



Greenwood Flooring International Frontier Collection Engineered Herringbone Flooring Installation Instructions

READ ALL OF INSTRUCTIONS THOROUGHLY BEFORE BEGINNING INSTALLATION. IN ADDITION TO THESE INSTRUCTIONS, WE RECOMMEND THAT THE INSTALLER FOLLOW ALL INSTALLATION GUIDELINES SET FORTH BY THE NATIONAL WOOD FLOORING ASSOCIATION (NWFA.ORG). WHERE THESE INSTRUCTIONS DIFFER FROM NWFA THESE GUIDELINES, THIS DOCUMENT TAKES PRECEDENCE.

PRIOR TO INSTALLATION

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.

It is the installer's responsibility to inspect the flooring for proper color, grade, gloss, visible manufacturing defects, damage, or otherwise unsatisfactory appearance. Do not install damaged or visibly unsatisfactory material. Installing a plank constitutes acceptance of its appearance. If necessary,



contact your local retailer, distributor, or Greenwood Flooring International regarding any unsatisfactory material **PRIOR TO INSTALLATION**.

The following tools are 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, SikaBond, DriTac g200, 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.

General Conditions – All Installation Methods

ENVIRONMENTAL CONDITIONS

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.

ACCLIMATION

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.

SUBFLOOR CONDITIONS

ROOM PREPARATION AND PRE-INSTALLATION INSPECTION

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.

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 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.
- 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.

PREPARING THE PERIMETER

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.

Subfloor must be:

- **clean** and free of wax, paint, oil, and debris. Scrape smooth and sweep.
- **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.

Installation Methods

INSTALLATION OVER RADIANT HEAT

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

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.



- The wood floor must lie tight against the sub-surface without an air gap that can cause considerable drying out of the wood.

FLOATING INSTALLATION

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.

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 Installation Method

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 length-wise) 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 arch-ways. The expansion space should be covered with transition moldings (T-moldings). Do not fill the expansion gaps.

PLANK GLUE-DOWN INSTALLATION

1. 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.
2. Make another snap line at about 24" from the holding board.
3. Spread adhesive in first working area. Do not spread more adhesive than can be covered within 20 minutes.
4. When the first section is complete, strike another parallel snap line from the last row installed, spread the adhesive and complete the section.
5. 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.
6. 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 INSTALLATION

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.

1. To determine a straight first starting row, use a snap line the width of a few boards plus $\frac{3}{8}$ " 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.)
2. 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 $1\frac{3}{4}$ " long with a $\frac{1}{2}$ " crown.
3. 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.
4. Go back to the starting wall, remove the starting block and complete final rows using 6d nails, counter sunk and filled.

Parquet Pattern Installation

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.

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.

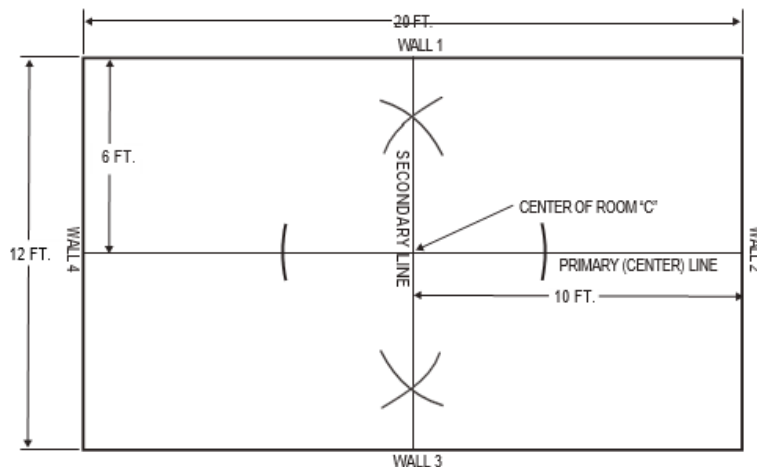
PERIMETER WORKING LINES

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

OPTION 1: THE TRAMMEL POINT METHOD



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.

