Engineered Hardwood Flooring Installation Guidelines

AAYERS Engineered Hardwood Flooring can be installed in one of the following methods:
Glue Down, Nail Down, Nail +Glue Assist, Float

IMPORTANT INFORMATION

GUIDELINE DISCLAIMER: Before starting installation, read all instructions thoroughly. Failure to do so can/will result in the following damage to your wood floor. Cupping, Warping, Bowing, Twisting, Bucking, Shrinking, Delam/Sear, Gapping, Checking, Cracking, Splitting, Discoloring, Early Wear, Denting, Scratching, Hollows and Releasing from the subfloor. All installation instructions must be followed for warranties to be considered valid.

INSTALLER/OWNER RESPONSIBILITY
Prior to installation, inspect all materials carefully. Warranties do not cover materials with visible defects once they are installed. Jobsite temperature and relative humidity levels MUST also be carefully measured and recorded daily during the installation process. The homeowner MUST maintain the interior relative humidity level (in the ambient air), between 35% and 50%, and a temperature between 60 and 80 degrees Fahrenheit year around.

Product: Inspect the hardwood flooring at time of delivery and prior to installation in well lighted conditions to ensure proper identification of any potential problems. Carefully inspect the flooring for grade, color, finish, and quality or any damage during transit before installing it. The installer should use reasonable selectivity to cull out or cut off unacceptable pieces. If the flooring material is not acceptable, “Do Not Install The Floor” and contact AAYERS Hardwoods Flooring. Defective product will be replaced.
Material that is subjectively viewed as unacceptable but falls within AAYERS Hardwoods grading norms will not be replaced.
AAYERS Engineered Hardwood Flooring is manufactured according to accepted industry standards, which permit a defect tolerance of 5%.

Waiver: Unless a waiver listing exceptions exists, installation constitutes acceptance of Subfloor/Substrate, the job itself including the ambient temperature and relative humidity at the time of installation, and all impacting variables that may affect a wood floor

Environment: Prior to installation, the installer MUST determine that the environment of the job site and the conditions are suitable to the material that is being installed. The installer is responsible for determining the moisture emission rate of the concrete slab and/ or the moisture content of the CDX plywood or better sub floor as per the National Wood Flooring Association (NWFA) installation guidelines, SECTION V – Appendix AA Moisture Testing Procedures for Concrete Slabs, (specifically the Calcium Chloride test) and Appendix AB Moisture Testing for Wood. All test results MUST be carefully documented and made available to the homeowner prior to installing the flooring. AAYERS Hardwood Flooring declines any responsibility for job failure from or associated with inappropriately or improperly prepared subfloors or job site environment deficiencies. Also, AAYERS “HIGHLY” recommends that the installer/contractor take daily readings of the ambient conditions of the environment in which the flooring will be installed i.e. temperature and relative humidity levels and record the results on a daily log sheet as well as take periodic moisture readings of the wood floor and sub floor during the installation process and record the results of those readings as well.
The homeowner MUST be made aware of the effect that moisture has on wood flooring e.g. moisture gain can result in cupping, buckling, cracking, splitting, checking, warping, ware-layer delam/shear, and/or cross-ply separation from the sub floor and possible damage to surrounding walls, tile/stone floors and cabinetry etc.
Moisture loss can also result in splitting/separation of the segments, gapping, surface and or end checking and everything else mentioned with moisture gain. The importance of maintaining a controlled environment (60 to 80F and 35 to 50 rh respectively) before, during and after the installation for the life of the floor should be understood.

Moisture Content: Verify that the delivered flooring has 7 to 10% moisture content and is free of defects.
NOTE: 5% of the material may have moisture content as high as 12% after kiln drying.

Blending Rule: To achieve a uniform appearance across the entire floor, we highly recommend that you open and work from several cartons at a time and dry-lay the flooring, mixing the planks from several cartons. This will allow you to blend the planks for maximum aesthetic appearance. Make certain the room is well lit to ensure color is consistent and that any visual defects can be seen and removed.
Where wood flooring transitions into support moldings (i.e. stair treads, stair nosing’s, reducer’s, T-molds, end-caps etc.,) pick boards that better blend to the color tone of the molding to avoid a drastic change in color. Your goal is to gradually transition into the molding to avoid a distinct color variance between the wood floor and the trim moldings.

