

Solid Wood Flooring

READ ALL OF THESE 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 (WWW.NWFA.ORG). WHERE THESE INSTRUCTIONS DIFFER FROM THE NWFA GUIDELINES, THESE INSTRUCTIONS TAKE PRECEDENCE.

- For best results we suggest a National Wood Flooring Association Certified Professional for your Installation and Consultation.

PRIOR TO INSTALLATION

- It is the installer's responsibility to ensure that all these General Conditions are met prior to installation, and that all specific installation instructions below for the installation method you have chosen (Glue Down, Nail Down, or Floating Floor plus, when applicable, Radiant Heat Systems) are followed carefully. When installed according to these instructions, Hewn Solid Plank Hardwood Flooring is approved for use above, on and below grade. When installing below grade, use the Floating Floor installation method.
- It is the installer's responsibility to inspect the flooring for proper color, grade, 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 Hewn regarding any unsatisfactory material prior to installation.
- If installing over radiant heat, read the "Radiant Heat Systems" section below before finalizing product selection or beginning installation. Careful adherence to these guidelines is required for a successful and fully warranted installation. Certain wood species and plank sizes are not warranted for installation over any type of radiant heat. Hewn does not offer a warranty on ANY flooring installed over electric radiant heat systems. Only hydronic (water) systems may be approved.
- In wood flooring installations over radiant heat, moderate surface checking, cracking (especially at the ends of boards and around knots), shrinkage, gapping between planks, and slight cupping are all to be expected and do not constitute a product defect.

NOTE: When nailing wide-plank flooring to a wood subfloor, we recommend both nailing and gluing to prevent potential squeaks in the floor, although gluing is only required when nailing down planks wider than 7.5". (See "Nail + Glue Installation Instructions" for details)

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GENERAL CONDITIONS ALL INSTALLATION METHODS

ENVIRONMENTAL CONDITIONS

When wood absorbs moisture, it expands and when it expels moisture, it contracts. To minimize moisture-related expansion and contraction, verify the following conditions prior to installation:

- All exterior walls, windows, and doors must be in place and the building envelope closed during acclimation and installation.
- All wet work such as painting, drywall, masonry, and concrete must be completed and dry.
- Basements/crawl spaces must be dry and well ventilated. Crawl spaces must be a minimum of 18" high from the ground to the bottom of the joist. Dirt floors in crawl spaces should be covered with a 6-10 mil black plastic to reduce moisture migration. Seams should overlap and be sealed with waterproof tape. Perimeter crawl space cross ventilation should equal 1.5% of the square footage. Vents must remain open year-round.
- Exterior grading should be complete, and drainage should move away from the building structure with a minimum drop of 3" in 10'.

ACCLIMATION/CONDITIONING

- Only after the site conditions are confirmed suitable for wood flooring should the flooring be acclimated to those site conditions.
- Prior to delivery of the wood flooring, test and record the jobsite conditions and the subfloor moisture to ensure they are suitable for the wood floor delivery. Elevated readings must be resolved prior to delivery.
- Upon delivery of the flooring to the site, again check and record the temperature and relative humidity in the space receiving the wood floor, these readings must be within the manufacturer's requirements.
- Again, check and record (photograph) the MC of the wood subfloor. Check a minimum of 20 locations for the first 1,000 sq. feet, and an additional 4 readings per 100 sq. feet thereafter, and average the results. Write test results directly on the subfloor at each location, including date, and photograph this notation. Test locations should be representative of the entire project and include a minimum of 3 tests per room receiving wood flooring, with special attention to the exterior walls and plumbing. In general, more readings will result in a more accurate average. **(For concrete subfloors: See "Substrates, Concrete")**

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- Check and record (photograph) the MC of the flooring from throughout the shipment. Take readings of minimum of 40 boards for the first 1000 square feet, and an additional 4 readings per 100 square feet thereafter and average the results.
- Any flooring with unusually high or low moisture readings should be isolated and not installed in the floor.
- Ensure the MC of the wood subfloor is no more than 2% greater than the MC of the solid plank (>3-1/2" wide planks) flooring being installed. If moisture testing indicates flooring and subflooring are not sufficiently acclimated, more acclimation is required.
- Acclimation of solid wood can be facilitated by separating the flooring into small lots and/or completely opening the packaging. Cross stack the materials with spacers (3/4" to 1" stickers) between each layer of flooring to allow air circulation on all sides until equilibrium has been reached.
- Concrete subfloors must be moisture tested, and adequate moisture control systems in place prior to installation of any solid wood floor.
- When the wood flooring is delivered at a MC that coincides with the expected in-use conditions, and coincides with the subfloor moisture conditions as tested, and these conditions will be maintained indefinitely, the flooring may be installed immediately.
- Record, date, photography, and document all results.