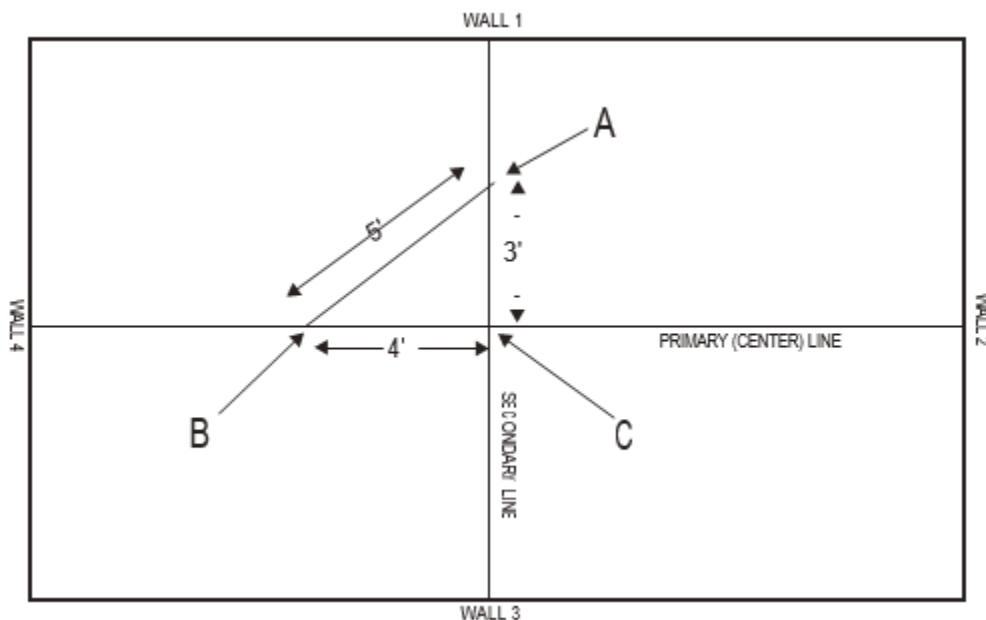
To Determine the Primary Line:

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

To Determine the Secondary Line:

1. Measure to find the center point on the Primary working line. Mark that point C.
2. 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.
3. 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.
4. Snap a line between the points where the arcs intersect, extending the line from Wall 1 to Wall 3.
5. 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.
6. Verify all measurements using the 3-4-5 method before proceeding.

OPTION 2: THE 3-4-5 METHOD



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:

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

To Determine the Secondary Line:

1. Measure to find the center point on the Primary working line. Mark that point C.
2. From the center point C, measure 4 feet along the Primary Line and mark that point B.
3. From the same center point, measure 3 feet in the general direction of where the Secondary Line will be and scribe an arc.
4. 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.
5. Verify all measurements before proceeding.
6. 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

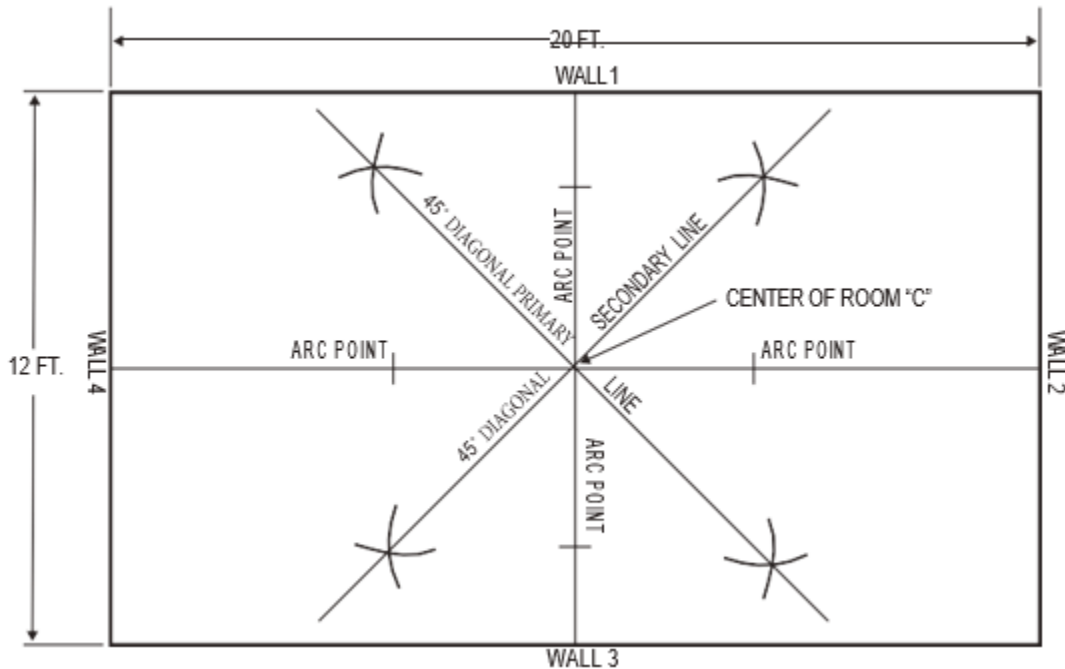
Today's laser layout tools can assist in accuracy and speed in floor layout. Most laser layout tools have a primary beam line and a perpendicular beam, and often incorporate a 45-degree beam, as well. More advanced lasers also have lights to align floor layout to tray ceilings, chandeliers and other 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:

