

Maxwell Hardwood Flooring: Solid Strip and Plank Flooring Installation Instructions

Maxwell Hardwood Flooring strip and plank flooring is manufactured in accordance with NOFMA (The Wood Flooring Manufacturers Association) standards. When flooring is ordered, 5% must be added to the actual square footage needed for cutting and grading allowance, (10% for diagonal installations). Inspect all materials carefully before installation. Warranties do not cover materials with visible defects once they are installed.

It is the responsibility of the installer/owner to determine if the jobsite conditions are environmentally acceptable and that the sub-floor system is acceptable for the installation of wood flooring. Maxwell Hardwood Flooring declines any responsibility for wood floor failures or problems resulting from sub-floor/sub-surface structural, environmental, jobsite damage or deficiencies after hardwood flooring has been installed.

Before Installation: The wood floor must be installed after all sheetrock, painting, and tile are installed and dry. The HVAC system should be operating during and after the installation to maintain a relative humidity of 35% - 55%.



For a **Hickory** installation: Inspect the moisture levels of this flooring upon delivery.

Due to Hickory's cellular structure (density), it can be more susceptible (than oak) to expansion and contraction because of changes in relative humidity. A relative humidity target between 35%-55% must be identified. This RH factor will be different for many areas of the world. The goal is to find a relative humidity target that can be maintained throughout the installation process and beyond. It is important to stay within 5% of target RH continually. Relative Humidity is harder to maintain in a vacated home. The acclimation process for this flooring is EXTREMELY IMPORTANT. Before installation, the flooring should be placed inside and allowed to reach an equilibrium moisture content that is contingent upon the relative humidity target. The flooring should be moisture tested periodically to determine equilibrium. This process usually takes several weeks but can be longer depending on the environment.

Exterior grading should be complete with surface drainage offering a minimum drop of 3" in 10 (7.6 cm in 3m) to direct flow of water away from the structure. All gutters and downspouts should be in place. Crawl space must be a minimum of 18" from the ground to underside of joists. A ground cover of 6-20 mil black polyethylene film is essential as a vapor barrier with joints lapped and taped. Crawl space should have proper perimeter venting.

Sub-Floor: All sub-floors should be clean, dry, flat, and structurally sound.

Clean: Use the Rotary Sander w/12 grit disc sandpaper to remove paint, sheetrock mud, wax, oil, old adhesive, and scarify the concrete. Vacuum or sweep thoroughly.

Dry: Test a concrete sub-floor with a concrete moisture meter or a Calcium Chloride Kit. Check the floor in several locations. Follow the moisture meter manufacturer's guidelines for acceptable concrete moisture. Example: Tramex Concrete Encounter= anything over a 4.5 reading. Relative humidity test using Situ probes over 75%, Calcium Chloride ASTM-1869 reading over 3 lbs. will need a moisture barrier.

Flat: All sub-floors should be flat to within 3/16" in 10 feet radius. All leveling compounds should be a Portland base. Follow manufacturer's guidelines.

Structurally sound: All concrete sub-floors should have a minimum compressive strength of 3000 PSI. All wood sub-floors should be a least 3/4" thick and have No Deflection. APA rated CD Exposed 1 plywood and OSB Exposed 1 sub-floor panels are appropriate sub-floor materials. Particle board of any type or size is NOT acceptable as a sub-floor. Note NWFA nailing schedule. Avoid subfloors with excessive vertical movement.

Solid Strip and Plank Installation

Unfinished and factory-finished solid strip and solid plank flooring should be installed perpendicular to the joists or on a diagonal for any single layer subfloor. (Exception: Over diagonal, solid subfloor boards, install perpendicular to joists or subfloor direction.)

When 3/4" solid strip and solid plank flooring is laid parallel with the floor joists, follow one of these two steps:

1. Add a layer of minimum nominal 1/2" (15/32") CD Exposure 1 (CDX) plywood underlayment to the existing subfloor (as previously recommended)
2. Or brace between truss/joists in accordance with the truss/joist manufacturer's recommendations and with local building codes. Some truss/joist systems cannot be cross-braced and still maintain stability.