MOISTURE TESTING METHODS (SEE NWFA PAGE 38-44 FOR ADDITIONAL DETAILS)

- Understanding how to evaluate jobsite moisture and avoid or resolve any moisture related problems is critical to the success of every hardwood flooring installation.
- Test methods and equipment vary widely. Selection of both varies depending on the type of flooring and subfloor involved in each job. Regardless, the installer must understand the equipment and test methods required to rigorously evaluate moisture on. The installer is responsible to test and record (photography) moisture conditions on the job.

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WOOD MOISTURE TESTING

- There are two basic electronic wood moisture meter types, pin less (dielectric) and pin (electrical resistance). Ideally, an installer should have an understanding on how to use both. Readings from two meters are often helpful and may validate each other, or, conversely, help resolve conflicting information.

CONCRETE MOISTURE TESTING

- Slab age does not mean moisture testing can be omitted-moisture testing is critical to assuring the success of every installation. Concrete moisture Content must comply with the adhesive manufacture's requirements.
- The state of the art in concreted moisture testing is Relative Humidity testing via probes {ATSM F2170} inserted into holes drilled in the concreted. This is by far the most accurate method of determining moisture vapor emission rate. This method requires testing 3 locations for the first 1000 square feet of slab and 1 more for each 1000 square feet thereafter.
- Electrical Moisture Meters {ASTM F2659} for concrete are good for preliminary evaluation of concrete slab moisture but might not provide sufficient conclusive information. Typically, electrical meter testing requires 8 readings for the first 1000 square feet, and 5 readings for each 1000 square feet thereafter.
- Calcium Chloride {ASTM 1869} is another common method of concrete moisture testing which provides a quantifiable moisture vapor emission rate.

BASEMENTS AND CRAWLSPACES

- Basement conditions will change from season to season and may affect the flooring above. Finished basements are normally maintained similarly with the above living space but be sure the end user understands how any changes will affect flooring above the basement. Treat any unfinished basement as unconditioned space.

CRAWLSPACES

- The distance from the earth to the underside of the floor joist must be a minimum of 18" and a minimum of 12" from the earth to the underside of the beams. Crawl space ventilation is critical to avoiding crawl space

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related moisture issues. The minimum net area of ventilation openings is 1 square foot for each 150 square feet under-floor space area: unless the ground surface is covered by a Class 1 vapor retarder material. Where a Class 1 vapor retarder material is used, the minimum net area of ventilation openings is 1 square foot for each 1,500 square feet of under-floor space area. One such ventilating opening shall be within 3 feet of each corner of the building.

- Enclosed and Conditioned Crawlspaces: Crawl spaces may be enclosed and conditioned as detailed in IRC section R408.3, and the entire space is maintained at the same temperature and humidity levels as the above living space. These crawl spaces may result in a balanced condition below and above the flooring system. **(See NWFA 2019 Installation Guidelines, page 47)**

ACCLIMATION – TO TEMPERATURE ONLY

- Store the flooring material in the installation area for 48 hours to adjust to room temperature.
- Permanent HVAC should be on and operational and maintained between 60-75°F with relative humidity of 30%- 50% for a minimum of 7 days prior to delivery, as well as during and after installation of the flooring. Humidity levels below 30% may cause movement in the flooring, including gapping between pieces and possible cupping and cracking in the face.
- Use of a humidification/dehumidification system may be required to maintain proper humidity levels, particularly over radiant heat.

NOTE: Temporary propane heaters-torpedo-produce large amounts of moisture and should be avoided.

- Test and document (photograph) temperature and relative humidity in each room receiving Hewn flooring. A temperature range of 60-80 F and R.H of 30-50% is appropriate for most areas. **(See NWFA Technical Publication C-300: Regional Climate Variations for additional information)**
- Never install a wood floor over a known moisture condition. Always test for moisture regardless of conditions to identify any hidden issues that may arise.

Additional special requirements apply when installing over radiant heat. See below under “Radiant Heat Systems” for details.