Wet Work: All wet work such as plastering; painting and any/all masonry or tile work MUST be completed prior to delivering the flooring to the job-site.

Protection: It is the installer’s responsibility to protect the flooring from any/all damage i.e. dings, dents, scratches etc.

Installation/construction related damages are NOT covered under AAYERS structural and or finish warranties

Storage and Handling: Handle and unload wood flooring with care. Store in a dry place; make sure to provide at least a 4 inch space (using dry 4" x4" stickers or a dry pallet that provides enough clearance) under boxes for proper air movement. Prior to delivery of flooring, outside doors and windows must be in place.

Allowance: 8-12% cutting allowance, depending on layout, must be added to the actual square footage amount needed. (Diagonal, herringbone, or bordered installations will require a higher percentage)

PRE-INSTALLATION INSPECTION

Wood flooring should be one of the last items installed. All concrete, masonry, plastering, and other "wet" work must be complete and thoroughly dry. Roofing and the exterior shell of the structure must be finished and weather tight with doors and windows installed. The wall coverings should be in place and all painting completed except for the final coat on the base molding.

Visual Inspection: The first inspection is visual and basic. Is there water in the building?

Job-Site evaluation: The contractor/installer MUST perform a pre-installation job-site evaluation. The contractor/installer MUST determine the following: Does the lot/structure sit on an alluvial plain? Is exterior soil elevation 6" below edge of flashing? Does exterior slope away from foundation at a rate of 6" drop in 10' for soft-landscaped areas and 3" drop in 10' for hard-paved areas? Proper drainage away from the structure is absolutely critical to ensure weather tight conditions and crucial to proper hardwood flooring performance. If structure is near a hill, the lot should be graded with a swale to move moisture off the lot and prevent it from coming in contact with the foundation.

Planks width:
Planks wider than 6.5" has become increasingly popular in recent years and many of Aayers products feature wide plank designs.
While these products can be installed with nail down installation, it is not the recommended method.
If you are installing these products with nail down installation, follow the recommendations for fastener selection and nailing schedule, glue assist with elastomeric flooring adhesive and/or glue butt joints with non-crystallizing floating floor adhesive. Failure to follow instructions for 'glue assist' or 'glued butt joints' may result in squeaking and/or other objectionable floor noise. Such noise is not the result of a product defect. Some noise can be expected on all nail down installations.
See below under 'Nail + Glue Assist Installation Instructions' for details.

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 26' across the widths of the planks or 33' 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.

HVAC System: As recommended by the NWFA, the installation site MUST have a consistent room temperature of 60 to 80 degrees Fahrenheit and 35 to 50 percent relative humidity respectively. The structure MUST be fully enclosed with interior climate controls operating for at least 5 days before delivering flooring to the jobsite. Moreover, recommended temperature and humidity levels MUST continue during and after installation for the life of the floor. If heating/air-conditioning/humidification systems are in operating condition, they need to be operating. If it is not possible for the permanent heating/air-conditioning/humidification systems to be operating before, during and after installation, a temporary heating/air-conditioning/humidification system that mimics "manufacturer" specified temperature and humidity conditions can enable the installation to proceed until a permanent heating/air-conditioning/humidification system is operating.

Floor Flatness: The subfloor should be level in general however; it MUST be flat to within 3/16" over a 10-foot radius, in all directions. When using a self-leveling or patch type product to correct for floor flatness issues ALWAYS consult with the chosen adhesive manufacture for recommendations as to what self-leveling/patching material is compatible with their specific adhesive product(s).