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

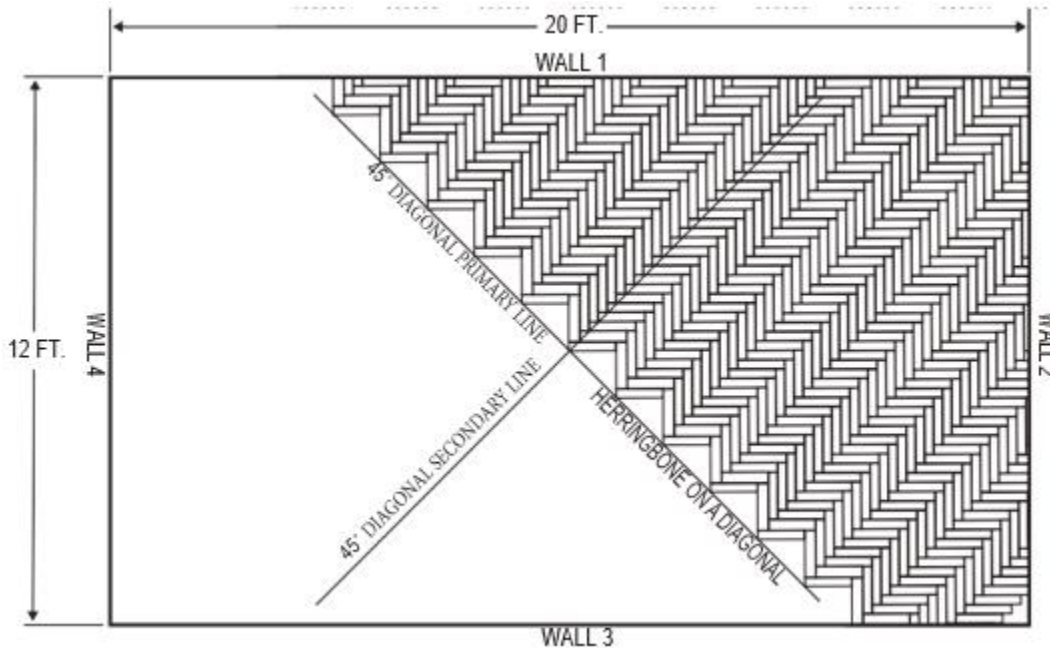
Not all lasers can establish diagonal lines. To establish a diagonal working line, trammel points or the method described in the following section, "Diagonal layout," can be used.