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SUBSTRATES

WOOD SUBFLOORS

- Wood flooring is not intended to add structural strength or stiffness to a subfloor: the wood flooring installation is only as good as the subfloor beneath it. If a subfloor/structure is deemed by the flooring installer/flooring contractor as not suitable, the installer is responsible to notify the builder/owner prior to installation so any deficiencies can be remedied.
- Plywood subfloor panels should conform to the most-current U.S. Voluntary Product Standard PS 1 performance standard on the date it was manufactured.
- Oriented strand board (OSB) subfloor panels should conform to the governing version U.S. Voluntary Product Standard PS 2 on the date it was manufactured.
- Single Layer Subfloor Panels should be installed continuous over two or more spans, with the long panel dimension (strength axis) perpendicular to the floor trusses or joists. All panel edges not supported continuously with the framing shall be tongue and groove. To minimize the potential for floor squeaks, all subfloor panels should be glued and nailed or screwed to the floor framing using recommended fasteners and subfloor adhesives conforming to ASTM D3498 or APA Specification AFG-01. The ends of the panels must land at the center of the floor joist/truss, with a minimum bearing of $\frac{1}{2}$ ". Fasten with 6d ring-or screw-shank nails, 8d common nails, or spaced 132" O.C. along panel edges and 1" O.C. along intermediate supports. Leave a $\frac{1}{8}$ " gap around the perimeter (all four sides) of each panel.
- Double Layer Subfloor Systems should consist of two layers of either plywood or OSB, compliant with the same specifications as single layer structural panels. A double layer may be required where the existing/base layer and structure do not meet NWFA minimum guidelines. Both layers must be fully acclimated and gapping and fastening requirement remains as for single layer subfloors. The "top" layer should be a minimum $\frac{15}{32}$ " thickness. Second layer should be oriented perpendicular to the floor framing and offset for the long axis of the base layer by a minimum of 4" and end joints by a minimum of one joist spacing: edges of both layer should never be aligned. The top layer may alternately be installed diagonal to the base layer. No base vs. top seams should align. $\frac{1}{16}$ " to $\frac{1}{8}$ " gap must be left around each panel and $\frac{3}{4}$ " gap at all vertical obstructions. Fastening schedule should be the same as for single layer subfloor.
- Solid board subfloors should be "1x6" nominal dimension, installed 45 degrees to the joists, and structurally sound. All end joints require full bearing on a joist, fastened with a minimum 8d rosin-coated or ring shank nails or equivalent.

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- Particle board is not suitable for any mechanically fastened or glue assisted nail down Hewn hardwood flooring installation.

SUBFLOOR CONDITIONS

SUBFLOORS MUST BE:

- Clean - Subfloors must be scraped clean and free of debris. Sweep and /or vacuum all debris from the subfloor. Debris on the subfloor may cause over-wood and uneven surfaces in the finished floor, poor fit between planks, and poor adhesive bond in glue-down installations.
- Flat - Subfloors must be flat to within 3/16 " over any 10' radius and 1/8" over any 6' radius. Check the flatness using a straight edge, laser line or string line. Grind, scrape, sand or shim all high or low spots. On concrete subfloors, grind all high areas and fill low areas using a quality cementitious leveling compound. Ensure that all fasteners securing the subfloor are set flush.
- Dry - Check and record all moisture and temperature conditions prior to installation. Visually check the jobsite for potential moisture problems. Look for signs of water intrusion around window and doors. Check for mold or fungus on walls and all other areas. Water intrusion may necessitate structural repairs and/or create conditions unsuitable for flooring installation.

SUBSTRATES: CONCRETE

(SEE NWFA PAGE 61-86 FOR ADDITIONAL DETAILS)

- Concrete subfloors must be fully cured, at least 60 days old, and should have minimum 6-mil poly film between the concrete and ground. Lightweight concrete can hold more moisture and may take longer to dry out to an acceptable moisture content.
- Installations over concrete require the use of a Calcium Chloride test per ASTM F 1869, or an in-situ Relative Humidity test using probes inserted into holes drilled into the concrete. Test all areas where wood will be installed. The results of the Calcium Chloride tests should not exceed 3 lbs. per 24 hours per 1000 square feet, and in-situ test results should not exceed 75% RH. Carefully record all results.

