

1/2", 5/8", & 9/16" Engineered T&G Plank and Pattern Plank

INSTALLATION INSTRUCTIONS, CARE & MAINTENANCE, & RESIDENTIAL/COMMERCIAL WARRANTY

IMPORTANT

Please read the following information and instructions in their entirety before proceeding with installation.

- To ensure the full benefit of warranties, these instructions and maintenance procedures must be followed.
- Hardwood flooring is a beautiful product with natural variations in color, tone and grain. We cannot warrant against color variations within a floor nor variations between samples and the installed floor.
- Subfloors must be dry, level and clean.
- Both room and flooring must be properly acclimated to temperature and humidity conditions.

- Installers: Inform your customers of the details in section: "Installers – Advise Your Customer of the Following."
- Do not open flooring packages until you are ready to begin installation.
- Work out of several cartons at the same time to ensure color and shade mix.
- This flooring may be laid (floating installation only) over radiant heating provided there is effective and uniform heat distribution over the entire floor. The floor's

surface temperature must never exceed 80°F. in any place.

- Do not use water based adhesives over sheet vapor barriers or sound insulation.
- Not recommended for bathroom or other high moisture installations.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.

INSTALLER/OWNER RESPONSIBILITY

Beautiful hardwood floors are a product of nature. This flooring is manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. The defects may be manufacturing or natural.

- When flooring is ordered, **5% must be added for plank installation and 10% for pattern installations to the actual square footage needed** for cutting and grading allowance.
- **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, manufacturing, factory finish and quality before installing it. The installer must use

reasonable selectivity and hold out or cut off pieces with defects, whatever the cause. If material is not acceptable, do not install it and contact the seller immediately.

- Prior to installation of any hardwood-flooring product, the installer must **determine that the job-site environment and the subfloors 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 environmental deficiencies.

ATTENTION INSTALLERS, CAUTION: WOOD DUST

Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.

Precautionary Measures: If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designated dust mask. Avoid dust contact with eye and skin.

First Aid Measures in case of Irritation: In case of irritation, flush eyes or skin with water for at least 15 minutes. Material Safety Data Sheets are available upon request.

TOOLS NEEDED FOR INSTALLATION

- Handsaw, circular saw or jigsaw
- Chalk line
- Hammer
- Tape measure
- Pull bar
- Tapping block
- Wooden or plastic spacer wedges
- Moisture meter (wood, concrete or both)

For glue-down installations, use Mapei, Sikbond,, DriTac 9200, Parabond® Millennium 2002, Bostik Best®, Taylor 2071 or equivalent flooring adhesive(See your distributor for adhesive recommendations.) Follow manufacturer's guidelines and tool recommendations when using adhesive. Do not use water based adhesives over sheet vapor barriers or sound insulation.

For nail-down or staple-down installations, use the proper nailer. Staples must be at least 1-3/4" long with a 1/2" crown See Nail-Down or Staple-Down Installation.

For floating installations use white wood glue (PVAC).

CAUTION: By not using proper tools, "puckering" may result on the face of the plank. The manufacturer is not responsible for problems caused by use of improper tools. See your distributor for tool recommendations and use.

Note: Never hit the planks directly with a hammer. Always use a wooden block to protect the edges of the boards.

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 35-60% and 60°-75° Fahrenheit temperature range. To protect your investment and to assure that your floors provide lasting satisfaction, we recommend the following:

- **Heating Season (Dry)** - A humidifier is recommended to prevent excessive shrinkage in wood floors due to

low humidity levels. Wood stoves and electric heat, in particular, 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.

RADIANT HEATING

See the "Installing Over Radiant Heat" and "Exclusions To Warranty: Radiant Heat" sections for specific details to inform your customers about radiant heating.

FLOOR REPAIR

Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement, which can be done by a professional floor installer.

PRE-INSTALLATION PROCEDURES

ACCLIMATING THE HARDWOOD FLOORING

HVAC systems should be fully operational at least 14 days prior to flooring installation, maintaining a consistent room temperature between 60° - 75° Fahrenheit and relative humidity between 35- 60%. This not only stabilizes the building's interior environment, but also is essential when acclimating hardwood flooring to the job site.

Hardwood flooring should be unloaded and handled with care and stored within the environmentally controlled

site. Flooring stored upon "on-grade" concrete floors should be elevated at least four inches to allow air circulation under cartons. Cartons should be spaced out, not stacked or stored on pallets. **Leave hardwood flooring in closed cartons during acclimation period.** Typical applications require at least a 48-hour acclimation period.

ROOM PREPARATION

Remove existing baseboards, quarter rounds, thresholds and undercut door jambs, using a piece of flooring material as a guide. Door frames and other wooden elements

should be sawed off at the bottom in order to be able to push the panels under them.

PRE-INSTALLATION INSPECTION

It is the responsibility of the installer to **inspect each board for visible defects before installation.** Any board with visible defects will be replaced at no cost. If the defective board has been installed, no cost of labor will be paid for repair or replacement of defect.

SUBFLOOR TYPE

The manufacturer can be installed over the following subfloors if properly prepared. For other types of subfloors please contact your distributor.

- **Concrete:** On, above or below grade installations are acceptable. Must be clean, dry and smooth within 3/16" over 10'.
- **Acoustic Cork:** Must be bonded to the surface. Density must be between 11.4 and 13 lbs/cubic foot. Cork must be a maximum of 1/4" thick, made from pure cork with polyurethane binders.
- **Terrazzo and Ceramic Tile:** Should be lightly sanded and cleaned with mineral spirits. Allow the mineral spirits to dry prior to spreading the adhesive. If grout lines are too deep they need to be filled and allowed to dry before installation.
- **Wood Type Subfloors:** Includes plywood, OSB and underlayment particle board and tongue and groove boards. Must be smooth and dry. Squeaks and popping areas should be screwed prior to spreading adhesive.
- **Vinyl:** Includes sheet and vinyl tile. Vinyl must be securely fastened to the subfloor with full spread adhesive. Loose laid or perimeter glued sheet vinyl must be removed. Lightly sand vinyl, clean with mineral spirits and allow to dry prior to spreading adhesive.

SUBFLOOR PREPARATION

Subfloor must be:

- clean and free of wax, paint, oil, and debris. Scrape smooth and sweep.
- subfloor should be flat to 3/16" over 10'. If subfloor prep work is required, "hills" should be sanded down and "valleys" filled with an underlayment patch, developed by a reputable manufacturer for use with hardwood flooring. Do not sand sub-surfaces such as vinyl or synthetic tiles that may contain asbestos. For depressions less than 1/4", it is possible to use dry sand as a leveler.
- structurally sound prior to installation. Screw loose areas to reduce squeaking and replace water damaged or delaminated sub-flooring or underlayments.