Crawl Space Ventilation: If home has raised foundation, does it have proper cross-ventilation? Crawl space clearance must be a minimum of 24" between the ground and the bottom of the floor joists. Soil should be covered with 6-8 mm black plastic to provide a vapor barrier as specified by NWFA. Plastic must be overlapped at joints by a minimum of 8 inches and fully taped with high-quality, moisture-proof duct tape.
Size of available vents should equal 1.5% of the square footage within the crawl space. Relative humidity should be consistent with interior of home. Moisture content of sub-floor should not vary more than a 2% MC from the top of the subfloor to the bottom.
It may be necessary to install temperature/humidity activated exhaust fans to create more movement in the crawl space.
Uncontrolled humidity and moisture in crawl space will lead to mold and damage to the structure as well as the hardwood floor. In these events a contractor specializing in dehumidifying systems will need to be contracted to keep crawlspace humidity within proper norms. This is more likely in high humidity areas.
Ensure that clothes driers are properly vented to the outside of the foundation. Check for signs of plumbing, both pressurized and non- pressurized/drain leaks.

Concrete Slab: The concrete sub floor must be dry. Newly poured Concrete slabs will require a minimum 90 to 150 day drying period depending on the size and depth of the slab and weather conditions. Note: Before moisture testing can begin, the concrete MUST be allowed to dry for a minimum of 30 days. If moisture testing begins before the minimum 30-day drying period, the test results will be inaccurate and unreliable. Please follow ASTM standard F-1869, calcium chloride testing.

Mechanical Fastening: When mechanically fastening an industry/manufacturer approved sub floor (3/4"CDX plywood or better) to the surface of a concrete slab (which results in perforating the moisture vapor retarding system), the maximum allowable moisture emission rate cannot exceed 7 pounds per 1,000 sq. ft. per 24 hours based on the calcium chloride test.

Basement Moisture & Humidity Control:
- Relative humidity of basements should not be more than 10% higher than the upper floors.
- Basement walls should be inspected for cracks and excessive moisture content.
- Drains must be placed at basement windows.
- Direct sprinklers and irrigation systems away from the foundation.
- Rain gutters must be in place to carry moisture away from the house. French drains are recommended, and basement walls should be properly sealed.

Moisture Emission: Per NWFA/AAYERS recommendations, it is generally recognized when installing engineered wood flooring directly to the surface of a concrete slab (without the use of an industry/manufacturer approved vapor retarding system), the maximum "allowable" moisture emission rate (passing through the surface of the slab) as expressed by the Calcium Chloride test is 3.0 pounds per 1,000 sq. ft. per 24 hours before, during and after installation for the life of the floor.
In addition, when installing an industry/manufacturer approved sub floor (CDX or better) to the surface of a concrete slab, which would result in perforating the moisture vapor retarding system, the maximum allowable moisture emission rate cannot exceed 7 pounds per 1,000 sq. ft. per 24 hours for the life of the floor.

Subfloor Moisture Testing-Concrete

Method- Calcium Chloride: ASTM F1869
Carefully follow the instructions in the test kit to ensure that you get accurate results.
NOTE: The slab emissions can vary based on soil humidity and room temperature. Consult adhesive manufacturer's directions for the moisture abatement system they recommend.

Method- Humidity Probe & Digital Meter: ASTM F2170
This test determines the amount of humidity in the slab. This is an effective way to determine a slab's potential for emitting moisture.
NOTE: Refer to adhesive manufacturers required testing methods. Adhesive manufacturer's offers moisture warranties that may be conditional. Follow their directions closely to ensure compliance and full warranty coverage.

Subfloor Moisture Testing-Wood

Probe-type (pin) meters are considered the best method of testing. Remember: the top and bottom of the subfloor should vary no more than 2%. Wood substrates must have a moisture reading of no more than 10% when using Tramex, Delmhorst, or equivalent moisture meter and be within 4% to 2% of the moisture content of the flooring to be installed.

JOB PREPARATION

Undercut Door Casings: Undercut all door casings 1/16" higher than the thickness of the flooring being installed. To do this, use a scrap piece of flooring as a guide. Lay it on the substrate and cut the casing with a handsaw or use a power jamb saw set at the correct height.

Installing over Plywood Sub-Floor: If plywood is used as a subfloor, the moisture content difference MUST NOT exceed more than 4% to 2% between the finished wood floor and the plywood subfloor. All plywood MUST be exterior grade CDX or better. Plywood size for subfloor is suggested to be standard ¾" x 4' x 8' panels, with an expansion gap of ¼" between panels, and stagger full sheets by ½. Cross kerf the back of each panel every 1' x 3/8" deep.