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NOTE: These tests give a snapshot of moisture conditions at the time of the test, but do not reflect the permanent year-round condition of the substrate. If Gluing Down on concrete that is on or below grade, it is highly recommended to use a concrete sealer approved by the manufacturer of the adhesive you have chosen, even if you believe the concrete is dry. A concrete slab on or below grade that measures dry today may become moist in the future and cause floor failure. Hewn is not responsible for site related moisture issues.

- More stringent requirements regarding the dryness of the subfloor apply when installing over radiant heat. **(See “Radiant Heat Systems” for details)**

WOOD SUBFLOORING INSTALLED OVER CONCRETE (SEE NWFA PAGES 76-86 FOR ADDITIONAL DETAILS)

- Wood subfloor panels over concrete slabs may be single or double layer.
- Wood subflooring may be mechanically fastened, full spread glue-down or floated.
- All concrete conditions as previously defined above must be met.
- Wood subfloor panels must be properly acclimated and meet the same standards as previously defined under Substrates-Wood. If using pressure treated panels, they must be kiln dried after treatment and fully acclimated to the site conditions.
- A Class-1 impermeable vapor barrier is strongly recommended.
- Various fastening methods apply.

STRUCTURALLY SOUND

- Wood subfloors must be well fastened. Use screws every 6” and replace subfloor panels/boards as necessary to eliminate all movement and squeaking.

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ACCEPTABLE SUBFLOOR TYPES:

- **CDX Plywood** - At least 5/8" thick for joist spacing up to 16" on center, minimum 3/4" thick for joist spacing greater than 16" on center (19.2" maximum). Plywood subfloors installed over concrete must be installed in accordance with the guidelines set forth by the National Wood Flooring Association (NWFA) – www.nwfa.org.
- **OSB** - At least 3/4" thick, PS 2-92 rated, or PS 1-95 rated.
- **Existing hardwood flooring** - Over a suitable subfloor as outlined above. Existing floor must be well-fastened, smooth, and for Glue Down installations, unfinished.
- **Concrete slab** - Glue Down/Floating Floors only. Concrete must be at least 3000 lbs. density for Glue Down installations.
- **Lightweight concrete (gypcrete)** - Floating Floors only. Gluing to concrete that is less than 3000 lbs. density is NOT WARRANTED. Hewn provides no guarantee that lightweight concrete or gypcrete will remain structurally sound during the life of the floor. Separation of the flooring from the subfloor caused by deterioration or fracturing of the substrate will not be considered a product failure.
- **Ceramic Tile** - Floating Floor only. Tile must be well-adhered and flat to 3/16" over any 10' radius.
- **Resilient tile & sheet vinyl** - Glue Down/Floating Floors only. For glue-down, tile/vinyl must be new and non-urethane-coated.

UNDERLAYMENTS-MOISTURE CONTROL (SEE NWFA PAGES 106-109 FOR ADDITIONAL DETAILS)

- When installing over a wood subfloor, always identify if the space below the flooring is conditioned (heated/cooled and humidified/dehumidified) or unconditioned space (not directly heated/cooled or humidified/dehumidified).
- No vapor retarder is necessary under the new wood floor when installed over a conditioned space maintained at the same temperature and humidity as the living space directly above. No vapor retarder should be installed under the wood floor if a Class I or Class II vapor retarder exists on the underside of the joists.

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- A Class II vapor retarder should be used on wood subfloors over unconditioned spaces. Never use a vapor retarder to remedy a known moisture condition, and never install a wood floor over a known moisture condition.
- When installing over a concrete subfloor, a Class I impermeable vapor retarder is always recommended, whether installing the wood flooring directly on the concrete, installing a wood subfloor on the concrete, or installing over existing flooring.

Note: Existing vinyl, resilient, linoleum, or cork flooring may not require a vapor retarder be installed.

PREPARING THE PERIMETER

- Undercut door trim, jambs and casings to the thickness of the flooring plus any adhesives or underlayment you plan to use.
- All wood flooring expands and contracts with changes in humidity. It is essential to install the floor leaving adequate expansion space between ALL sides of the flooring and ALL vertical obstructions, including door trim, jambs, studs, plumbing, cabinets, etc. This space will be covered with base molding. Failure to provide adequate expansion space in any single location can cause damage to the entire floor.
- Minimum expansion space for 9/16" – 3/4" thick flooring is 5/8"

LAYOUT

- On wood subfloors, if the subfloor is fastened to joists or trusses, the flooring should be installed perpendicular or at a 45° angle to the joists/trusses. If possible, use an outside wall as the starting wall.
- No contiguous area of installed flooring should exceed 30' across the widths of the planks or 50' along the lengths of the planks. For spaces wider or longer than these dimensions, add expansion space midway through the span and cover with a T-molding or other transition piece.