WOOD SUBFLOOR MOISTURE TESTING

Check moisture content of subfloor especially adjacent to exterior walls and plumbing fixtures. **Moisture content of subfloor must not exceed 12% or have more than a 4% difference than moisture level of product being installed.** If more than a 4% difference, do not install. First determine the source of moisture and remedy prior to installation.

CONCRETE SUBFLOOR MOISTURE TESTING

Several tests are outlined below. These tests do not guarantee a dry concrete slab year round. With that in mind, a moisture barrier using a minimum of 6 mil poly film should have been installed between the ground and concrete. See "Moisture Barrier System" below.

- **3% Phenolphthalein in Anhydrous Alcohol Solution** Do not apply solution directly to concrete surface. First, chip 1/4" deep into concrete test area and apply several drops of the solution. If any change in color is observed, further testing is required.
- **Calcium Chloride**
Moisture transfer should not exceed 3 lbs/1,000 square feet with this test. One test must be performed every 250 square feet.
- **Tramex Concrete Moisture Encounter Meter**
Moisture readings using a metering device should not exceed 4.5 on the upper scale.

MOISTURE BARRIER SYSTEM

If the above tests reveal unacceptable moisture levels, install sheet vinyl (PVC) directly to concrete slab. Follow instructions from sheet vinyl manufacturer, using a premium grade alkaline resistant adhesive and full spread application system to bond vinyl to subfloor. Do not use water based adhesives over sheet vapor barriers or sound insulation.

SET UP

- In order to have sufficient material on hand, **calculate area and add 5% for plank and 10% for parquet patterns** of material to allow for cutting waste and minor natural or manufacturer's defects.
- **Work out of several cartons at the same time** to ensure color and shade mix.

INSTALLATION OVER RADIANT- Parquet and Plank

INSTALLERS—ADVISE YOUR CUSTOMER OF THE FOLLOWING

- Maximum allowable wood surface temperature is 80° Fahrenheit. Note that rugs can increase surface temperatures 5° Fahrenheit or more.
- Maintain 35-60% humidity at all times. If necessary, use humidifiers.
- Room temperature should not vary more than 15° Fahrenheit season to season.

HEATING SYSTEM REQUIREMENTS

- Only low temperature radiant heating systems with accurate control systems that assure that the floor's surface temperatures never exceed 80°F are permitted.
- The entire floor area must be evenly heated. Even with perimeter heating systems the floor's surface temperature must never exceed 80°F.

SETTING THE HEATING SYSTEM FOR INSTALLATION

- System must be fully operating at normal temperature for a minimum of 21 days prior to floor installation.
- The heating system must be turned off 24 hours prior to installation and must remain off for 24 hours after installation.
- Starting 24 hours after completion of installation, turn on the heating system and gradually increase the temperature over a 7-day period to normal operating level. Never allow the floor surface temperature to exceed 80° Fahrenheit.

SUBFLOOR

- The floor construction should have a heat dissipating layer that provides an even temperature across the entire floor area and avoids high temperatures in any area. Under

plywood subfloors heat transfer plates or insulation must be in place.

- The subfloor should be completely dry. Moisture on a dry weight basis must not exceed 1.5% for concrete, 0.3% or less for gypsum and 6-12% for wood subfloors.
- A vapor barrier should be installed on all concrete, stone, mineral or wood subfloors. It must be directly under and as close to the flooring as possible.
- Heating pipes must be covered with 1" of concrete or be a minimum of 1/8" below bottom of plywood subfloor.
- The wood floor must lie tight against the sub-surface without an air gap that can cause considerable drying out of the wood.

LAYOUT

- Separate adjoining radiant heated and non-radiant heated areas with expansion joints.

FLOATING INSTALLATION - Parquet and Plank

INSTALL UNDERLAYMENTS

Install 6 mil Polyethylene vapor barrier over entire flooring surface. Overlap sheets of Polyethylene 16" and tape together creating an airtight seal. Using 1/8" foam padding, roll out one roll at a time over vapor barrier being careful not to poke holes or otherwise damage material during installation. Run padding up walls 1" to 1.5" and secure in place with tape. Join padding sections with tape strip. Tape down any additional loose edges. A "2-in-1" foam padding /moisture barrier may be substituted for Polyethylene.

INSTALLING THE FLOOR

Boards are installed left to right with the groove side facing the wall. A stair-step pattern will be repeated throughout installation. Stagger the ends of the boards a minimum of 8 inches. **Leave a minimum 3/8" expansion around all vertical objects** such as walls, poles, and stairs. If starting wall is uneven, trace the contour of wall, using a scribe, onto first row of planks and cut to size.

APPLICATION OF ADHESIVE

To secure a durable wood floor the boards must be bonded with adhesive in the tongue and groove. We recommend waterproof PVAC glue. The glue must be applied in a continuous 1/8" bead on the inside top of the groove on both the long and short edges.

GLUING AND TAPING

Dry fit first row using stair-step pattern. Number each plank in the order of installation. When you reach the last plank in first row, turn plank 180° so tongue is flush against tongue of previous plank. Mark the plank and cut to length. Dry fit final plank of row.

Begin dry fitting second row, starting with (if possible) left over piece from previous row. Be sure to stagger end of boards at least 10" to achieve effective stair step pattern.

Floating installation is completed by gluing and taping flooring profiles together. Separate first two rows noting installation order. Holding the first board with the tongue resting in the palm of your hand, apply a thin bead of glue in the groove on the side and end of the board. Repeat process

with subsequent planks. Press each board firmly together, tapping profiles lightly with a block and hammer if necessary. **Clean excess glue from between boards with a damp cloth.** Tape each board together at side and end seams. Often the last row will not end with a full plank. When this happens, place a full row of planks on top of the last row installed. Insert a 3/8" spacer against wall, and using a full width plank, trace distance from wall onto final row. Cut planks for final row to designated width. Apply glue and fit into place. **Tape may be removed within one hour.** Allow 12 hours before placing furniture on floors and 24 hours before introducing heavy objects or full traffic.

Note: Do not install cabinets or walls on top of floating floors.