DIAGONAL LAYOUT

The Trammel Point Method



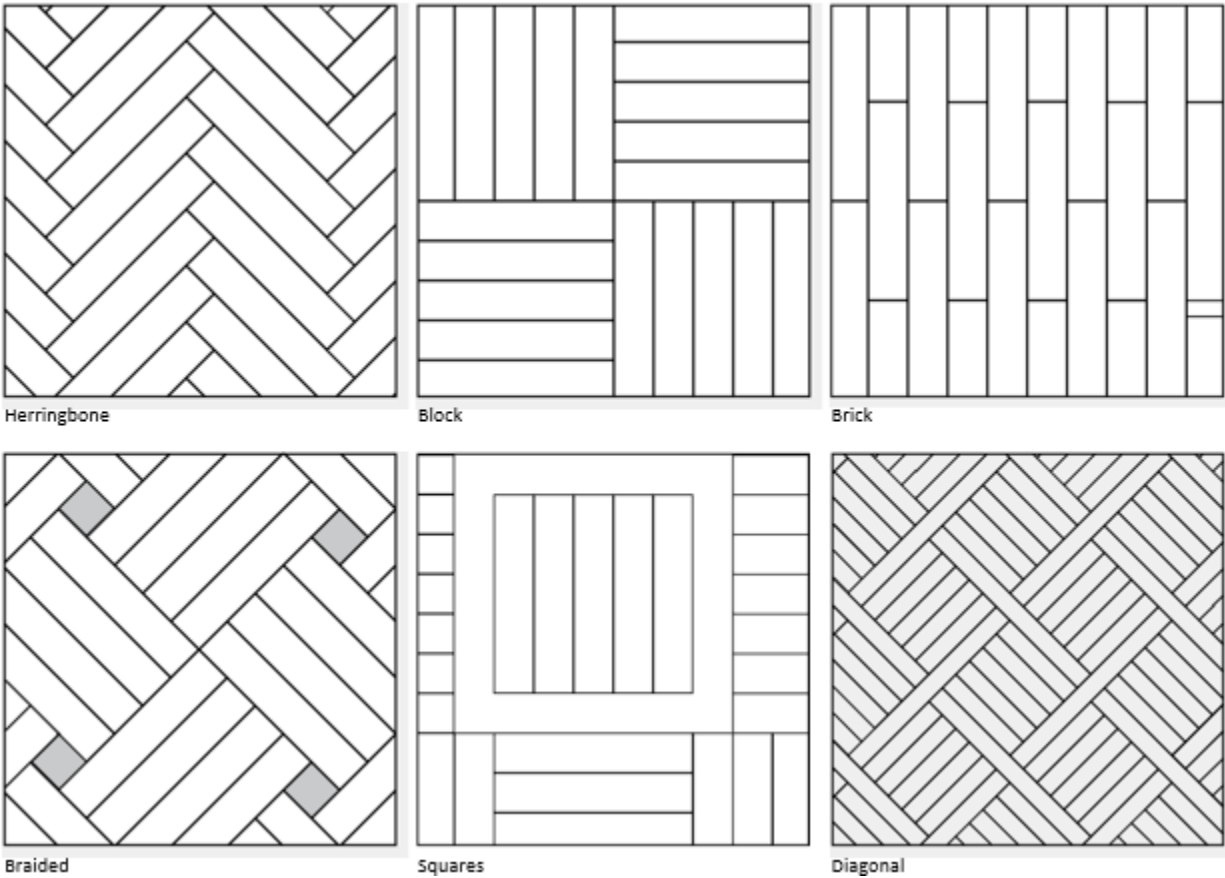
1. Using the Primary and Secondary Lines previously established, set the trammel point beam or bar compass at 4 feet and scribe arcs on the Primary and Secondary Lines on both sides of the center point of the room (C).
2. Extend the trammel point beam or bar compass to 5 feet. Starting from the arc points on the Primary and Secondary Lines, scribe arcs in the approximate areas where the 45-degree working line will be located.
3. 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.
4. These lines will represent the diagonal working lines and should be at a 45-degree angle to the Primary and Secondary working lines.
5. Verify all measurements before proceeding.



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

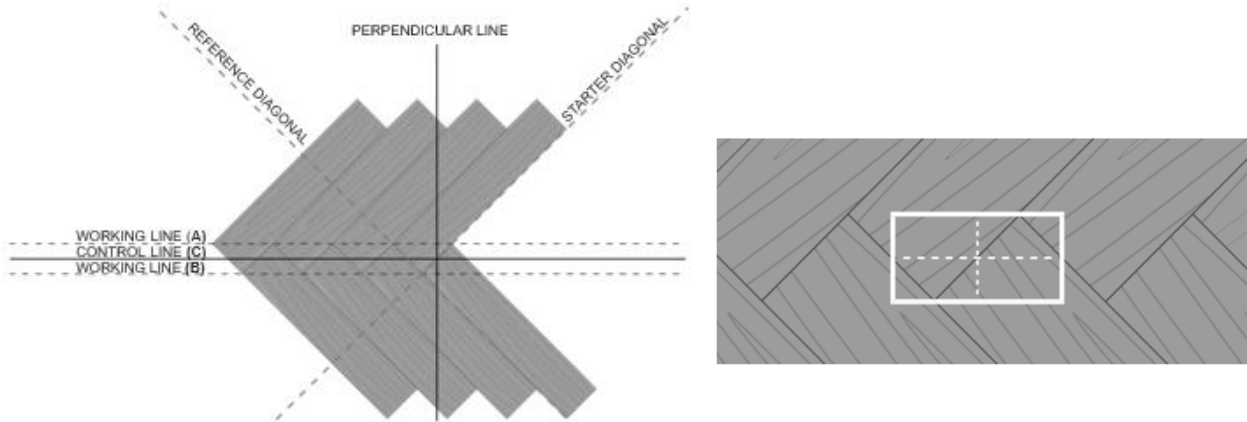
The laying out of the hardwood flooring must be carefully considered before beginning the installation process. This will depend on the type of pattern chosen. When choosing the brick pattern, it is an advantage to install the strips lengthwise to the main source of light, so as to take into account 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 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'.