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GENERAL TOOLS AND ACCESSORIES RECOMMENDED

ALL INSTALLATION METHODS

- Pencil -Tape Measure -Safety Glasses -Utility Knife -Moisture Meter, -Hammer -Shim Wedges -Tapping Block - Rubber Mallet -Carpenter square,-Pry-bar or pull-bar -Wood Filler -Scraper -Dust Mask -Rags, -Chalk Box & Chalk
- Recommended Saws: power miter saw, table saw, jamb saw

NOTE: If tape is needed (we recommend avoiding its use if possible), use ONLY 3M Advanced Delicate Surfaces 2080EL tape, and be sure to remove any tape within 20 minutes of application. Leaving tape on for more than 20 minutes or using the wrong type of tape will damage the finish (if flooring is prefinished). Never tape protective covering directly to the floor – only tape it to itself.

Once all these General Conditions are met, continue the installation using the instructions for the type(s) of installation you have chosen (Nail Down, Nail + Glue, Glue Down, Floating Floor, and Radiant Heat Systems).

NAIL DOWN INSTALLATION INSTRUCTIONS

FOR PLANKS UP TO 7.5" WIDE

(If nailing down planks wider than 7.5", see "Nail + Glue Installation Instructions")

Hewn Solid Wood Flooring can be nailed to plywood, OSB and existing wood flooring meeting the requirements outlined above under 'Subfloor Conditions.'

For Nail-Down Installations, you will need the General Tools and Accessories, or Nail down Installations, you will need the General Tools and Accessories, plus:

- Nail set -Tack Stapler or 1" roofing nails (for felt) -6-d Finish Nails or Pneumatic Finish Nailer with 1-1/4" to 1-1/2" fastener

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- Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 1-1/2" - 2" Fasteners for flooring 5/8"– 3/4" thick, or 1-1/4" to 1-1/2" fasteners for flooring 5/16" – 9/16" thick (always do a test plank to verify that fasteners are seating properly and not causing dimpling on the surface)
- Compressor with hose (if pneumatic tools are used)
- 15 lb. roofing felt, #15 hardwood floor underlayment felt, or Aqua Bar underlayment paper

Nailing Down the Floor

1. After installing 15 lb. felt or Aqua Bar per the manufacturer's instructions, measure out from the starting wall the width of one flooring plank plus the appropriate expansion space for that thickness of flooring. Mark two points toward each end of the starting wall and snap a chalk line along the full length of the wall through the marks.
2. Lay the tongue side of the first row of flooring along the chalk line. Face nail (top nail) and blind nail the first row of flooring in place. Place the fasteners approximately 3/4" from the wall side (groove side) of the flooring board every 4" to 6". Continue the first-row installation blind/edge nailing every 4" to 6" along the tongue and every 2" to 3" from every end joint. Note: Blind/edge nailing of the first row may require the installer to use 6-d finish nails or the pneumatic finish nailer along the tongue.
3. Continue the installation across the room, blind/edge nailing every 4" to 6" and 2" to 3" from each end joint. Stagger end joints by at least 18". Avoid creating "H" patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start the subsequent row, discarding any pieces shorter than 12".
4. Trim the last row of flooring to maintain the minimum expansion space at the far wall.
5. At the far (finish) wall, it may be necessary to face-nail the last 2-3 rows due to the angle of the stapler/nailer. The last row or two of flooring may need to be pulled together using a pulling bar.
6. Complete the installation by reinstalling or installing new base moldings.

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NAIL + GLUE INSTALLATION INSTRUCTIONS

REQUIRED FOR PLANKS OVER 7.5", RECOMMENDED FOR ALL PLANKS OVER 4" WIDE

Hewn Solid Plank Wood Flooring can be nailed + glued to plywood, OSB and existing wood flooring meeting the requirements outlined above under 'Subfloor Conditions.'