Plank Installations

LAYOUT FOR PLANKS

- Layout should be designed to save labor and materials as well as to enhance the appearance of the floor. The floor will be stronger and more stable if you lay it so that the joints in the rows are staggered at least 10 inches. Staggered or irregular joints mean less material waste and a better overall appearance. Stair stepping and "H" joints are not as visually pleasing as randomly staggered end joints and will waste labor and material.
- Plan the layout so that the last row of flooring (which usually needs to be cut lengthwise) is not too narrow. In some cases, it may be necessary to cut the first row as well as the last row. Measure across the entire room to calculate the width of the last board. The last

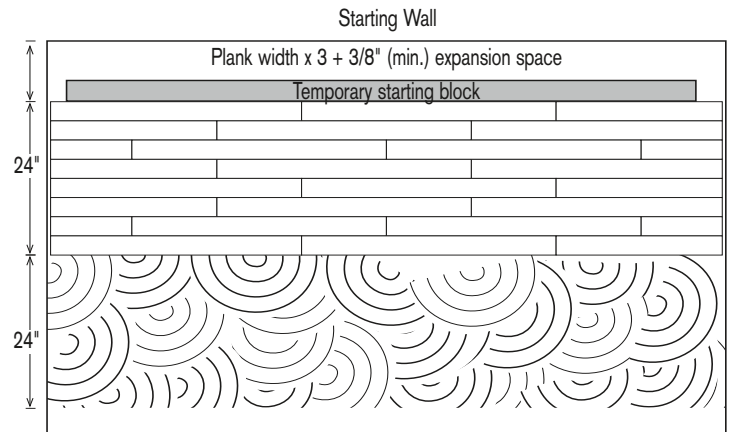
board cannot be less than 2" wide. If necessary, rip your first row (remove tongue edge) so last board can be at least 2" wide.

- **Allow 3/8" expansion space along all walls.** Flooring should be laid at right angle to the floor joist and, if possible, in the directions of the longest dimension of the room.
- The greater the surface area, the greater the room for expansion required. For rooms larger than 1,000 sq. ft. or exceeding 25' in any direction the perimeter expansion space must be increased 1/16" for every additional 3'. Also, additional expansion joints must be added in the middle of the room or in appropriate doorways and archways. The expansion space should be covered with transition moldings (T-moldings). Do not fill the expansion gaps.

PLANK GLUE-DOWN INSTALLATION

GLUING THE PLANKS

- To determine a straight first starting row, use a snap line the width of a few boards plus 3/8" expansion space from the wall. To keep first rows straight and in place, nail a straight 1" x 2" or 1" x 4" holding board on the first snap line.
- Make another snap line at about 24" from the holding board.
- Spread adhesive in first working area. Do not spread more adhesive than can be covered within 20 minutes.
- When the first section is complete, strike another parallel snap line from the last row installed, spread the adhesive and complete the section.
- Repeat section by section until the job is finished. Remove the starting board, spread adhesive and complete the area from the starting board to the wall.
- To fit the last piece, lay it upside-down with the tongue edge parallel to the tongue edge of the piece next to it, the short end butting up against the wall. Mark the cutting line on the back of the board and cut it to the correct width (save the cut off piece for the second row). Turn it over, fit it and glue in place.



PLANK NAIL-DOWN OR STAPLE-DOWN INSTALLATION

SUBFLOOR PREPARATION

Remove all dirt and rough areas by thoroughly cleaning, sanding and leveling. **Note: particle board is not a suitable subfloor** for nail- or staple-down installation. The clean subfloor should be covered wall-to-wall with 15 lb resin paper, overlapping 4" along the edges.

GENERAL INFORMATION FOR PNEUMATIC FASTENING MACHINES

Note: Use pneumatic staplers with correct shoe base for thickness of the product.

Improper pressure settings and failure to use proper adapters can cause severe damage to the flooring. The correct adapter and air pressure setting will properly set the fastener in the nail pocket. Low air pressures may fail to properly set the fastener and damage adjoining boards. Air pressures set too high may cause damage to the tongue which may dramatically reduce the holding power of the fastener causing loose, squeaky floors. Make certain that the compressor has a regulator in-line with the air hose for proper adjustment.

Set the compressor pressure to recommended PSI and adjust accordingly using a "practice" board. Check for surface and tongue damage before proceeding with installation. Manual Model 250 Powernailer can also be used.

INSTALLATION

To determine a straight first starting row, use a snap line the width of a few boards plus 3/8" expansion space from the wall. To keep first rows straight and in place, nail a straight 1" x 2" or 1" x 4" holding board on the first snap line. For nailer or stapler use correct shoe based on thickness of flooring. **(See illustration under glue-down installation.)**

Begin installation with several rows at a time, tightening boards as necessary to reduce gaps before fastening. Attach each board with fasteners every 6"-8" and 3" from the ends. Staples must be at least 1-3/4" long with a 1/2" crown.

The last 1-2 rows will need to be face nailed where clearance does not allow blind nailing with stapler or brad nailer. Brad nail or face nail on tongue side. Rip the final row to fit and face nail. If the final row is less than 1" width, it should be edge-glued to the previous row, before installation. The two joined rows can be face nailed as one board.

Go back to the starting wall, remove the starting block and complete final rows using 6d nails, counter sunk and filled.

Parquet Pattern Installations

PARQUET PATTERN SET UP

In order to have sufficient material on hand, **calculate area and add 10%** of material to allow for cutting waste and minor natural or manufacturer's defects.

Work out of several cartons at the same time to ensure color and shade mix.

INSTALLATION GUIDELINES

The cartons must only be opened directly before installation work begins. Our quality controllers have graded and inspected the hardwood flooring prior to packaging. Any questions or claims regarding grading or visual defects must be made prior to the installation of the floor. We cannot accept any subsequent claims. Remember that the end result is the responsibility of the installer.

Installation should be carried out in accordance with NOFMA and NWFA installation guidelines.

In general – and particularly in the case of new buildings – it is preferable to install the hardwood flooring as one of the last tasks. If this is not possible, it is essential that the surface of the floor be protected using builders paper, hardboard or cardboard. (Never use plastic film, as this does not allow for the diffusion of moisture.)

The laying out of the floor must be carefully considered before beginning the installation process. This will depend on the type of pattern chosen.

To obtain a good final result it is very important to be precise in the installation of the first rows of strips. The strips are always placed in the adhesive in front of the previous row and pushed and rotated into place along the side and end of each strip.

PERIMETER WORKING LINES

- Establish working lines at the perimeter of the room, which will represent the estimated inside working lines of the border.
- Perimeter working lines should be equal to a multiple of the width of the materials being installed, and should be equidistant from their adjacent walls. These lines should be adjusted to fit the width and the aesthetics of the border design. If the number of pattern repeats in the field is uneven, adjust the center working line so that the pattern is even on each side of the room.
- Using a chalk line, snap parallel lines representing the inside of the border.
- Working from the center of the room, build the field of the floor toward the perimeter working lines. Periodically check the measurements and make adjustments to ensure that the field will meet the perimeter working lines without the need for unsightly cuts or rips.

