

INSTALLATION INSTRUCTIONS

Important / Read First

Please read and review installation instructions completely before proceeding with the actual installation.

Owner / Installer responsibility

- The installer assumes all responsibility for final inspection of product quality.
- This inspection of all flooring should be done **before** installation.
- Carefully examine the flooring for color, finish and quality before installation.
- Use reasonable selectivity and hold out or cut off pieces with glaring defects, whatever the cause.
- If material is not acceptable contact your flooring dealer prior to installation.
- Before the installation of any flooring product, the installer must determine that the environment of the job site and the condition and type of subfloor involved is acceptable; ensuring that it meets or exceeds all the requirements stipulated in the installation instructions that follow.
- The manufacturer declines responsibility for job failure resulting from inappropriate or improperly prepared subfloors, job site environmental deficiencies or improper care & maintenance.
- The use of stain, filler or putty for the correction of defects during installation should be accepted as normal procedure.
- When your flooring is ordered, a 5-10% waste factor, depending on layout, must be added to the actual square footage amount needed. (Diagonal installations may require more.)

Job Site Inspection

- In new construction, flooring is to be the last product installed.
- All work involving water or moisture (plumbing, acoustical ceilings, drywall taping, etc.) must be completed prior to flooring being installed.
- The flooring can not be delivered until the building has been closed in and cement work, plastering, painting and other materials are completely dry. Concrete and plaster should be cured at least 60 to 90 days.
- Check basements and under floor crawl spaces to be sure they are dry and well ventilated to avoid damage caused by moisture.
- Flooring must acclimate a minimum of 48 hours. Cartons should be placed in the installation area. **DO NOT** open until ready to install.
- The installation site should have consistent room temperature of 60° - 75° F and a constant relative humidity level of 35 – 55% for a minimum of 5 days prior to installation of any flooring product.

Note: The relative humidity of any room can be checked with a hygrometer.

Note on bowing: The boards may be slightly concave or convex when removed from the carton. Once they are properly installed they will lay flat.

Note on Tape: If for some reason you need to put tape down on your floor during install or painting, consider the following. Use a tape that is made especially for delicate finishes and/or hardwood floors. If the wrong tape is used, the finish on your flooring could be damaged or removed.

FLOAT-IN INSTALLATION GUIDE UNDERLAYMENT LAYER

Once the subfloor is dry, clean and flat, install the foam/rubber underlayment as specified by the underlayment manufacturer. Tape all seams completely as specified by underlayment manufacturer.

POSITION THE FIRST ROW

Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the ½” expansion shims to your right and the long grooved length of the board is against the ½” expansion shims in front of you.

Apply tongue & groove glue to the end of the second board. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned against the shims. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.

Continue placing additional boards moving right to left using the same procedure until the first row is complete. You will need to cut off the end of the final board, save the remaining piece for the next row as long as it is at least 12” long. Use the last board Puller to ensure the last board is tight against the preceding board. Place shims between the

end of the last board and the wall. Use the shims to wedge the row in tight rendering it immobile.

SECOND AND SUBSEQUENT ROWS

Start each new row on the right side with the remaining portion of the previous row as long as it is at least 12" long, otherwise cut a new starter board

The end joint must be at least 16" from the end joint in the row before it. When maintaining the 16" offset of all end joints, the pattern should not repeat itself until the 4th or 5th row. Maintaining this offset is very important where rows are short, such as across the width of a narrow hallway.

Glue the short end and long side grooves and position the next board, match the tongue and groove at the end only, then, beginning at the opposite end of the board, tap the board onto the previous row with the tapping block. Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you will not be able to do so once the long seam is tight.

Continue with additional boards, cut the last board to fit and use the last board puller and tap block to install it as shown previously. Continue with the next row, as long as the piece remaining from the previous row is at least 12" and maintains the end joint offset from the previous row of at least 16".

THE LAST ROW

The entire length of the last row in most cases will need to be cut to fit into the remaining space while allowing the 1/2" expansion space.

The last board puller will be used to install the last row.

INSTALLATION THROUGH DOORWAYS AND BETWEEN ROOMS

Flooring may run continuously between rooms as long as the doorway/passageway is no less than 42" in width. If the doorway/passageway is less than 42" in width, a t-molding must be placed in the doorway/passageway to separate the two floors.

PIPES, FLOOR VENTS AND OTHER OBJECTS

Each case is unique, the general rule is to carefully measure before you cut and remember to leave the 1/2" expansion space. Expansion space will be covered with pipe rings or molding when the installation is completed.

MOLDING AND FLOOR VENTS

Complete the installation by allowing the tongue & groove adhesive to dry as specified on the bottle, remove the expansion shims and install floor vents, transition molding and wall molding as needed. See your dealer/distributor for available products.