Before installing wood flooring, place an approved vapor retarder. Some examples of acceptable vapor retarders over wood subfloors include:

1. An asphalt laminated paper meeting UU-B-790a, Grade B, Type I.
2. Asphalt-saturated kraft paper or #15 or #30 felt that meets ASTM Standard D-4869 or UU-B-790, Grade D.

Wall Line Layout

1. Choose a starting wall according to the most aesthetically or architecturally important elements in the room, taking into consideration fireplaces, doors, cabinets and transitions, as well as the squareness of the room. The starting wall will often be the longest unbroken wall in the room.

2. Snap a working line parallel to the starting wall, allowing ¾" expansion space between the starting wall and the edge of the first strip or plank run.
3. As a general rule, a ¾" expansion space must be left around the perimeter and at all vertical obstructions.
4. Random-width plank is laid out with alternating courses varying by widths. Start with the widest board, then the next width, etc., and repeat the pattern.
5. Lay one row of strip or plank along the entire length of the working line.
6. Top-nail and blind-nail the first row (hand-nail if necessary), using appropriate fasteners. Denser species may require pre-drilling. Each succeeding row should be blind-nailed with the nailing machine wherever possible. At the finishing wall and other obstructions, it may be necessary to blind-nail by hand until top nailing is required.
7. Racking rule of thumb: Avoid "H" patterns. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8-10" for 3" to 5" plank, and 10" for plank wider than 5".
8. To minimize expansion on floors wider than 20 feet, more or less spacing between rows may be needed, depending on geographical area, interior climate control and time of the year.
9. Where spacing is required: Use a washer or removable spacer to leave additional space every few rows and/or start in center of room and work out to both sides. Do not use spacers that may cause damage on factory-finished products.
10. Nailing: Blind-nail through the tongue using 1½"-2" fasteners. Use 1½" fasteners with nominal ¾" plywood subfloor direct to concrete slab. Face-nail boards where needed using 6d-8d casing or finish nails. Fasteners should be spaced every 6"-8" on blind-nailing, or every 10"-12" on face-nailing. Each board, regardless of length must have a least 2 nails and a nail within 3 inches of the end of each board.
11. For additional fastening, any of the following options may be used in addition to the nailing schedule. (See Appendix F, Fastener Schedule.)
12. **For wide-width plank flooring (5" or wider), to assist the nailing schedule of 6"-8" and increase holding power, there are three options.**
 - a. **Screw and plug at end joints, alternating at staggered locations and intervals along each board.**
 - b. **Apply an approved wood flooring adhesive especially at ends of boards (required for 5" or wider) Boards should be nailed on the ends as well as the sides.**
 - c. **Use kerfing or relief cuts every 8" to 12" parallel to the grain – using more relief cuts for wider boards. Typically, the relief cut should be 3/8" on a ¾" board. NOTE: These options, however, will not necessarily eliminate cupping.**
13. Blind-nail and face-nail, as necessary, to complete the final rows.

Center Line Layout

1. Find the center of your room, measuring off the two longest walls, and snap a line down the center of that room.
2. Install a starter board on the line. Fasten the starter board to the floor using wood screws.
3. Nail the first row of wood flooring against the starter board, being careful not to move the starter board when nailing. The groove of the flooring should be against the starter board.
4. Drill and hand-nail the first three rows through the tongue. **DO NOT USE TOP NAILS.**
5. Use a blind nailer to install the remaining rows of wood flooring. Use the nailing practices described earlier.
6. After installing in one direction, remove the starter board and start rows going in the opposite direction.
7. Install a spline or a slip tongue in the groove of the board that was against the straight-edge. Put wood flooring adhesive down the entire length of the groove before installing the spline.
8. Install the spline using a blind nailer. To keep the spline in alignment for the next flooring board, use a scrap piece of wood flooring to run along the length of the spline as you nail.
9. Install the remaining rows in the opposite direction. Use nailing practices described earlier.

For Best Results, we suggest using a National Wood Flooring Association Certified Professional. A list of active NWFAs Certified Professionals in your area can be found online at woodfloors.org/certified-professional-search.aspx

Caution: Wood Dust/ Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, eye and skin irritation. The Internal Agency for Research and Cancer has classified wood dust as a nasal carcinogen in humans.