PARALLEL LAYOUT

For parallel layouts, begin with 90-degree working lines at the center of the room. There are three methods for doing this. Choose one of the following options:

Option 1) The trammel point method (preferred)

Option 2) The 3-4-5 method

Option 3) The laser method

For diagonal layouts, skip to "For diagonal layout: The trammel point method"

OPTION 1: THE TRAMMEL POINT METHOD (preferred method)

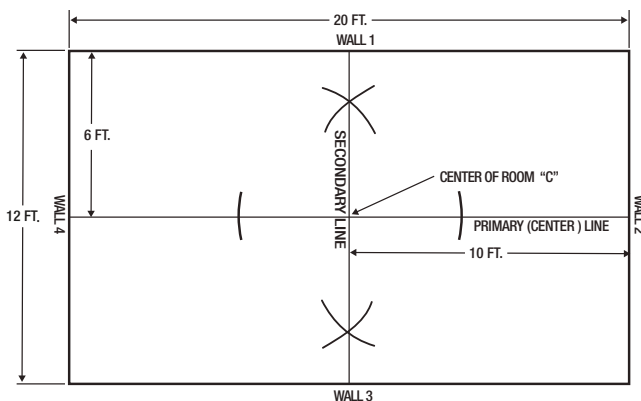


Diagram 1

- The Secondary Line must be exactly 90 degrees to the Primary Line. The directions below describe using trammel points and measurements of 3, 4 and 5 feet in a room measuring 12 by 20 feet. However, larger rooms may require doubling, tripling or even quadrupling those dimensions.

TO DETERMINE THE PRIMARY LINE

- Measure Wall 2 to find the center point, and mark that point on the subfloor and wall.
- Measure Wall 4 to find the center point, and mark that point on the subfloor and wall.
- Snap a chalk line between those two points. This represents the Primary (center) working line.

TO DETERMINE THE SECONDARY LINE

- Measure to find the center point on the Primary working line. Mark that point C.
- Using a 6-foot trammel point beam or bar compass set at 4 feet, scribe arcs on the Primary working line to the right and left of center point C.
- From the points at which the arcs intersect with the Primary working line, adjust the trammel point beam or bar compass to 5 feet and scribe arcs in the general area of where the 90-degree Secondary Line will be. Do this both above and below the Primary working line.
- Snap a line between the points where the arcs intersect, extending the line from Wall 1 to Wall 3.
- Also make a mark on each wall where the Secondary Line meets the walls. This line will be the Secondary working line and should be at a 90-degree angle to the Primary working line.
- Verify all measurements using the 3-4-5 method before proceeding.

OPTION 2: THE 3-4-5 METHOD (Pythagorean Theorem)

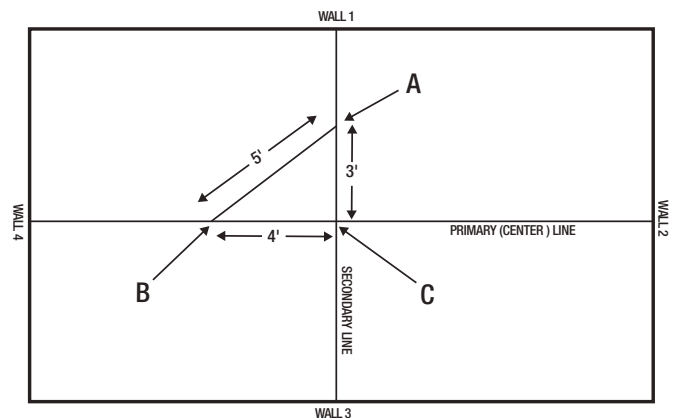


Diagram 2

- The Secondary Line must be exactly 90 degrees to the Primary Line. The directions below describe using measurements of 3, 4 and 5 feet. However, larger rooms may require doubling, tripling or even quadrupling those dimensions.

TO DETERMINE THE PRIMARY LINE:

- Measure Wall 2 to find the center point, and mark that point on the subfloor and wall.
- Measure Wall 4 to find the center point, and mark that point on the subfloor and wall.
- Snap a chalk line between those two points. This represents the Primary (center) working line.

TO DETERMINE THE SECONDARY LINE:

- Measure to find the center point on the Primary working line. Mark that point C.
- From the center point C, measure 4 feet along the Primary Line and mark that point B.
- From the same center point, measure 3 feet in the general direction of where the Secondary Line will be and scribe an arc.
- Return to the original 4-foot mark (point B) on the Primary Line and measure 5 feet, scribing an arc that crosses the 3-foot arc made in the previous step. Mark that point A.
- Verify all measurements before proceeding.
- Snap a chalk line through the conjunction of the two arcs (point A) and the center point (point C) of the Primary Line. This will be the Secondary Line.

OPTION 3: USING A LASER TO DETERMINE WORKING LINES

Today's laser layout tools can assist in accuracy and speed in floor layout. Most laser layout tools have a primary beam line and a perpendicular beam, and often incorporate a 45-degree beam, as well. More advanced lasers also have lights to align floor layout to tray ceilings, chandeliers and other features above the floor. Follow the manufacturers' directions and cautions on the use of any laser. General rules for using a laser layout tool are to:

- Mark the center of Walls 2 and 4 at the base.
- Align the laser to target both marks.
- Turn on the perpendicular lines and/or 45-degree lines.
- Mark lines accordingly and snap chalk lines.

Not all lasers can establish diagonal lines. To establish a diagonal working line, trammel points or the method described in the following section, "Diagonal layout," can be used.

FOR DIAGONAL LAYOUT: THE TRAMMEL POINT METHOD

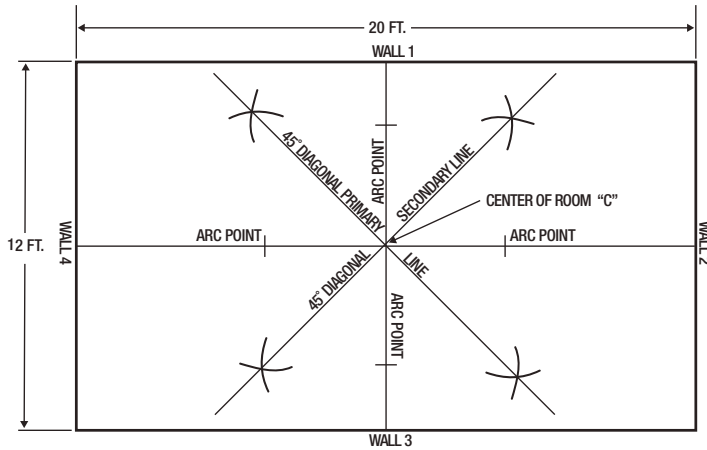


Diagram 3

- Using the Primary and Secondary Lines previously established, set the trammel point beam or bar compass at 4 feet and scribe arcs on the Primary and Secondary Lines on both sides of the center point of the room (C).
- Extend the trammel point beam or bar compass to 5 feet. Starting from the arc points on the Primary and Secondary Lines, scribe arcs in the approximate areas where the 45-degree working line will be located.
- Snap lines between the points where the arcs intersect, extending from Wall 1 to Wall 3, and also make marks on the walls where the lines meet the walls.