NOTE 1- Engineered flooring cannot be installed directly over 1" X 6" plank type subflooring. AAYERS requires an additional layer of 1/2" plywood (CDX or better) be placed and secured to the surface of the 1" X 6" subfloor for additional support.
Recommended Fasteners: 1 ¼" to 1 ½" long deck screws (screwing schedule 6" to 8" around perimeter and every 12" in the field).

NOTE 2- If the plywood is glued down it is recommended to follow the adhesive manufacturer's guidelines as to not void the AAYERS warranty.

Installing over existing floor coverings on concrete:

Perimeter-glued resilient vinyl and rubber tiles are not acceptable underlayments and must be removed.
Terrazzo, tile and full spread glue-down vinyls that are dry, structurally sound and level are suitable as a sub-floor for installation. The surface must be sound, tight and free of paint, oil, existing adhesives, wax, grease and dirt. See adhesive manufacturer's guidelines.
Terrazzo and ceramic tile must be sufficiently scuffed to assure adhesion.
Existing hardwood flooring must be removed prior to the installation of a new wood floor on concrete.

WARNING: ASBESTOS Governmental agencies have determined that asbestos is a respiratory carcinogen. Avoid sanding or scraping of old vinyl floors as they may contain asbestos. Take proper precautions and contact an asbestos abatement company to remove any old vinyl or vinyl tile floors.

Raised Foundation: Ground level of the raised foundation sub floor must be completely covered with an industry approved moisture vapor retarding system such as 1 layer of 15 lb or 30 lb tar saturated felt paper, or an asphalt laminated paper meeting UU-B-790a, Grade B, Type I, Style 1a (i.e. Aqua Bar). Installations over raised foundations (joist type or pier and beam type construction) must conform to the following requirements: Joist span of 16" on center requires a "minimum" of 5/8" CDX plywood; 19.2" span requires a minimum of ¾" CDX and 24" spans require a minimum of 1" interlocking tongue and grove CDX plywood.

Below grade installation: AAYERS Engineered Hardwood flooring is designed to be installed on all grade levels: on grade, below grade and above grade. However, you MUST follow adhesive manufacturer guidelines because they can/will take precedence over AAYERS's installation recommendations.

NOTE 3- If any part of the soil surrounding the structure is 3" above the floor of any level, consider that level below-grade.

NOTE 4- A house cut into a hill is also considered to be below-grade if it isn't properly graded to create a drainage swale on the lot. Below-grade slabs must be carefully tested. Nail-down installation is not suitable for below grade installation.

Clean the subfloor: The sub floor MUST be free from any type of paint, oil, grease, dust, drywall mud, sealers, release agents and all other types of residues/contaminates. After all prep work is completed, sweep and/or vacuum the subfloor. Dust and dirt can affect the adhesive or vapor barrier's ability to adhere to the slab.

WARNING: CONCRETE DUST Governmental agencies have determined concrete dust to be a nasal carcinogen. The sanding grinding of concrete can cause eye, nose, skin and respiratory irritations. All equipment should be equipped with dust collection systems to reduce airborne dust. Wear appropriate NIOSH designated dust mask to reduce risk of dust inhalation. Wear proper eye protection and avoid prolonged contact with eyes and skin. In the event of eye irritation flush with water for 15 minutes and seek medical attention!

WARNING: WOOD DUST Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, skin and eye irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.
Precautionary Measures: Power tools should be equipped with a dust collector. If high dust levels are encountered use an appropriate NIOSH-designated dust mask. Avoid dust contact with skin and eyes.
In case of irritations: Flush eyes and skin with water for at least 15 minutes
In cases of severe irritation; seek immediate medical attention.

Acclimation: AAYERS Engineered Hardwood Floors do not require pre-installation acclimation. However, the environment MUST represent "normal live-in conditions," which is interpreted to mean an environment temperature maintained at 60 to 80 degrees Fahrenheit and 35 to 50 percent relative humidity respectively. These conditions MUST have been established at least 5-days prior to delivering the flooring to the job-site and continue for the life of the floor. ALL doors and windows MUST be installed and weather striped prior to delivering the flooring to the job-site.