MAINTENANCE

Follow the floor care guide and warranty information for proper care, protection and maintenance of your floor.

STAPLE-DOWN INSTALLATION GUIDE

UNDERLAYMENT LAYER

Once the subfloor is dry, clean and flat, install the kraft paper, overlapping 4-6" or as instructed on the kraft paper.

POSITION THE FIRST ROW

Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the 1/2" expansion shims to your right and the long grooved length of the board is against the 1/2" expansion

shims in front of you.

Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit, making sure the boards are tightly connected and firmly positioned against the shims. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.

Continue placing additional boards moving right to left using the same procedure until the first row is complete.

You will need to cut off the end of the final board, save the remaining piece for the next row as long as it is at least 12" long. Use the last board Puller to ensure the last board is tight against the preceding board.

Place shims between the end of the last board and the wall. Use the shims to wedge the row in tight rendering it immobile.

Carefully top nail the first row of boards to the subfloor ONLY using 6d finish nails where the boards meet the wall (This will be on three sides of the first and last rows of the installation and on the two ends for all other rows). Place the nails as close to the edge of the boards as possible so they will be covered by the transition and/or wall molding. If this can not be done, set the nails with a nail punch and fill holes with wood filler. Finish nails should be placed at 8" intervals along the wall.

Now side nail with the flooring stapler through the tongues of the first row at 8" intervals and 2-3" from the end of each board.

SECOND AND SUBSEQUENT ROWS

Start each new row on the right side with the remaining portion of the previous row as long as it is at least 12" long, otherwise cut a new starter board.

The end joint must be at least 16" from the end joint in the row before it. When maintaining the 16" offset of all end joints, the pattern should not repeat itself until the 4th or 5th row.

Glue the short end groove of the next board and place in position, match the tongue and groove at the end only, then, beginning at the opposite end of the board, tap the board onto the previous row with the tapping block. Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you will not be able to do so once the long seam is tight.

Continue with additional boards, cut the last board to fit and use the last board puller and tap block to install it as shown previously. Continue with the next row, as long as the piece remaining from the previous row is at least 12" and maintains the end joint offset from the previous row of at least 16".

Now side nail with the flooring stapler through the tongues of the boards at 8" intervals and 2-3" from the end of each board.

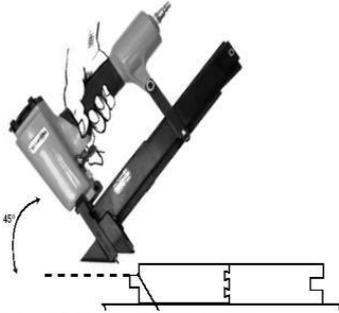
THE LAST ROW

The entire length of the last row in most cases will need to be cut to fit into the remaining space while allowing the 1/2" expansion space.

The last board puller will be used to install the last row.

Top nail the last row with finish nails against the wall as was done with the first row.

NAILDOWN OVERVIEW



MOISTURE TESTING subfloor and new floor

[CAUTION] Most wood flooring failures result from jobsite moisture. Do not unpack or deliver flooring to the jobsite until moisture problems are corrected. The **goal** of moisture testing is two-fold. (1) To determine when the installation can begin and (2) to verify that proper moisture balance between the new floor boards and that of the existing subfloor has been achieved. After thoroughly testing both the subfloor and the flooring, be sure that the moisture content of both doesn't differ by more than 4%. Verify by using a moisture meter (pic1) that will have settings for engineered wood floors. Pin or probe meters that have adjustable species settings are most accurate. Contact the meter manufacturer directly for appropriate settings.

(pic1)

Testing the subfloor. Set the meter to the type of subfloor. Obtain an average by meter testing (once per every 100sqft of subfloor). Test around exterior doorways, near foundation walls and in the center of the room. On average, the subfloor moisture range must not exceed **12%**.

Test the new flooring. Set the meter to using the appropriate setting for engineered flooring. Obtain an average reading by testing (10 boards out of every 100sqft) of new flooring. Our flooring can have acceptable moisture range between 6% minimum and 12% maximum. The new flooring should be within 4% of the subfloor reading. If high moisture readings are found exceeding 12% in either the new floor or subfloor identify the moisture source and correct, extend acclimation time and circulate the air increasing ventilation. Postpone the installation until the proper conditions have been met. It is recommended to document moisture test results with notes should future questions arise such as; a record of the customer's name, the order number and digital pictures showing the meter actually being used, including the time and date.