- These lines will represent the diagonal working lines and should be at a 45-degree angle to the Primary and Secondary working lines.
- Verify all measurements before proceeding.

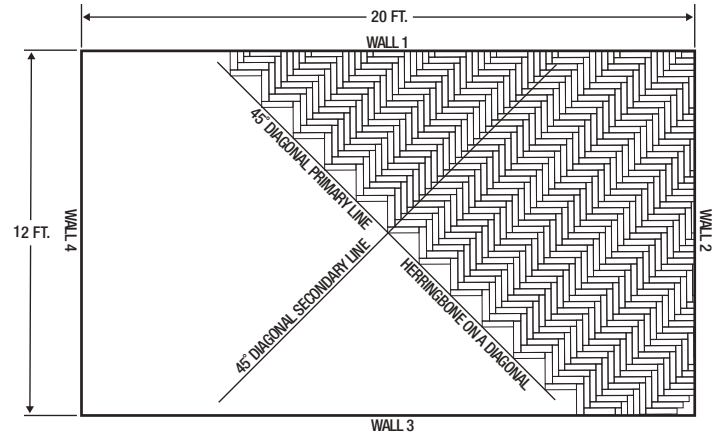
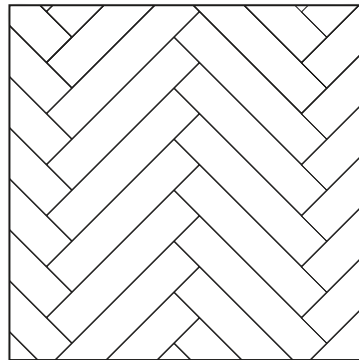


Diagram 4

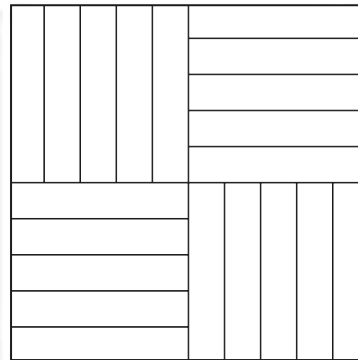
- Diagram 4 illustrates an example of how diagonal working lines might be used to install a herringbone pattern. These diagonal working lines may be sufficient for laying herringbone units or other manufactured parquet patterns on a diagonal. However, additional working lines must be used when installing herringbone in a slat-by-slat method

CHOICE OF PATTERN, REFERENCE MARKINGS, AND PROJECTILES

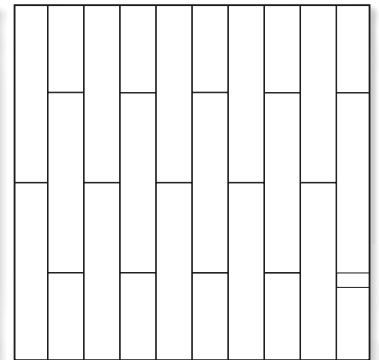
The laying out of the hardwood flooring must be carefully considered before beginning the installation process. This will depend on the type of pattern chosen. When choosing the brick pattern, it is an advantage to install the strips lengthwise to the main source of light, so as to take into account the angle of incidence. When other patterns are chosen, installation should begin at the center of the room which is determined by laying out guide strings from opposite walls. It is essential that an expansion gap of $\frac{3}{8}$ " is left between the edge of the floor and all walls and projectiles. To avoid "curving" in larger rooms, it is advisable to use a template during installation. To avoid so-called, bow tension, i.e. gaps forming between strips in large rooms, a staggered installation is recommended (refer to drawing).



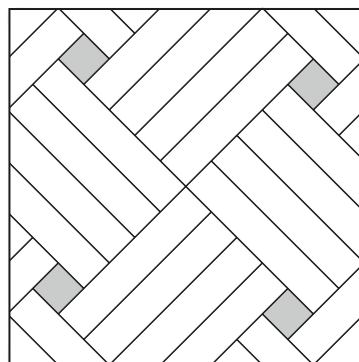
Herringbone



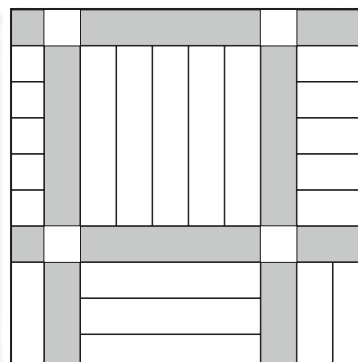
Block



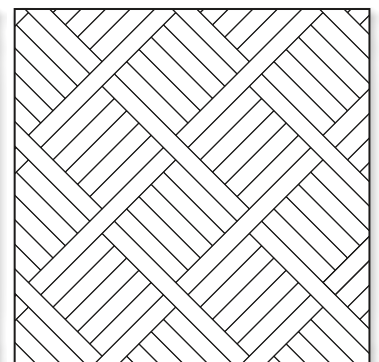
Brick



Braided



Squares



Diagonal

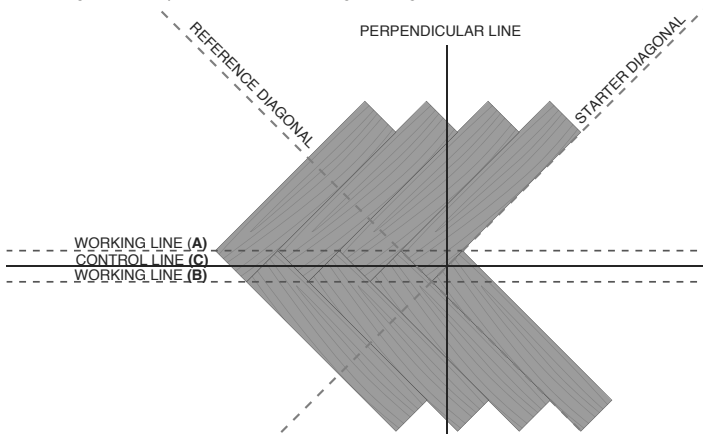
HERRINGBONE

LAYOUT

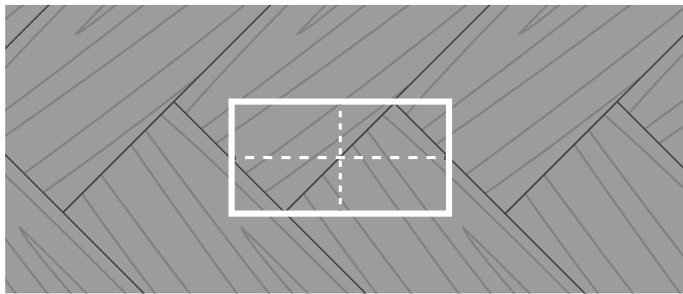
Herringbone directions should be installed in accordance with client preference. The Pattern may look best with the points in the direction of the longest dimension of the room, or towards a major focal point. Flatness of the subfloor is especially critical in herringbone installation, so ensure that the subfloor is flat to within specified tolerances – typically within 1/8" over 10'.

