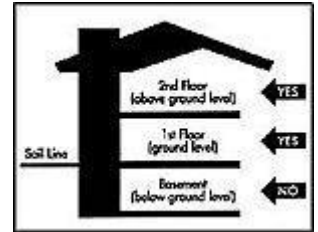
SIZE FLOORING	SIZE NAIL TO BE USED	SPACING
3/8" Thick Solid T&G STRIP	1 1/4" barbed flooring cleat (18-20 gage), 4d bright wire casing nail	8" apart
3/8" Thick Engineered T&G PLANK	1 1/4" barbed flooring cleat (18-20 gage), 4d bright wire casing nail	8" - 10" apart
1/2" Thick Engineered T&G PLANK	1 1/2" barbed (18-20 gage) flooring cleat, 5d screw, cut steel, or wire casing nail	8" - 10" apart
9/16" Thick Engineered T&G PLANK	1 1/2" barbed flooring cleat (18-20 gage), 5d bright wire casing nail	8" - 10" apart
5/8" Thick Solid T&G STRIP/PLANK	1 1/2" barbed flooring cleat (16-20 gage), 5d bright wire casing nail	8" - 10" apart

Never mix types of fasteners when blind nailing the field, except near walls where hand nailing is required. Consult nailing machine manufacturer's fastener recommendation and use the thinnest gage recommended when installing solid T&G flooring made from denser, harder species such as Brazilian Cherry, Maple and Oak.

PRE-INSTALLATION

Job Site Inspection

- The building should be closed in with all outside doors and windows in place. All concrete, masonry, framing members, drywall, paint and other "wet" work should be thoroughly dry.
- The wall coverings should be in place and the painting completed except for the final coat on the base molding. When possible, delay installation of base molding until flooring installation is complete.
- Exterior grading should be complete with surface drainage directing water away from the building. All gutters and downspouts should be in place.
- Our solid hardwood may be installed on, above grade. Do not install in full bathrooms.



- Subfloor must be checked for moisture content using the appropriate testing method.
- Permanent air conditioning and heating systems should be in place and operational. The installation site should have a consistent room temperature of 60-75-degree F and humidity of 45-60% for 14 days prior, during and until occupied, to allow for proper acclimation.

STORAGE AND HANDLING

Our hardwood flooring should be stored in the environment in which it is expected to perform. Deliver the materials to an environmentally controlled site. Materials should be allowed to acclimate for as long as necessary to meet minimum installation requirements for moisture content (minimum 48 hours). Handle and unload with care. Store in a dry place being sure to provide at least a four-inch air space under cartons to be stored upon "on-grade" concrete floors. Flooring should not be delivered until the building has been closed in with windows and doors in place and until cement work, plastering and all other "wet" work is completed and dry. Concrete should be at least 60 days old. Air conditioning/heating systems should be in place and in operation at least 14 days prior, during and after installation of the flooring.

SUBFLOOR REQUIREMENTS

SUBFLOORS MUST BE:

- CLEAN - Scrape, broom clean, and smooth. Free of wax, paint, oil or debris.
- LEVEL/FLAT - Within 3/16" in 10' and/or 1/8" in 6'. Sand high areas or joints. Low spots can be flattened using shims or layers of builders felt between the wood and the subfloor during installation.
- STRUCTURALLY SOUND - Nail or screw any loose areas that squeak. Replace any water-damaged, swollen or delaminated subflooring or underlayment, as they are unable to properly hold fasteners. Avoid subfloor with excessive vertical movement unless they have been properly stiffened prior to the installation of the wood flooring.
- DRY - Check moisture content of subfloor. Moisture content of wood subfloor must not exceed 12% on a wood moisture meter, or read more than a 4% difference (3% for plank) than moisture level of product being installed.