Radiant Heat

Use floating installation method.
Subfloor conditions listed above also apply to radiant heated subfloors.

The Radiant Heat Warranty Qualification Form MUST be filled and Integrated Temperature Sensors MUST be installed for warranty coverage. Failing to follow this guideline the warranty becomes void for any/all applicable AAYERS Hardwood Flooring engineered flooring.

WARNING: Sub-floor surface temperature should never exceed 85º F. Temperature sensors must be integrated into system as a fail safe to prevent excessive heat and damage to the hardwood floor.

NOTE: Area rugs placed over radiant heat slab will create heat retention in the floor. This may result in that area exceeding optimum temperature, and causing slightly larger gaps and minor cracks/splits in the floor under the rugs.

ACCLIMATION PROCESS FOR RADIANT HEAT
Flooring should be removed from packaging and the floor racked out so the joints are loosely fitted together.
Run radiant heat at a temperature and humidity equal to anticipated living conditions. Avoid high and low temperature and humidity swings during acclimation process. Process takes a minimum of 5 days, maximum 10–12 days.
Room temperature should not vary more than 15º F season to season and relative humidity range between 35% to 65% should be maintained.
See AAYERS Hardwoods Radiant Heat Guide for further information.

GETTING STARTED

Installation Tools– Glue Down
Tape measure, pencil, chalk line, table saw, cut-off saw, jamb saw, tapping block, pull bar, spacers, hammer, safety glasses, hearing protection, utility knife, specified notched trowel, wall spacers, straight edge, broom, speedy square, hardwood floor cleaner, pin/finish nails, air compressor, and shop vacuum.

Installation Tools– Nail Down
Tape measure, pencil, chalk line, table saw, cut-off saw, jamb saw, tapping block, pull bar, spacers, hammer, safety glasses, hearing protection, utility knife, specified-notched trowel, wall spacers, straight edge, broom, speedy square, hardwood floor cleaner, pin/finish nails, air compressor, shop vacuum, tapping blocks, and approved nail/staple gun.

Installation Tools– Nail + Glue
-Premium Wood Flooring Adhesive: Franklin 771, 811, or 821, Bostik GreenForce, BEST, or VaporLock, or Bona R851.
-Adhesive Remover recommended by the manufacturer of the adhesive selected.
-Adhesive Trowel recommended by the manufacturer of the adhesive selected.
-Nail set, Tack Stapler or 1" roofing nails (for felt), 6-d Finish Nails or Pneumatic Finish Nailer with 1 1/4" to 1 ½" fastener.
-Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 1 ½" - 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)

Installation Tools– Floating
Tape measure, pencil, chalk line, table saw, cut-off saw, jamb saw, tapping block, pull bar, spacers, hammer, safety glasses, hearing protection, utility knife, specified notched trowel, wall spacers, straight edge, broom, speedy square, hardwood floor cleaner, pin/finish nails, air compressor and shop vacuum, straps, tapping blocks, and D-3 rated PVA glue.

NOTE 1- Floating systems must use good quality underlayment pad with moisture barrier. If using over radiant heat make sure pad manufacturer authorizes their product for radiant installations.
NOTE 2- The use of stain, filler, or putty stick for the correction of minor defects during installation should be accepted as normal procedure

A- Expansion Space: Allow at least (1/2"minimum) of expansion space at all wall and vertical obstructions. Expansion space will be concealed using baseboard and quarter round trim. Wood flooring will change in size according to changes in the ambient conditions of the structure i.e. temperature and relative humidity levels. Insufficient expansion space can result in cupping, buckling, cracking and checking in the flooring. AAYERS Hardwood Flooring will not warrant any damages caused by improper installation.