For Nail + Glue Installations, you will need the General Tools and Accessories, or Nail + Glue Installations, you will need the General Tools and Accessories, plus:

- Adhesive: Franklin 821, Bostik Best, or Sika T-55 urethane wood flooring adhesive or equivalent
- Adhesive Remover recommended by the manufacturer of the adhesive selected
- Adhesive Trowel recommended by the manufacturer of the adhesive selected
- 6-d Finish Nails or Pneumatic Finish Nailer with 1-1/4" to 1-1/2" fastener
- Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 1-1/2" - 2" Fasteners for flooring 5/8" - 3/4" thick, or 1-1/4" to 1-1/2" fasteners for flooring 5/16" - 9/16" thick (always do a test plank to verify that fasteners are seating properly and not causing dimpling on the surface)
- Compressor with hose (if pneumatic tools are used)

Nailing + Gluing the Floor:

1. Measure out from the starting wall the width of one flooring plank plus the appropriate expansion space for that thickness of flooring. Mark two points toward each end of the starting wall and snap a chalk line along the full length of the wall through the marks.
2. Trowel spread the adhesive on the subfloor along the chalk line wide enough to allow the first row of flooring to be installed, being careful not to cover the line. Follow the adhesive manufacturer's recommendations for wet lay times before proceeding to the next step.
3. Lay the tongue side of the first row of flooring along the chalk line. Face nail (top nail) the first row of flooring in place. Place the fasteners approximately 3/4" from the wall side (groove side) of the board every 4" to 6". Once the face nails are set, use 6-d finish nails or the pneumatic finish nailer to blind/edge nail

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along the tongue of the first row, every 4" to 6" and every 2" to 3" from every end joint. Check to make sure the first row is still straight along the chalk line before proceeding.

4. Trowel spread enough adhesive to install 2-3 more rows.
5. Install the second row by sliding the groove side on to the tongue of the first row. Blind/edge nail it in to place, with fasteners every 4" to 6" and 2" to 3" from each end joint. Stagger end joints by at least 18".
6. Continue nailing and gluing 2-3 rows at a time in this manner across the room. Avoid creating "H" patterns (where an end joint is adjacent to another end joint in the second to last row installed). Use cut ends to start the subsequent row, discarding any pieces shorter than 12".
7. Most adhesives require that the installer clean the adhesive off the flooring boards during the installation. Follow the adhesive manufacturer's recommendations for this procedure.
8. Trim the last row of flooring to maintain the minimum expansion space at the far wall.
9. At the far (finish) wall, it may be necessary to face-nail the last 2-3 rows due to the angle of the stapler/nailer. The last row or two of flooring may need to be pulled together using a pulling bar.
10. Complete the installation by reinstalling or installing new base moldings.
11. Do not allow foot traffic on the floor for 24 hours after installation is complete.

GLUE DOWN INSTALLATION INSTRUCTIONS FOR PLANKS 7.5"

Hewn's Plank Hardwood Engineered Flooring can be glued down to concrete, plywood, OSB, underlayment grade particleboard, and existing wood floors meeting the requirements outlined above under General Conditions/Subfloor Conditions. Hewn's Plank Hardwood Engineered Flooring can also be glued to other surfaces such as well adhered sheet vinyl, vinyl tile, ceramic, etc., but the performance of the adhesive is the responsibility of the adhesive manufacturer and careful adherence to the adhesive manufacturer's installation instructions for the subfloor surface is crucial. Hewn does not warrant the adhesive bond between the subfloor and the wood flooring.

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For Glue Down Installations, you will need the General Tools and Accessories, or Glue Down Installations, you will need the General Tools and Accessories, plus:

- Adhesive: Franklin 821, Bostik Best, or Sika T-55 urethane wood flooring adhesive or equivalent
- Adhesive Remover recommended by the manufacturer of the adhesive selected
- Adhesive Trowel recommended by the manufacturer of the adhesive selected
- Masking Tape (if needed – not recommended): 3M Advanced Delicate Surfaces 2080EL Tape

GLUING DOWN THE FLOOR

1. Measure out from the starting wall the width of one flooring plank plus the appropriate expansion space for that thickness of flooring. Mark two points toward each end of the starting wall and snap a chalk line along the full length of the wall through the marks. Install backer boards as guides along the wall side of the chalk line. Anchor the backer boards in place with screws or finish nails. Over concrete subfloors anchor the backer boards with concrete screws or concrete nails. These boards will be removed later.
2. Lay the first row of flooring, but do not glue into place. Align the tongue side of the flooring boards against the backer board. Use cut ends to start the subsequent row, discarding any pieces shorter than 12". Dry lay the next two rows of flooring in place, sliding the tongue into the groove. End joints should be staggered by at least 18". Pull the rows of flooring boards away from the backer board approximately 24" to allow for the glue to be spread.
3. Trowel spread the adhesive on the subfloor along the backer board wide enough to allow the first three rows of flooring to be installed. Follow the adhesive manufacturer's recommendations for wet lay times before proceeding to the next step.
4. Install the first row of flooring, pressing the tongue to the backer board. Slide the tongue of the next row of flooring into the groove of the first row and continue until the first three rows are done.
5. If tape is needed to hold boards together, use ONLY 3M Advanced Delicate Surfaces 2080EL Tape, and be sure to remove any tape within 20 minutes of application.