RECOMMENDED SUBFLOOR SURFACES

NAIL DOWN:

- PREFERRED:
3/4" (19 mm) CDX grade plywood
3/4" (23/32") OSB PS2 rated underlayment
MINIMUM: 5/8" CDX grade plywood
- Existing solid wood flooring
- Vinyl, resilient tile, cork flooring

- 3/4" chip, waferboard, particleboard

SUBFLOOR TYPES:

Note: Do Not Install Les Distributuions BMB S.E.C. Solid Hardwood Over Radiant Heated Subfloors

- A 3% Phenolphthalein in Anhydrous alcohol solution. Chip the concrete at least 1/4" deep (do not apply directly to the concrete surface) and apply several drops of the solution to the chipped area. If any color change occurs, further testing is required.
- Calcium Chloride test. The maximum moisture transfer must not exceed 3 lbs./1000 square feet with this test.
- Concrete Moisture Meter (figure #4). Moisture readings should not exceed 4.5 on the upper scale.



Figure # 4

WOOD/CONCRETE SUBFLOOR SYSTEMS

Bonded: Install suitable moisture retardant followed by a plywood subfloor with a minimum thickness of 3/4". Allow 1/2" expansion space around all vertical objects and 1/8" between all flooring panels. The panel must be properly attached to the subfloor using a minimum of one fastener per square foot and more if necessary. Use pneumatic or powder actuated fasteners. Do not hand nail the subfloor with concrete nails. Install a moisture retardant barrier with joints lapped 6" and begin installation of flooring using 11/2" fasteners.

WOOD SUBFLOORS & WOOD STRUCTURAL PANEL SUBFLOORS

Plywood: Must be APA CDX grade or better.

Oriented Strand Board (OSB): Must be PS2 rated installed sealed side down.

Particleboard: Must be a minimum 40-LB density, stamped underlayment grade and 3/4" thick. Do not install over pressed wood or fiberboard.

Nail Down

Make sure existing floor or subfloor is dry and well nailed or screwed down every 6" along each joist to avoid squeaking or popping before the floor is installed. Measure moisture content of both subfloor and wood flooring to determine proper moisture content with a reliable wood moisture meter (figure #5). The wood subfloor must not exceed 12% moisture content as measured with a reliable wood moisture meter. The difference between the moisture content of the wood subfloor and the wood flooring must not exceed 4%.



Figure # 5

Optimum performance of hardwood floor covering products occurs when there is no horizontal or vertical movement of the subfloor. The MINIMUM subfloor recommendations described above are for 16" O/C joist spacing. The thicker, PREFERRED subfloor recommendations described above will allow 19.2" joist spacing if the joist manufacturer's recommended span is not exceeded. Spacing in excess of 19.2" O/C may not offer optimum results. Install flooring perpendicular to the floor joists when possible. Installations should not be made parallel to the floor joists or on joist spacing that exceeds 19.2" O/C unless the subfloor has been properly stiffened. Stiffening may require the addition of a second layer of subflooring material to bring the overall thickness to at least 1-1/8".

All underlayment panels should be spaced 1/8" apart to insure adequate expansion space. This can be achieved by using a circular saw set at the depth of the underlayment and cutting around the perimeter of the panel. T&G panels normally have built in expansion; DO NOT cut around the perimeter of T&G panels. Do not install over existing glue-down wood floors. Do not install over nailed floors that exceed 3-1/4" in width. Wide width floors must be overlaid with plywood. When installing over existing wood floors parallel with the flooring, it may be necessary to install an additional 1/4" layer of plywood to stabilize the flooring or install the wood floor at right angles. Applicable standards and recommendations of the construction and materials industries must be met or exceeded.

RESILIENT TILE, RESILIENT SHEET VINYL & CORK FLOORING

Nail-Down

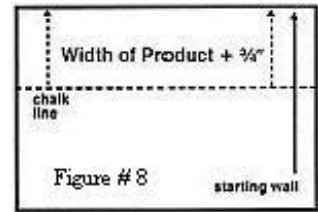
Make sure the vinyl or tile is full spread adhesive and well bonded to the subfloor. Do not install over more than one layer, which does not exceed 1/8" in thickness over suitable subfloor. If vinyl or tiles are loose, crumbled, or in poor condition,

install an underlayment directly over the sheet vinyl (linoleum) or vinyl tiles. CAUTION: Some older type tiles become brittle with age. Ascertain that the nail will penetrate these materials and that breakage does not occur. Remove if necessary.

