

Hapwood by Howell

Unfinished Engineered Flooring Installation Guidelines

Introduction

Hapwood by Howell flooring installations must conform to all local building codes. Howell recommends that the installation comply with guidelines below and with the current NWFA Installation Guidelines. Any discrepancies, Howell guidelines supersede.

Responsibilities

- Howell is responsible to manufacture the flooring to appear and perform as marketed based on standard and premium warranties (found at howellflooring.com).
- End User is responsible to provide jobsite conditions that meet Howell and NWFA minimum requirements prior to installation. The end user must maintain the flooring in accordance with Howell warranty guidelines, including maintaining recommended temperature and relative humidity levels year-round.
- Installer is responsible to check jobsite conditions and confirm they meet manufacturer and NWFA guidelines. Ensure product meets expectations regarding appearance and quality prior to installation. Howell recommends a trial lay out from several bundles and a review by installer and end user prior to installation.

Installation Constitutes Acceptance of Hapwood by Howell flooring as delivered and all site conditions including subfloor/substrate, moisture conditions and any variables that may affect the wood flooring now and in the future. Industry standards allow a variance from grading and manufacturing specifications of up to 5% of the total job quantity however Howell standards are up to 3%.

Acclimation

- Test and record the jobsite conditions and subfloor moisture to ensure they are suitable for wood flooring delivery. Elevated readings must be resolved prior to delivery of any wood flooring.
- Ensure moisture content of the wood subfloor is within 4% moisture content of Hapwood by Howell flooring being installed. If moisture testing indicates flooring and subflooring are not sufficiently acclimated, more acclimation is required.
- Acclimation can be performed by separating the flooring into small lots and/or completely opening bundles. Cross stack the material with spacers (3/4" to 1") between each layer of flooring to allow air circulation.

- Concrete subfloors must be moisture tested, and adequate moisture control systems should be in place prior to installation of Hapwood by Howell. Any unusually high moisture readings (>13%) should be addressed prior to wood floor installation. Ensure moisture content is within 4% of Hapwood by Howell flooring being installed.
- Engineered flooring installed in a full spread adhesive may require some time to allow the adhesive to cure properly; follow the adhesive manufacturer recommendations regarding covering the job, finishing, etc.
- Refer to Moisture Testing in NFWA Wood Installation Guidelines for methods of moisture testing.

Substrates – Wood Subfloors

- Wood flooring by design is not to be used to add/stiffen a subfloor. The subfloor is the foundation for the wood floor. The final wood floor installation is only as good as the subfloor it is installed over. If it is the opinion of the wood flooring contractor that the subfloor is not in a suitable condition for hardwood flooring, it is the responsibility of the contractor to either remedy the subfloor and/or to notify the builder/owner prior to installation to allow them to make it suitable for the flooring being installed.
- Plywood subfloor panels should conform to the most current U.S. Voluntary Product Standard PS 1 performance standard.
- Oriented Strand Board (OSB) should conform to the governing version U.S. Voluntary PS 2
- 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 framing shall be tongue and groove. To minimize the potential for floor squeaks, most wood panel subfloor manufacturers recommend that the subfloor panels be glued and nailed to the floor framing using recommended fasteners subfloor adhesives conforming to ASTM D3498 or APA Specification AFG-01. The ends of the panels should land at the center of the floor joist/truss, with minimum bearing of ½". Fasten with 6d ring- or screw-shank nails, or proprietary screws spaced 12" O.C. along panel edges and 12" O.C. along intermediate supports. Leave a 1/16" – 1/8" gap around the perimeter (all four sides) of each panel.
- Joist Spacing
 - 16" O.C. or less – Minimum subfloor 19/32" plywood or 23/32" OSB
 - >16" – 19.2" – Minimum subfloor 23/32" plywood or OSB
 - >19.2" – 24" – Minimum subfloor 7/8" plywood or OSB
 - >24" – 32" – Minimum subfloor 1 1/8" plywood or OSB
- IF the existing base layer panel thickness and joist combination do not meet guidelines above, install a second layer in accordance with Double-Layer Subfloor Systems in NFWA Wood Flooring Installation Guidelines.