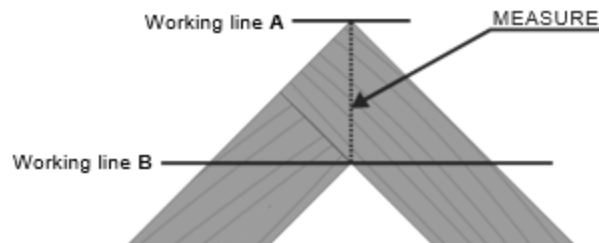
- Measure out the room for center and strike the main control, perpendicular and diagonal reference lines.
- Measure for true centre on the herringbone pattern to establish working lines.
- Strike two working lines alongside the main control line.
- Transfer the diagonal lines to the working lines.
-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



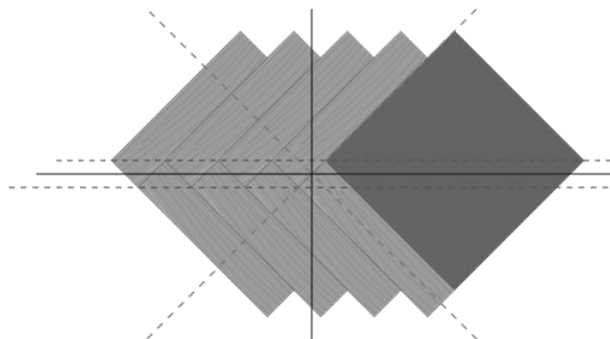
Determining the Diagonal Dimension of the Flooring

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 herring- bone pattern and anchor it at the intersection of the working lines and diagonal lines.



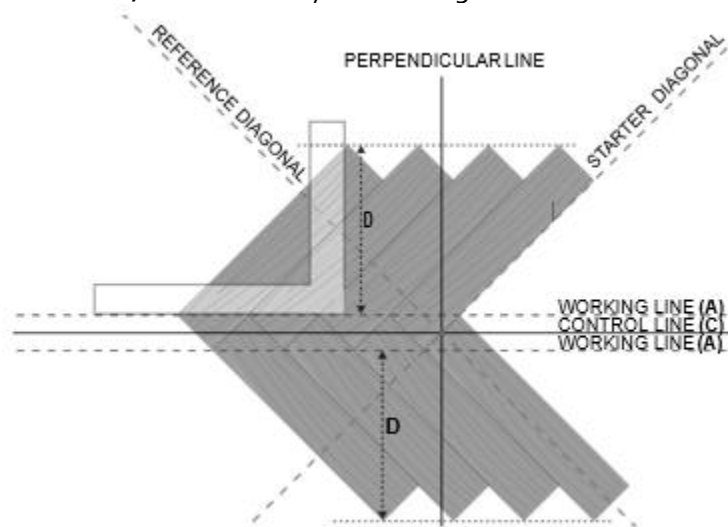
INSTALLING A HERRINGBONE PATTERN

- 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.

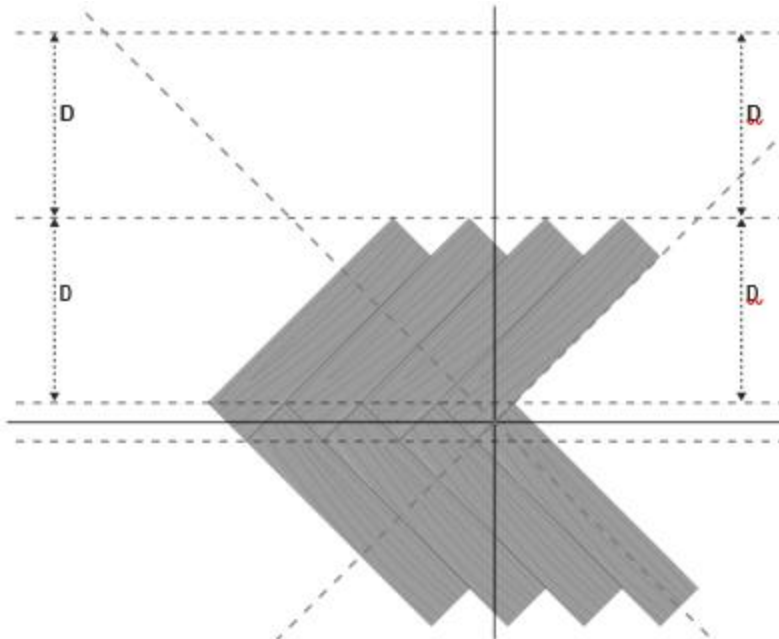
- Install pattern one row at a time.
- Periodically check alignment.