SUBFLOOR PREPARATION

Wood subfloors

- All wood subfloor components must not exceed 12% moisture content.
- Do not install flooring directly over floor joist without subflooring. Subfloors provide strength and a proper nailing base.
- All structural subfloor panels must be installed sealed-side down, and provide minimum $\frac{3}{4}$ " perimeter spacing. Square-edged or non-tongue and grooved panels used as a subfloor will require a minimum $\frac{1}{8}$ " (3 mm) expansion space placed between all plywood seams. Panels must meet minimum CDX grade Exposure 1 and US Voluntary Product Standard PS1-95, PS2-04 or Canadian performance standard CAN/CSA 0325-0-92 for construction sheathing. Check panel for codes.
- Solid planks used for subflooring should be $\frac{3}{4}$ " x 5 1/2" (1" x 6" nominal), Group 1 dense softwoods, No. 2 Common, kiln-dried to less than 12% percent moisture content.
- See acceptable subfloor types on the last page of these instructions.
- Particleboard, Luan or Masonite: is not recommended, remove or cover with $\frac{3}{8}$ " plywood.
- Minimum of $\frac{3}{8}$ " CDX panel thickness is recommended when used as an underlayment over an existing subfloor.
- Avoid pressure treated plywood for interior use. These can have elevated moisture or latent with rot resistant chemicals.

Note that joist spacing determines minimum subfloor thickness.

- Joist spacing **16" on center (OC)**

Plywood: Minimum of (5/8") **Oriented Strand Board (OSB):** Minimum (3/4", 23/32") **Advantech** Minimum (3/4", 23/32")

- Joist spacing **16" up to 19.2" (OC)**

Plywood: Minimum of (3/4", 23/32") **Oriented Strand Board (OSB):** Minimum of (3/4", 23/32")

- Joist spacing over **19.2" up to maximum 24" (OC)**

Plywood: Minimum of (7/8") **Oriented Strand Board (OSB):** Minimum of (1")

Wood floor orientation

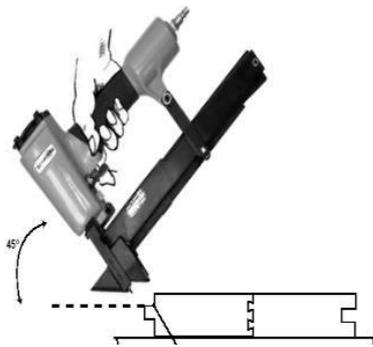
- Nail wood flooring perpendicular to the floor joist
- Nailing wood flooring parallel to the floor joist is an option using a combination of plywood, OSB, Advantech or similar approved subfloors.
- Floor joist (16" to 19.2 oc) The total subfloor thickness minimum must be 1-1/4"
- Floor joist greater than (19.2 up to 24"oc) The total subfloor thickness minimum must be 1-7/16"
- When nailing over existing solid wood tongue and groove flooring, install over an additional 3/8" plywood or run the new flooring perpendicular or at a 45 degree angle to the direction of the existing flooring.

Flatness



All subfloors should be flat to within 3/16" in 10 feet or 1/8" in 6 feet radius. Wood subfloors must be securely nailed or screwed to joists to minimize movement or squeaks. Install over 16" minimum center-to-center joist sub-structure. Thoroughly inspect and replace existing floor or subfloor that shows evidence of water damage or structural weakness. Repair any sagging or loose sections of a wood subflooring. Squeaky or loose boards should be re-secured. An uneven or cupped subfloor can be an indication of excess moisture or rot, identify and correct. High spots/joist may be sanded down. Low spots should be cut out and repaired or may be filled with old pieces of firm vinyl or build up with 30 lb. black roofing paper. Do not fill-in low areas under naildown flooring with cement patching materials as these may break down over time.

New construction; It is the builder's or general contractor's responsibility to provide the wood flooring contractor with a subfloor that is within the tolerances listed above. Postpone the installation until corrections have been completed.



[NAILING TIPS]:

- Test nailing a couple of planks in a well lit area, near a window.
- Place fasteners on tongue side that runs the length of the planks. Do not place fasteners into the groove.
- If the staples do not go in far enough raise the air pressure on the compressor up slightly and re-test until staples sit flush into the wood above the tongue.
- If the staples go in too deep lower air pressure until staples sit flush above the tongue. Some floor staplers have the ability to adjust the depth of the fastener. This may need to be adjusted for the staples to seat correctly.
- Tongue fractures can be reduced by lowering the compressor's PSI and using the recommended floor stapler.
- Dimples can be reduced by seating the floor staplers correctly on the board or using thinner gauge fasteners like 20 gauge staples. Make sure the staples are sitting flush in the wood or dimples can occur. Adjusting the depth of the stapler to seat fasteners a bit deeper can help minimize dimples.
- Only use pneumatic nail guns designed for engineered wood flooring. Stanley Bostich, Powernail, and similar engineered flooring staplers are acceptable.
- Check for squeaks after nailing. Squeaks can occur due to tongue fracture, uneven subfloor, improper fasteners, or improper fastener spacing. Squeaks can be corrected or minimized by adding a PVA floating floor wood glue to the tongue and groove of the plank before nailing.
- If stapler will not shoot staples, check for air leaks, jammed staples, staple size, and compressor air pressure.
- Its best to pre-drill and hand nail the first row using a 3/32" drill bit and 6d finish nail. This will help prevent finish chipping due to pneumatic finish or brad nailers.
- If dimpling still occurs switch to a floating or glue down installation. We do not recommend the use of water base adhesives.