- Measure out the room for center and strike the main control, perpendicular and diagonal reference lines.
- Measure for true centre on the herringbone pattern to establish working lines.
- Strike two working lines alongside the main control line.
- Transfer the diagonal lines to the working lines.
- Dry lay a small section and measure to confirm a balances layout.

The herringbone floor pattern is installed along working lines.



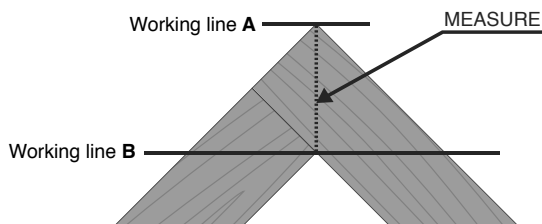
Note the true centre position of a herringbone pattern



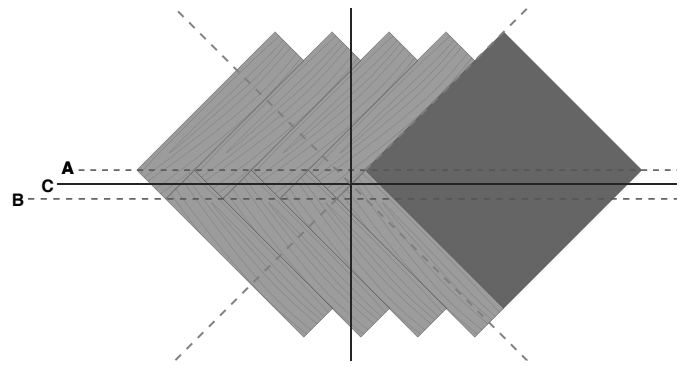
DETERMINING THE DIAGONAL DIMENSION OF THE FLOORING

This measurement will vary according to the width of the flooring

- Divide the diagonal measurement by four
- This is the dimension used to establish the working lines A and B on both sides of the control line (C).



- Once the working lines are established the installation can begin.
- To keep the installation square, cut a square piece of plywood the size of the herringbone pattern and anchor it at the intersection of the working lines and diagonal lines.

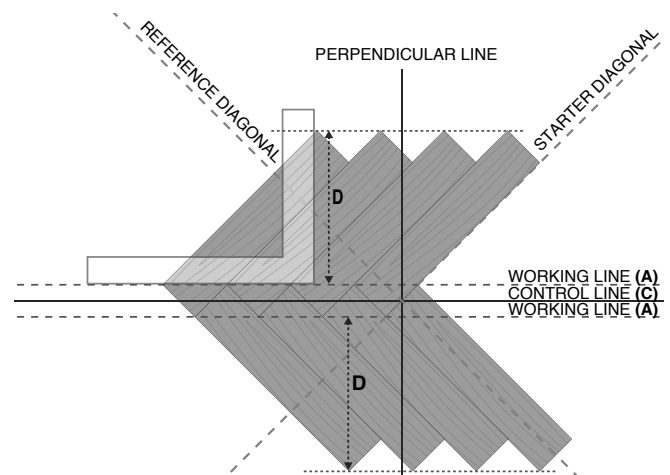


INSTALLING A HERRINGBONE PATTERN

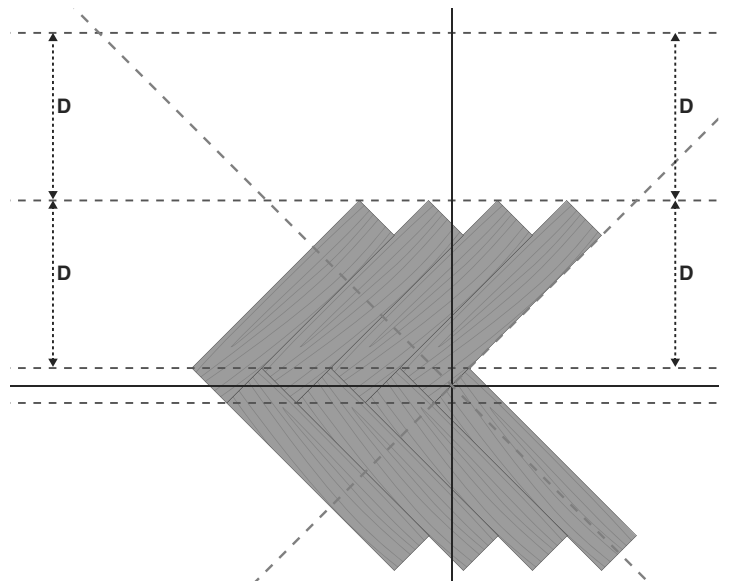
- The starting point must have working lines and diagonal lines.
- For direct glue make sure working lines are visible.
- Start with the tongue towards the build direction.
- Install pattern one row at a time.
- Periodically check alignment.

TO CONTINUE THE PATTERN

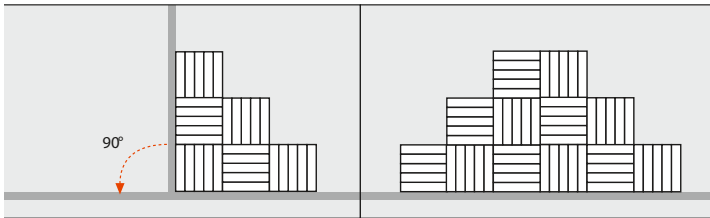
- Dry lay eight boards
- Lay a framing square from the points on the working line to the outermost point
- Record measurement A, this becomes your working line for the next coarse



One measurement D is established, the working lines can be repeated throughout installing.