B- Cabinets & Appliances
Cabinets and built in appliances must be installed prior to the installation of the hardwood floor. Cabinets and built in appliances should never be installed on top of the wood floor. Hardwood flooring should be installed at the same time as carpet, and after the following: finishing walls, cabinet installation, appliance installation, tile & countertop installation.
Standard refrigerators and kitchen oven/range are acceptable for placement on top of the wood floor. Use caution when moving appliances by using a proper furniture dolly, air sled, 1/8" Masonite with glossy side down, or plastic glides designed for movement of heavy appliances. Failure to follow these precautions will damage the floor and void the warranty.

C- Undercut All Door-Jambs/Moldings
Remove all shoe and base molding to ensure adequate expansion space. Use scrap piece of flooring to establish height of cut. Make allowances for adhesive or underlayment thickness when establishing height of cut.

D- Boards Visual Inspection
Visually inspect boards for any defects prior to installation. Verify that homeowner has seen product and approves proceeding with installation of the floor.

E- Open Multiple Boxes
Always work from multiple boxes simultaneously and blend the boards throughout the installation. This is especially important with mixed production dates. AAYERS has very good color consistency, and mixed production dates are acceptable for installation. Working from multiple boxes/production dates helps achieve a good blend of color. At beginning of installation, set aside those boards that best blend to the transition moldings on job.

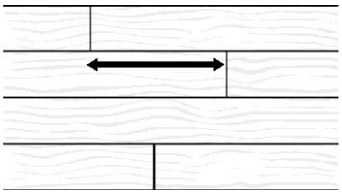
F- Select a Starter Wall
It is recommended to start the installation along an exterior wall. Check to make sure the wall is straight and square to the room. If the wall is Irregular and/or Out of Square, scribe cut the first row to match variations in the wall. A scribe can be created by drilling a hole in a scrap piece of wood and inserting a pencil. The starting row can then be cut to compensate for an irregular

wall or to help minimize the appearance of an out-of-square room by splitting the difference between the two walls.

G- Establishing End/Joint Spacing
Applicable for all three methods of installation (glue-down, nail-down, float). Each box contains random length boards. Use these boards as well as making some random cuts to establish a random pattern.

Distribute lengths avoiding "H" patterns and other discernible patterns in adjacent runs. Stagger end joints of boards row to row a minimum of 6" for strip flooring, 8" for 3" to 5" plank, and 10" for plank wider than 5" for better visual effects when possible. However the length of the material may dictate end joint proximity. Close end joint proximity may affect structural stability on mechanically fastened installations if there is deflection of the substrate present.

Distance Minimum



Select Installation Type

	GLUE	NAIL	NAIL +GLUE	FLOAT
Above-Grade Wood Subfloor:	√	√	√	√
Above-Grade Concrete:	√			√
Above-Grade Light-weight Concrete:				√
On-Grade Concrete:	√			√
On-Grade Wood Subfloor with Crawl Space:	√	√	√	√
On-Grade Wood Subfloor with Basement:	√	√	√	√
Radiant Heat:				√

INSTALLATION- GLUE DOWN

NOTE -AAYERS Hardwood Flooring recommends moisture cure urethane base adhesives and does not condone the use of water/acrylic base adhesives or 2-in-1 hybrid adhesives. These 2-in-1 adhesives include adhesive and moisture protection that result in a high fail rate.
In connection with the installation of any/all AAYERS Hardwood flooring products. The installer understands that by using such adhesives voids AAYERS warranties.

H- Starter Rows
Measure the equivalent of four to five rows, mark subfloor at both ends of run and snap a chalk line. Spread adhesive to chalk line. Repeat this process on all subsequent rows of material throughout the balance of installation.

I- Lead with Groove
Cut off tongue on very first row to be installed and lead with the groove. This enables the tongue to be partially inserted into the groove before the back of the board makes contact with the adhesive bed.

J- Tape/Strap Starter Rows
Once starter rows are installed up to chalk line/edge of adhesive bed, strap or tape across the grain. Allow adhesive to set up long enough to have a firm hold. Use the flat side of the trowel to flatten any adhesive at edge of the leading board. Once the boards are firmly seated, proceed to work across the floor.

K- Check Straight Lines & Trim Last Row
Cut last row and snugly into place using pull tool.