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6. Trowel spread adhesive and continue the installation across the room. Trim the last row of flooring to maintain the minimum expansion space at the far wall. Be careful not to move the installed flooring out of position. Some flooring boards may need to be tapped or pulled into place with a tapping block or pull bar.
7. Most adhesives require that the installer clean the adhesive off the flooring boards during the installation. Follow the adhesive manufacturer's recommendations for this procedure.
8. Once the room is finished, remove the backer boards at the starter row
9. Dry lay the first row of flooring to replace the backer board. Trowel spread the adhesive on the back of the flooring boards (not on the subfloor) and install the flooring, sliding the groove onto the tongue of the already installed starter row. Doorways and other openings may require installation of the flooring the same way. Slide the flooring boards under the previously cut door trims and casings.
10. Complete the installation by reinstalling or installing new base moldings.
11. Do not allow foot traffic on the floor for 24 hours after installation is complete.

FLOATING FLOOR INSTALLATION INSTRUCTIONS

Hewn's Solid Wood Flooring can be installed as a floating floor system over almost all types of subfloors including Plywood, OSB, Existing Wood Floor, Vinyl, Vinyl Tile, and Ceramic Tile provided they are clean, flat, dry, and structurally sound, meeting the requirements outlined above under 'Subfloor Conditions.'

NOTE: Hewn's Solid Wood Flooring boards must be at least 4" wide to be installed as a floating floor system.

For Floating Floors, you will need the General Tools and Accessories, or Floating Floors, you will need the General Tools and Accessories, plus:

- Tongue and Groove Glue: Franklin Titebond III or Equivalent PVA adhesive

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- Underlayment Pad: ~1/8" thick Two-in-One pad (pad plus vapor barrier) or ~1/8" thick pad with 6 mil poly film sheeting.
- Masking Tape (if needed – not recommended): 3M Advanced Delicate Surfaces 2080EL Tape

FLOATING THE FLOOR

1. If installing over underlayment pad plus a separate layer of polyfilm, install the 6 mil polyfilm first, taping all seams with waterproof tape, and then install the pad. Roll out the first run of pad from wall to wall parallel to the starter wall. On the installed pad mark two points toward each end of the starting wall and chalk a line the full length of the wall through the marks. This is the starter line.
2. Lay the first row of flooring using only long boards. The first flooring board and the last flooring board in this row should be a minimum of 12" long and cut to provide the appropriate expansion space on each end. Apply a 1/8" continuous bead of T&G glue on the bottom side of the groove of each end joint. Align the tongue side of the starter row along the chalk line and engage the end joints together. Use shims along the along wall and at both ends of the row to keep the floor in place and maintain the right expansion space.
3. Lay the second and third row of flooring boards. End joints should be separated by a minimum of 8" from the adjacent row. Spread a 1/8" bead of T&G glue along the bottom side of the long groove and each end joint groove on the second row of flooring. Engage the groove side of the second row with the tongue of the starter row. Engage the end joints at the same time, aligning them and cutting at the end of each row to allow for appropriate expansion space. Continue this procedure for the third row. These three rows must be aligned straight to ensure that the rest of the installation remains straight.
4. Continue using the same procedure. If boards do not easily engage together, use a tapping block or pull-bar. Use masking tape as needed to keep the boards together and rows straight. Remove all tape within 20 minutes of application. Use only the 3M Advanced Delicate Surfaces 2080EL Tape.
5. Avoid working on top of the installed flooring to prevent breakage of the glue joint.
6. Complete the installation by reinstalling or installing new base moldings.
7. Do not allow foot traffic on the floor for 24 hours after installation is complete.