- Installation parallel to the longest wall is recommended for best visual effects, however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging. Find appropriate subfloor from "Subfloor Type" section in this instruction manual.
- Large spans in areas of high humidity may require the addition of internal or field expansion. This can be accomplished by using spacers, such as small washers, every 10-20 rows inserted above the tongue and removed after several adjoining rows have been nailed or glued. Installation parallel to the longest wall is recommended for best visual effects, however, the floor should be installed perpendicular to the flooring joists unless subfloor has been reinforced to reduce subfloor sagging. Find appropriate subfloor from "Subfloor Type" section in this instruction manual.

STEP 1: ESTABLISH A STARTING POINT: ALL INSTALLATIONS

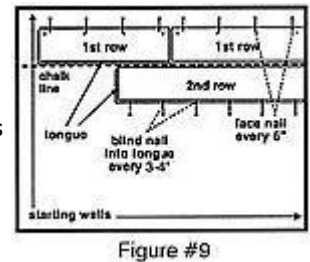
- In at least two places, measure out equal distance from the starting wall and 12" -18" from the corners and 3 1/8" from the wall. Mark these points and snap a chalk line (figure #8).



STEP 2: INSTALLING FIRST ROWS: NAIL-DOWN INSTALLATION

- Use longest, straightest boards available for the first two rows.
- Align tongue of first row on chalk line with groove facing the starting wall.

Face-nail the groove side no closer than 3" from the edge and 8" intervals from each end at a 45-degree angle down through the nailing "pocket" of the tongue OR pre-drill the nail holes following the same spacing guidelines. Pre-drill at the 45-degree angle down through the nailing "pocket" on top of the tongue. Face-nail the groove side where pre-drilled. When complete, blind-nail at a 45-degree angle through the tongue of the first row. Fasten with appropriate length nails (see NOFMA nailing chart). Countersink nails to ensure flush engagement of groove. Avoid bruising the wood by using a nail set to countersink the nails. Continue blind nailing using this method with following rows until a nailer can be used.



STEP 3: INSTALLING THE FLOOR: NAIL-DOWN INSTALLATION

- Fasten a sacrificial board to the floor. Check for surface damage, pressure setting, tongue damage, etc. before proceeding. Make all adjustments and corrections before installation begins. Once proper adjustments have been made, remove and destroy the board.
- Begin installation with several rows at a time, fastening each board with at least two fasteners, no more than 8" apart and no closer than 3" from the ends (to avoid splitting). Tighten boards as necessary to reduce gaps before fastening.
- End-joints of adjacent rows should be staggered to ensure a more favorable overall appearance. Install the floor from several cartons at the same time to get a more favorable overall appearance.
- The last 1-2 rows will need to be face-nailed where clearance does not permit blind nailing with nailer. Nail or pre-drill and face-nail on the tongue side following the nailing pattern used for the first row.
- Rip final row to fit and face-nail. If the final row is less than 1" in width, it should first be edge-glued to the previous UNINSTALLED row and the two joined units should be face-nailed as one.

INSTALLERS - ADVISE YOUR CUSTOMER OF THE FOLLOWING

SEASONS: HEATING AND NON-HEATING

Recognizing that wood floor dimensions will be slightly affected by varying levels of humidity within your building, care

should be taken to control humidity levels within the 45-60% range. To protect your investment and to assure that your floors provide lasting satisfaction, we have provided our recommendations below.

- Heating Season (Dry) - A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat tend to create very dry conditions.
- Non-Heating Season (Humid, Wet) - Proper humidity levels can be maintained by use of an air conditioner, dehumidifier, or by turning on your heating system periodically during the summer months. Avoid excessive exposure to water from tracking during periods of inclement weather. Do not obstruct in any way the expansion joint around the perimeter of your floor.

FLOOR REPAIR

Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement.