L- Install Moldings
Install moldings using urethane glue or high-quality construction adhesive. It may be necessary to place the weight on edge to ensure molding level is flush with flooring.

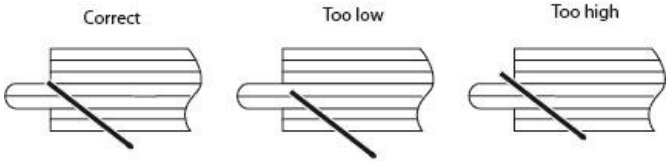
INSTALLATION- NAIL DOWN

NOTE – For planks wider than 6.5”, follow the ‘Nail + Glue Assist’ Installation Instructions. Nail down installation is not recommended.

H- Underlayment
15 to 30 lb. roofing felt is needed when doing a nail-down installation. Staple in place and then proceed to install the floor.

I- Starter Rows
Nail-down method requires that installation be done by leading with the tongue. When starting at the wall, trim groove off the back of the boards being used for the starting row. Face nail the back edge of the board with 18-gauge nails. Then blind nail into the pocket above the tongue with one of approved nail/staple systems.

J- Nail/Staple Spacing
Nail/staple spacing needs to be 8” apart and within 2” of board ends.
Warning: Nailing too close to end could fracture the corner of the plank.



NOTE: Always make sure to visually check the installed floor as you go to ensure that the stapling/nailing is not causing dimpling on the face.

Attention: be sure to look at the face of the installed flooring at a low angle from a distance to see if dimpling is occurring as it is hard to see when directly above the floor.
If dimpling does occur, STOP and adjust the stapler/nailer shoe and angle/place of staple entry in order to avoid it. AAYERS is not responsible for dimpling.

K- Check Straight Line & Trim Last Row
After three rows of flooring have been installed, take a six-foot level and check the leading edge to be sure floor is on a straight line. Lay the level on its back and glide bottom edge along the tongue. Failure to stay on a straight line will cause irregular gaps in floor on sides and ends.
Cut the last row and snug into place using a pull tool. Face nail with 18-gauge nails at edge of last row.

L- Install Moldings
Install moldings using urethane glue or high-quality construction adhesive. It may be necessary to place the weight on edge to ensure molding level is flush with flooring.

NOTE 1- AAYERS recommended Nail/Staple Systems
-Power Nail pneumatic Model 50P Flex:
18 gauge, Cleat 1 1/2”.
Gun adjusts to nail 3/8”, 1/2”, 9/16”, 5/8”

-Porta Nail pneumatic Model 4614:
18 gauge, 1/4”crown x1 1/2”. Trigger activated.
Gun adjusts to nail 3/8”, 1/2”, & 9/16”

-Bostitch pneumatic Model EHF1838K:
18 gauge, 1/4” crown x 1 1/2” Trigger activated.
Gun adjusts to nail 1/2”, 9/16”, & 5/8”. Not recommended for installing 3/8”

- Primatech pneumatic Model Q550R:
Adjustable base plate and surface rollers
18 gauge, L cleat x 1 1/2”.
Gun adjusts to nail 3/8”, 1/2”, 9/16”, & 5/8”

- Power Nail air driven Model 200:
20-gauge/e-cleat 1 1/2”.
Gun adjusts to nail 3/8”, 1/2”, 9/16”, & 5/8”

For 3/8” thick products the minimum length staple/cleat is 1”
For 1/2" thick products the minimum length staple/cleat is 1 ¼”
Read and follow the manufacturer's instructions for complete set-up and operation of equipment.

NOTE 2- AAYERS Engineered Harwood Flooring products are not warranted against squeaking, popping or crackling when using nail-down installation methods. Some squeaking, popping or crackling is normal and possible when using staple-down or nail-down installation methods. These symptoms may be aggravated in arid areas or during dry conditions

INSTALLATION- NAIL + GLUE ASSIST

NOTE –Nail + Glue Assist installation is recommended when nailing down planks over 6.5” wide.

H- Starter Rows
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.