Solid Wood Flooring

RADIANT HEAT SYSTEMS

NOTE: The following Hewn Solid Wood Plank products are NOT WARRANTED in installations over radiant heat:

- All Hickory products, regardless of plank dimensions
- All products 1/2" or thinner, regardless of species or plank width regardless of species or plank width
- All products with plank widths greater than 7-1/2"

The following products ARE WARRANTED for use over hydronic radiant heat:

- European White Oak, Domestic White Oak, Red Oak, Ash or Walnut with planks at least 9/16" thick and not wider than 7 1/2".
- Quarter-sawn and rift-sawn solid wood flooring is more dimensionally stable in width than plain sawn wood flooring.
- Narrow boards are more stable than wide boards.

NOTE: Hewn only recommends a solid wood floor be installed by Direct Nail Method to subfloor over joists or sleepers in a warm floor condition. If your condition varies, please consider using Hewn Engineered Flooring.

Solid Wood Flooring

In all installations over radiant heat, the warranty will be void if any of the following requirements and instructions are not adhered to:

- The radiant heat system must be hydronic (using warm water). Hewn Solid Wood Flooring is not warranted over electric radiant floor heat systems.
- The heat system must be designed for wood flooring and have an outside temperature thermostat installed. Unlike conventional heating systems, which ion as needed, radiant systems work most effectively and with less trauma to the wood floor if the heating is gradual, based on small incremental increases in relation to the outside temperature.
- The system controller must be designed for wood flooring and have a temperature control mechanism that will not allow the surface temperature of the subfloor to exceed 82°F.
- The system should be tested prior to installation for any potential leaks in the system with documentation.
- The system must ALWAYS be kept on and within 15°F of normal operating temperature.
- For concrete subfloors, conduct and document Calcium Chloride Tests per ASTM F1869. Test results must not exceed 2.0 lbs. per 1000 square feet per 24 hours. - For wood subfloors, use a pin type meter to document the moisture content of the subfloor. Moisture readings should not exceed 8% in any location and readings for the subfloor must be within 2% of the flooring at the time of installation.
- Relative Humidity in situ concrete moisture Testing – ASTM- 2170. Limits for Hewn Hardwood Plank flooring are 70%. When getting readings over 70%, you must use a proper moisture retarder. Franklin International, Bostik, and Sika manufacture moisture retarding products. Follow the manufacturer’s installation instructions and recommendations.
- Indoor Relative humidity at the jobsite must always be maintained between 30% and 50%. Failure to maintain proper humidity levels will void all warranties.
- The radiant heat system must be on and operating at normal output a minimum of 14 days prior to the start of the installation.
- Wood flooring must be delivered to the jobsite and acclimated to room temperature in sealed cartons 48 hours prior to the start of the installation.
- Temperature in the installation area must always be controlled between 60°F and 80°F.
- Maximum surface temperature of the wood flooring can never exceed 82°F.

Solid Wood Flooring

- Excessive heat, rapid heating, and/or failure to maintain humidity levels between 30% and 55% may cause cracking, cupping and other forms of failure and will void the warranty.

NOTE: In wood flooring installations over radiant heat, moderate surface checking, cracking (especially at the ends of boards and around knots), shrinkage, gapping between planks, and slight cupping are all to be expected and do not constitute a product defect.

Once these instructions and requirements are met, continue the installation by following the instructions for your specific installation method as outlined above.

PROTECTION AND CARE

- After installation, if a protective cover over the floor is needed, cover the floor completely. Areas left uncovered may change color. Use a heavy kraft paper or other suitable covering with a vapor permeability rating of 1 perm or more to avoid trapping moisture/vapor on or within the floor.
- Be aware that covering a glue-down or glue-assisted application may not allow some adhesives to properly cure. Please follow the adhesive manufacturer's recommendations.
- Any adverse effect of covering Hewn flooring after installation are excluded by the Hewn limited warranty.
- Any protective covering should be taped, using a low-adhesion tape, such as 3M Advanced Delicate Surfaces 2080EL tape to base and shoe moldings. NEVER tape to the finished flooring. When taping paper or sheets together, tape them to each other, not the floor. Do not allow the floor covering to sit on the installed floor for an extended period. Do not allow any foot traffic or heavy furniture placement for at least 24 hours.
- All wood, finishes or unfinished, is subject to direct UV light. When possible, use window and door drapes to protect your floor from light. Wood is photosensitive and will change color when exposed to UV light. This is not considered a material defect.
- You can minimize the effects of UV light by avoiding rubber-backed mats or rugs. Change locations of your rugs and coverings periodically to allow the floor to age uniformly.