STEP 4: COMPLETING THE JOB

- Complete cleanup with a thorough cleaning using floor cleaners.
- Re-install any transition pieces that may be needed, such as Reducer Strips, T-moldings, or Thresholds. These products are available pre-finished to blend with your flooring.
- Re-install all base and/or quarter round moldings. Nail moldings into the wall, not the floor.
- Do not cover the floor while the floor is still moveable. Do not cover with a non-breathable material such as plastic.
- To prevent surface damage avoid rolling heavy appliances and furniture on the floor. Use plywood, hardboard or appliance lifts if necessary

Care and Maintenance of Hardwood Flooring

To help keep your Hardwood Flooring looking its best for years to come, follow these few tips. Never clean your floor with water- Do not use any cleaner that must be mixed with water – Never use ammonia based products to clean your floor. Place area mats at all entrance ways to reduce moisture and dirt being tracked onto the floors surface. Exposure to sunlight will bring about minor changes in the color variations of your flooring; it is advisable to move your area rugs and other large furniture occasionally to minimize discoloration. Vacuum and sweep your floor regularly using a soft bristled attachment, hard attachments may cause scratching in finished flooring. Wipe up and all spills immediately. Use soft felt pad protectors under all furniture. Some hard surface castors and some plastic / glass protectors may damage your floor. When moving larger furniture items or appliances, place a large heavy blanket or towel underneath to prevent scratches and dents. The use of a woodstove, fireplace and electric heat can create a very dry environment in your home. Maintain an average relative humidity level

30 YEAR Residential / 10 Year Commercial Warranty

The Manufacturer warrants to the original purchaser that, under normal residential conditions, the wear layer or overlay of the pre-finished flooring product in the original manufactured/ purchased condition will not wear through, flake or peel the wood for a period of thirty (30) years for residential applications and for a period of ten (10) years for light commercial applications such as retail stores and offices from the date of purchase by the original purchaser. Warranty applies only to the original purchaser on products installed and used in accordance with the installation instructions. Installer or purchaser must inspect each board for any manufacturing defects; any board or piece installed in the flooring shall be considered as accepted. Regular maintenance as specified below must be followed in order to validate this warranty. This warranty does not cover labor costs or any other incidental expenses incurred as a result of a covered defect. The responsibility of "The Manufacturer" is limited, at their discretion, to replacing defective products or refunding the portion of the floor in question as covered under the warranty. Any attempt to repair, refinish or replace the defective product prior to inspection or by written authorization from the Manufacturer will invalidate the warranty. This warranty is not transferable. When making a claim original proof of purchase or a receipt is required. "The Manufacturer" reserves the right to substitute an alternative product of equal value in case the flooring type selected is no longer available.

Warranty Exclusions

"The Manufacturer" warranties do not extend or cover scratches, dents or any noticeable markings or damage caused by improper handling, installation, water damage, flooding, fire, natural disasters or acts of God, furniture, shoes of all types, pets and insects, et cetera. "the Manufacturer" will not warrant any product that is faulty from incorrect installation, neglect, environmental extremes, or improper storage and handling of product. The Sub-floor is the responsibility of the installer. Failure of a Les Distributions BMB S.E.C. Hradwood floor product relating to the sub-floor, in any manner, is not the responsibility of the "Manufacturer" and is not covered under the warranty. A defect in the finish wear surface must be easily noticeable and cover an area of 2" square where there is wear through as seen from a standing position. Any variation or reduction in gloss level will not be considered under this warranty. Flooring is made from natural raw materials

and as such has cells running parallel with the grain; therefore, all wood floors will expand and contract with the change of the seasons. The expanding and contracting is not covered under this warranty.

It is recommended that the customer maintain a relative humidity level of 40-60% in the home by using a humidifier and/or a dehumidifier to minimize movement of the flooring. Color variations are natural occurrence in wood flooring due to age, species and exposure to ultraviolet sunlight. For this reason, the customer may encounter mild color variations from board to board, or when replacing damaged boards with new product. Also, normal sunlight can cause fading / or darkening of the flooring depending on the species selected, ask your retailer for more information in this regard. Area rugs should be moved occasionally as they block sunlight and may give the appearance the floor is discoloring under or around the rug: this discoloration is not covered by the warranty.

Warranty Inclusions:

Warranty shall include and be limited to, only defects arising from the defective manufacturing, premature surface wear or defects in the wood fiber. Should a valid claim arise all reimbursements, repairs, replacement or compensation is the sole discretion of "The Manufacturer". Claims will only be administered if the above criteria have been met.

Authorization of a claim without "The Manufacturer's" approval is at the sole discretion of the author. The Manufacturer will not compensate the author without prior written approval.