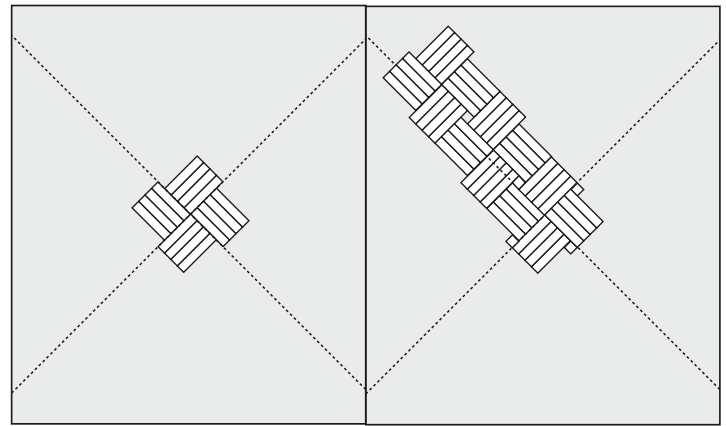


BLOCKS, BRAIDED, AND SQUARE PATTERNS



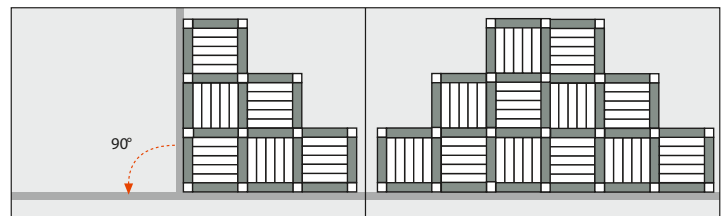
INSTALLING BLOCK PATTERN

It is important to ensure that the overall visual affect is aesthetic. If the room is relatively small then begin installation at the center point of the wall. If the room is large, begin in the center. Remember to allow an $\frac{3}{8}$ " expansion gap along all walls. When starting along the wall, fix a 90° angle template to the sub-floor at the center point of the wall. When installation begins in the center of the room, start by finding the center point of the room and fix a template to the floor at this point, parallel to the wall. Each square is made up of 5 strips. Start installing the strips in the corner of the template, completing 1 square at a time. The second square is installed at right angles to the first square. Install approx. $3' \times 3'$ and allow hardwood flooring to adhere to the sub-floor (refer to the adhesive manufacturers' instructions), before removing the perpendicular board. Continue installation from the center point but in the opposite direction, working in a staggered pattern outwards towards the walls. **Important! Check the guide string regularly during installation.**



INSTALLING THE BRAIDED PATTERN

Firstly, determine the rooms center and mark a square diagonal line. As the pattern is offset you can not use a guide board. Build up the four board pattern that meet without the cut $5\text{--}\frac{3}{4}$ " square "blocks" in the center. They add one $5\text{--}\frac{3}{4}$ square block and build up the next set of 16 planks moving along the marked center line. Be sure each set of 16 planks remains square in its center as you go.



SQUARES INCORPORATING DECORATIVE PLANKS AND SQUARES

Installation is the same as for squares, but using the squares ($5\text{--}\frac{3}{4}$ " x $5\text{--}\frac{3}{4}$ ") at the corners along with strips, to form a frame around the 7-strip squares.

PARQUET FLOATING, GLUE-DOWN, AND NAIL DOWN DETAILS

RADIANT HEAT HEATING

Parquet multi-layer hardwood flooring is suitable for gluing to a sub-floor which incorporates an under-floor heating system. The surface temperature of the hardwood flooring must not exceed 80°F . The heating system must distribute the heat evenly throughout the entire floor irrespective of the heat setting.

CAUTION! Carpets and rugs with backings made of insulating materials (e.g. rubber/foam) must not be used, as they cause an accumulation of heat which can damage the wood.

GLUING

The multi-layer hardwood flooring must always be glued directly to the sub-floor. The tongue and groove must NOT be glued. The choice of adhesive is dependent on the type of sub-floor and conditions associated with the buildings' construction. See first page and follow mfg recommendations. The adhesive is applied using a course toothed spatula. Do not apply more adhesive than can be "worked" in the course of 10 – 15 minutes.

NAIL DOWN

SUBFLOOR PREPARATION

Remove all dirt and rough areas by thoroughly cleaning, sanding and leveling. **Note: particle board is not a suitable subfloor** for nail- or staple-down installation. The clean subfloor should be covered wall-to-wall with 15 lb resin paper, overlapping 4" along the edges.

GENERAL INFORMATION FOR PNEUMATIC FASTENING MACHINES

Note: Use pneumatic staplers with correct shoe base for thickness of the product.

Improper pressure settings and failure to use proper adapters can cause severe damage to the flooring. The correct adapter and air pressure setting will properly set the fastener in the nail pocket. Low air pressures may fail to properly set the fastener and damage adjoining boards. Air pressures set too high may cause damage to the tongue which may dramatically reduce the holding power of the fastener causing loose, squeaky floors. Make certain that the compressor has a regulator in-line with the air hose for proper adjustment.

Set the compressor pressure to recommended PSI and adjust accordingly using a "practice" board. Check for surface and tongue damage before proceeding with installation. Manual Model 250 Powernailer can also be used.

INSTALLATION

Depending upon pattern, to begin either establish two straight boards perpendicular to each other or work to the line as required by your pattern.

Begin installation with several patterns at a time, tightening boards as necessary to reduce gaps before fastening. Attach each board with fasteners every 6"–8" and 3" from the ends. Staples must be at least $1\text{--}\frac{3}{4}$ " long with a $\frac{1}{2}$ " crown.

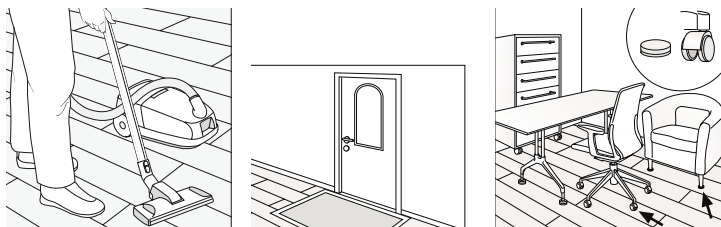
The last 1–2 rows will need to be face nailed where clearance does not allow blind nailing with stapler or brad nailer. Brad nail or face nail on tongue side. Rip the final row to fit and face nail. If the final row is less than 1" width, it should be edge-glued to the previous row, before installation. The two joined rows can be face nailed as one board.

Remove any starting blocks and complete other sections using 6d nails, counter sunk and filled.

ALL INSTALLATIONS: COMPLETING THE JOB

- Remove spacer wedges.
- Cover all expansion gaps along walls and vertical protrusions with base board, quarter round or pocket moldings. Nail moldings to wall, never to the flooring.
- Clean, sweep and vacuum installed flooring before use.
- Use of stain, filler or putty stick for defect correction during installation should be accepted as normal procedure.
- If the floor is to be covered, use a breathable material such as cardboard. Do not cover with plastic or any other material acting as a vapor barrier.

FLOOR CARE GUIDE



PREVENTATIVE MAINTENANCE

To ensure the full benefit of warranties and to extend the beauty of your new hardwood floor, we recommend the following preventative maintenance steps for your hardwood floor.