ENGINEERED WOOD FASTENER SELECTION 1/2" – 9/16"	18 , 19, or 20 gauge engineered flooring staples	1-1/4" or 1 -1/2" long
3/8"	18 , 19, or 20 gauge engineered flooring staples	1" or 1-1/4" long

5/16"

18 , 19, or 20 gauge
engineered flooring staples

1" or 1-1/4" long

INSTALLATION THROUGH DOORWAYS AND BETWEEN ROOMS

Flooring may run continuously between rooms, or, a t-molding may be placed in the doorway/passageway to separate the two floors.

PIPES, FLOOR VENTS AND OTHER OBJECTS

Each case is unique, the general rule is to carefully measure before you cut and remember to leave the 1/2" expansion space. Expansion space will be covered with pipe rings or molding when the installation is completed.

MOLDING AND FLOOR VENTS

Complete the installation by allowing the tongue & groove adhesive to dry as specified on the bottle, remove the expansion shims and install floor vents, transition molding and wall molding as needed. See your dealer/distributor for available products.

MAINTENANCE

Follow the floor care guide and warranty information for proper care, protection and maintenance of your floor.

GLUE-DOWN INSTALLATION GUIDE

Once the subfloor is dry, clean and flat you may proceed with the installation.

POSITION THE FIRST ROW

Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the 1/2" expansion shims to your right and the long grooved length of the board is against the 1/2" expansion shims in front of you. Always dry fit the first row before you begin gluing the boards down.

Once the first row has been cut and fit, remove the flooring and set it aside. Snap a chalk line 1/2" out from the starting wall, starting from the edge of the chalk line, apply an even layer of adhesive as instructed by the adhesive manufacturer. Only spread adhesive the width and length of the one row that was dry fit.

A NOTE ON ADHESIVE:

Follow the adhesive manufacturer's instructions for use in this application. Wear rubber gloves and proceed carefully during adhesive application. Cured mastic is very hard to remove from the flooring as well as the tools. **DO NOT** allow any spilled or excess adhesive to remain anywhere but between the boards and the subfloor at any time during the installation. Clean up spills immediately as recommended by the adhesive manufacturer. The flooring manufacturer will not be responsible in any way for adhesive that is not removed from the flooring immediately. Any damage to the flooring caused by the adhesive allowing to cure on the surface will be the sole responsibility of the installation mechanic.

Re-install the pre-cut boards from the dry fit as follows. Apply tongue & groove glue to the end of the second board. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned against the shims. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.

Continue placing additional boards moving right to left using the same procedure until the first row is complete.

You will need to cut off the end of the final board, save the remaining piece for the next row as long as it is at least 12" long. Use the last board Puller to ensure the last board is tight against the preceding board.

Place shims between the end of the last board and the wall. Use the shims to wedge the row in tight rendering it immobile. For best results, allow the adhesive on the subfloor and the tongue & groove glue to dry before continuing with the rest of the installation.

SECOND AND SUBSEQUENT ROWS

Start each new row on the right side with the remaining portion of the previous row as long as it is at least 12" long, otherwise cut a new starter board

The end joint must be at least 16" from the end joint in the row before it. When maintaining the 16" offset of all end joints, the pattern should not repeat itself until the 4th or 5th row.

Trowel adhesive onto the subfloor as recommended by the adhesive manufacturer, Glue the short end groove of the next board and place in position, match the tongue and groove at the end only, then, beginning at the opposite end of the board, tap the board onto the previous row with the tapping block.

Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you will not be able to do so once the long seam is tight.

Continue with additional boards, cut the last board to fit and use the last board puller and tap block to install it as shown previously. Continue with the next row, as long as the piece remaining from the previous row is at least 12" and maintains the end joint offset from the previous row of at least 16".

THE LAST ROW

The entire length of the last row in most cases will need to be cut to fit into the remaining space while allowing the 1/2" expansion space.

The last board puller will be used to install the last row.

Top nail the last row with finish nails against the wall as was done with the first row.

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PIPES, FLOOR VENTS AND OTHER OBJECTS

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MOLDING AND FLOOR VENTS

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