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 course

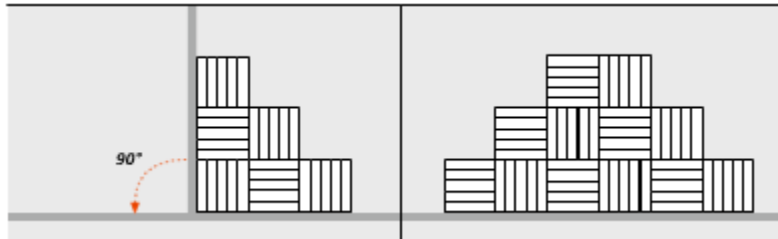


One measurement D is established, the working lines can be repeated throughout installing.



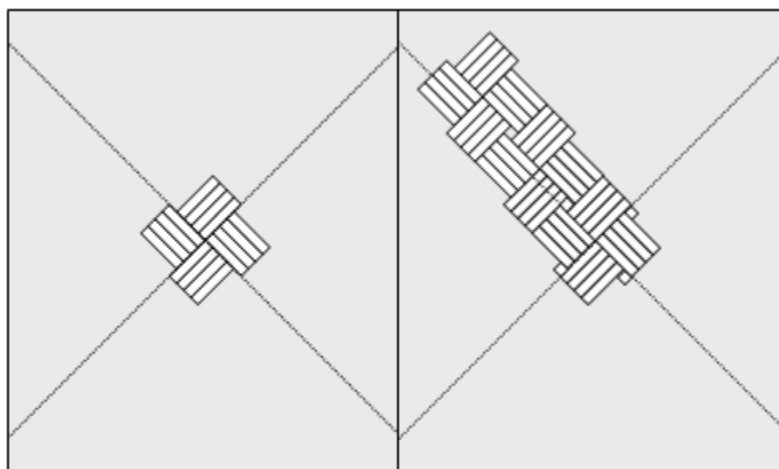
BLOCKS, BRAIDED AND SQUARE PATTERNS

BLOCK PATTERN



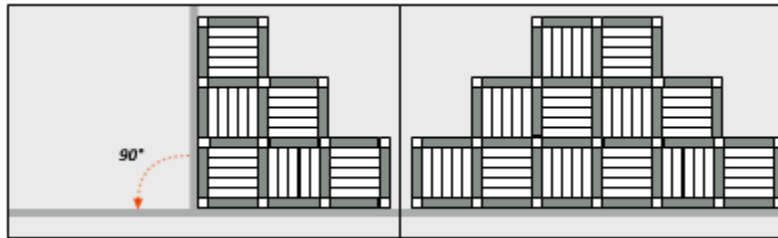
It is important to ensure that the overall visual affect is aesthetic. If the room is relatively small then begin installation at the center point of the wall. If the room is large, begin in the center. Remember to allow an $\frac{3}{8}$ " expansion gap along all walls. When starting along the wall, 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.

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- $\frac{3}{4}$ " x 5- $\frac{3}{4}$ ") at the corners along with strips, to form a frame around the 7-strip squares.

PARQUET FLOATING, GLUE-DOWN AND NAIL-DOWN

RADIANT 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

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.

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 “prac- tice” board. Check for surface and tongue damage before proceeding with installation. Manual Model 250 Powernailer can also be used.

1. Depending upon pattern, to begin either establish two straight boards perpendicular to each other or work to the line as required by your pattern.
2. 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- $\frac{3}{4}$ ” long with a $\frac{1}{2}$ ” crown.
3. The last 1–2 rows will need to be face nailed where clearance does not allow blind nail- ing 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 previ- ous row, before installation. The two joined rows can be face nailed as one board.
4. 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.

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