- Use floor mats at all entrances to help keep dirt and moisture from being tracked in. Area rugs are recommended in high traffic areas and at sinks. Mats and area rugs should be slip resistant with backing that will not discolor the floor.
- To help guard against scratches and dents, install felt floor protectors under furniture legs and equipment.

- Use soft rubber castors for rolling furniture.
- Remove high heels or shoes that need repair. Some types of high heel shoes can severely damage the surface of any floor covering.
- Maintain a healthy humidity at 40–60%. Certain regions within North America have extreme changes in humidity levels that can affect all wood floors. To maintain the humidity at the healthy range of 40–60%, it may require either a humidifier or a dehumidifier.

REGULAR MAINTENANCE

- Do not let sand, dirt and grit build up on your floors.
- Dust, sweep and vacuum floors regularly.
- For normal cleaning use a sponge mop with clear water, squeezed very dry. **DO NOT wet mop your hardwood floor.**
- For heavier cleaning, use hardwood floor cleaner specified for polyurethane coated hardwood floors with a sponge or sponge mop. Hardwood floor cleaner is available at most local hardware stores. **Never use wax!**

See your dealer for recommended maintenance and floor care products for polyurethane finished hardwood flooring.

RESIDENTIAL/COMMERCIAL WARRANTIES

EXCLUSIVE LIFETIME WARRANTY

This flooring is produced according to strict manufacturing and environmental standards. Our confidence in the product is reflected by extension of this full residential warranty to the original purchaser.

PRE-INSTALLATION WARRANTY

We warrant that this product is free of defects and exceeds the industry standards. You and/or your installer should carefully inspect each plank before installation. Any uncut planks that appear to have defects should not be installed and can be returned to the original place of purchase to be replaced at no cost to you.

RESIDENTIAL/COMMERCIAL LIFETIME STRUCTURAL WARRANTY

We guarantee that this product is free from defects in lamination and milling and will remain free of these defects for as long as the original purchaser owns the residence or commercial flooring. In the unlikely event of delamination, warping, cupping or buckling of the product because of manufacturing defects, we will replace or repair the defective flooring pieces at no cost to you.

RESIDENTIAL FINISH WARRANTY

We warrant that there will be no wear-through of the finish for 25 years in residential installations provided the recommended maintenance procedures are followed.

COMMERCIAL FINISH WARRANTY

We warrant that there will be no wear-through of the finish for 3 years in commercial installations provided the recommended maintenance procedures are followed.

NO-BUCKLE MOISTURE WARRANTY

We guarantee that our floors will bond to the subfloor for the life of the flooring provided the installation and application are in full compliance with the installation instructions and the adhesive manufacturer's application instructions.

ENVIRONMENTAL WARRANTY

All components of this flooring are chosen for their responsible environmental impact. This flooring product does not harm the environment throughout its complete life cycle from production through disposal. All woods are from professionally managed "sustained yield" forests. All glues used within this flooring are MR LFE "E1" standard. The acrylic finish does not release any harmful solvents, formaldehyde or heavy metals.

EXCLUSIONS TO WARRANTY

These warranties are exclusive to the original purchaser and may not be assigned or transferred. This is a residential warranty only and exclusions include damages arising from subflooring, plumbing breakage or leakage and similar catastrophes, and failures arising as a result of hydrostatic pressure.

THE FOLLOWING ARE EXCLUDED FROM THIS WARRANTY:

- Improper Storage, Handling or Installation. Installation instructions must be followed. Subflooring must be dry and properly installed.
- Improper Adhesives. Damage caused by use of water based adhesives over sheet vapor barriers or sound insulation.
- Improper Maintenance. Maintenance instructions must be followed and in particular the floor cannot be wet mopped.

- Extreme Conditions and Surface Checking. The humidity level in the home must be in the 30%–50% range throughout the year using air conditioners, humidifiers or dehumidifiers as appropriate. Dramatic variations in humidity may cause micro checking of the finish. This is not considered a defect and is not covered by the warranty.
- Gapping of Planks. This warranty does not cover gapping caused by natural expansion and contraction, improper seating of planks during installation or by mastic memory.
- Abuse or Misuse. This warranty does not cover damage caused by neglect, abnormal use or misuse, application of solvents, corrosives or other chemicals to the flooring, color change, excessive pivot and point-loads, stiletto shoes, heavy furniture or equipment, unpadded furniture feet, water, pet claws, pet urine, damage from sand, pebbles or other abrasives or other unintended uses.
- Water Damage. This warranty does not cover damage caused by moisture penetration through the subfloor, flooding, leaking plumbing, overflowing sinks or similar water damage.
- Insect Infestation. This warranty does not cover any insect infestation after the product has left the factory.
- Radiant Heat. Only low temperature radiant heating systems which are regulated to never exceed 80°F at the wood surface may be used. If surface area is allowed to exceed 80° all warranties are void. Only Float-In installations are acceptable for Radiant Heat subfloors.
- Natural variations. Wood is a natural product, containing natural variations in color, tone and grain. We do not warrant against natural variations in color within the floor nor variations between samples and the installed floor. Variations may also develop over time because of varying exposure to sunlight or UV light.

Other items not covered under the warranties include damage caused by natural events such as hurricanes, tornadoes, earthquakes, and floods; installation of flooring with visible defects; construction traffic abuse to the surface of the flooring; use of non-recommended nailers, staplers or adhesives; squeaking, popping or cracking by any cause other than the mismanufacture of the tongue or groove.

In the event that there is a claim against this warranty, the manufacturer will pay for one replacement of the portion of the installation that is defective. This includes all reasonable materials and labor. The manufacturer excludes and will not pay consequential or incidental damages under this warranty. The sole remedy provided herein is the repair, refinish or replacement, at the sole option of the manufacturer. In the unlikely event that the manufacturer is unable to correct the failure after a reasonable number of attempts, the manufacturer will refund, if requested, the purchase price of the portion of defective floor on a prorated basis. Any attempt to repair or replace the floor prior to the manufacturer's inspection and authorized repair actions will void this warranty. This warranty does not include the cost of labor if the flooring is installed by other than professional installers. It does not apply to any products designated or sold as B-grade which is sold "as is." There are no other warranties, including merchantability or fitness for a particular purpose, expressed or implied other than those listed within this warranty. This warranty will not be deemed to have failed its essential purpose while the manufacturer is willing to repair or replace defective goods. Some states do not allow the exclusion of incidental or consequential damages and therefore, this exclusion may not apply. This warranty gives you specific legal rights which may vary from state to state.

Warranty Service

To obtain service under this warranty, contact your dealer.

REV: 3.17-1061.2