- Particleboard is not a suitable substrate for any Hapwood by Howell hardwood flooring installation.
- The subfloor must be sound. Evaluate the subfloor carefully prior to installation of the wood floor. If there is movement, objectionable noises, water damage, delamination or damaged areas of the subflooring material, damage within the subfloor system, or if the subfloor does not meet minimum standards for the wood flooring being installed, it must be addressed by a qualified professional before installation of the wood floor.
- The subfloor must be flat. For installations with mechanical fasteners of 1.5" or longer the subfloor should be flat to within 3/16" in 6', or ¼" in 10'. For glue down installations and installations less than 1.5" the subfloor should be flat to within 1/8" in 6' or 3/16" in 10'. Refer to NWFA Installation Guidelines for assistance in addressing flatness issues (high spots, low spots, etc.)
- The subfloor must be dry. In hot and humid climates, and during the humid season, the subflooring should not exceed 13% moisture content.

Substrates – Concrete

- Concrete slabs should be a minimum of 30-45 days old prior to installation of Hapwood by Howell unfinished engineered flooring. A concrete slab on grade must have a Class 1 vapor retardant installed directly below the slab.
- A 3,000 psi compressive strength is the minimum requirement for wood flooring installation.
- Subfloor toppings may be used to level or smooth a concrete floor. Properly mixed subfloor toppings should have a minimum strength of 3,000 psi. Prior to any wood floor installation the topping must be completely dry.
- Concrete subfloors must be sound. Check for hollow spots, voids, loose or crumbling areas and stress cracks. Do not install flooring over any issues without addressing them with responsible party. Concrete slabs must be flat within 3/16" in 10' or 1/8" in 6'

Substrates – Other

- Refer to the NWFA Installation Guidelines for details when installing over other substrates. Some examples include Wood Subfloor Over Concrete, Screeds/Sleepers, Radiant Heat and Existing Flooring.

Underlayments: Moisture Control

- Vapor retarders over wood subfloors

- No vapor retarder is needed when wood flooring is installed over a conditioned space maintained at the same temperature/humidity as the living space directly above.
- A Class II vapor retarder should be used on wood subfloors over an unconditioned space. Never use a vapor retarder to remedy a known moisture condition, and never install wood flooring over a known moisture condition
- Vapor retarders over concrete
 - Every concrete slab on or below grade should have a Class I vapor retarder installed directly beneath it, prohibiting the passage of ground moisture through the slab.

Layout

- A primary line should be established as the longest, straightest, continuous wall in the room to find working lines. Working lines should be based off the primary line so the job flows well and is visually balanced.

Installation Methods

- Work from multiple bundles to achieve satisfactory assortment of color variation, lengths, knots, etc. Distribute lengths to avoid patterns such as stair steps or H-joints. Cutting varied starter boards will assist in “randomizing” joints.
- Nail Down
 - Install perpendicular to the floor joists unless special subfloor requirements are met.
 - When installing parallel to the floor joist follow one of the two methods below
 - Add a second layer of minimum 15/32” plywood underlayment to the existing subfloor
 - Brace between joists/floor trusses. This should be completed by a qualified professional.
- Fasteners
 - Blind nail using 18-20 gauge cleats (flooring nails) or 18 gauge narrow crowned staples (1/4”). Not less than 1-¼” length. Fasten on 3”-4” intervals, 1”-2” from end joints and minimum of 2 fasteners per board.
 - Face nailing may occur where a flooring nailer or finish nailer cannot adequately drive a fastener into tongue of the board.
 - When face-nailing along starter rows or pull-up rows, use a minimum of 18 gauge fastener
 - For <3” widths, face nails should be placed at 10-12” intervals
 - For 3” or greater widths, face nails should be placed at 8-10” intervals

- Due to the reduction in the amount of fasteners used per square foot of flooring width, **wide plank (5" or greater)** must be installed using the glue assist method. The nailing schedule should remain the same as normal.
- Glue-Down
 - Install perpendicular to the floor joists unless special subfloor requirements are met.
 - When installing parallel to the floor joist follow one of the two methods below
 - Add a second layer of minimum 15/32" plywood underlayment to the existing subfloor
 - Brace between joists/floor trusses. This should be completed by a qualified professional.
 - Flatness: The standards for flatness with glue-down installation methods on wood subfloor or concrete slab are 3/16" in 10' or 1/8" in 6'.
 - Howell recommends a quality hardwood flooring adhesive. Follow the adhesive manufacturer's instructions for proper use of the adhesive, application methods, flash time, working time, etc. All wood flooring adhesives must be elastomeric, which means they remain flexible and maintain their bond when there is movement in the installed flooring system.
- Floating Floors (Not recommended)
 - Follow instructions in the NWFA Wood Flooring Installation Guidelines for floating floors.
 - Howell limited warranty does not apply to a floating floor.