I- Glue Assist
Apply glue assist and/or glued butt joint procedures.
When using glue assist pay special attention to cleaning the subfloor prior to installation as dirt and debris on the subfloor may impede the bond of the glue.
Vacuum subfloor thoroughly before commencing installation.
Use a tubed urethane adhesive for hardwood flooring installation, such as Mapei Ultrabond ECO 905.
Do not use floating floor glues like Deccobond, or general purpose construction adhesives like Liquid Nails or PL400.

There are two recommended procedures for glue assist.

Method one: Glue applied to subfloor
This option can be used on most products and is the most efficient to employ.

Select the area of substrate on which you’ll be installing. As with any glue application, select an area that can be worked comfortably within the adhesive’s open time. Apply beads of adhesive directly to the subfloor perpendicular to the direction of the flooring boards. Place beads maximum of 12” apart. Place boards onto glued area as normal and set fasteners. Clean up any excess glue immediately according to glue manufacturer’s instructions.

This method can also be used where the flooring is being installed above an unfinished basement or crawlspace, in which case a vapor retarder must be installed over the subfloor in addition to the glue assist procedure.

To do this:
•Cut the vapor retarder material into 12” strips.
• Lay the vapor retarder on the subfloor perpendicular to the direction of the floorboards.
Lay the strips with 1/2” gap between each strip and tack the strips into place.
• Apply beads of adhesive directly to the subfloor in the 1/2” space between the vapor retarder strips.
• Install the flooring, following the recommended nailing schedule.

Method two: Glue applied directly to floor boards.
This glue assist option is recommended for products with long fixed length boards.
Apply adhesive to the underside of each board. Apply a 1/4” bead parallel to each end, approximately 1” from the end.
Apply in a 1/4” bead a serpentine pattern down the length approximately in the center of the board, keeping glue 1” in from the edges of the board.
Carefully set the board in place (to avoid getting glue on other surfaces) then nail in as normal. Clean up any excess glue immediately according to glue manufacturer’s instructions.

Glue End Joints
Certain wide plank products also requiring gluing of the end joints for added stability. Glue the end joints together using a non-crystallizing wood flooring glue such as Deccobond. Apply glue in a continuous bead to upper edge of groove portion of joint only. Set joints closed using a white rubber mallet or hammer and tapping block. Never use a hammer directly on the tongue and groove joints as damage to the joint may result. Clean up excess glue immediately according to glue manufacturer’s instructions.

J- Starter Rows
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 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.

K- Next Rows
Set the second row in place and set the tongue and groove joints. Use offcuts if lengths are suitable and stagger end joints as required. Apply glue assist and glued butt joint procedures. Blind nail along the tongue as before or, if working space permits, use the nail gun

Continue with subsequent rows. To avoid a repetitive or predictable board patterns, cut some boards to random lengths to begin rows. Open new packages several at a time and rack and inspect boards as described above. Ensure 1/2” expansion space is maintained at all perimeter walls and other vertical obstacles. Maintain nailing schedule and keep butt joints staggered as described above. Continue to use glue assist and glued butt joint procedures.

L- Cleaning the adhesive
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

M- Last row
In the last couple of rows, there may not be space to use the nail gun, so revert to using the finish nailer as before, blind nailing through the tongue. For the final row, measure the gap to the wall, allowing expansion space, and rip a row of boards to the required width. Top nail the final row into place using brads or finishing nails placed 1/4” in from the edge.

N- Install Moldings
Complete the installation by reinstalling or installing new base moldings.
Do not allow foot traffic on the floor for 24 hours after installation is complete.

INSTALLATION- FLOATING

H- Underlayment
Premium Underlayment pad or comparable is recommended. Follow pad manufacturer's installation instructions. Always use a high quality, firm underlayment pad with a built-in moisture membrane.

I- Lead with Groove
Cut off tongue on very first row to be installed and lead with the groove. This enables the tongue to be partially inserted into groove before coming into contact with the underlayment. Place a bead of PVA glue into the bottom of the groove.

J- Use Tapping Block
With block start tapping floors together from lead end and work back towards where the two end joints are coming together. Tapping back towards the floor tightens the end-joint.

K- Tape/Strap Starter Rows
Once starter rows are installed, strap or tape them into place and allow PVA glue to develop a harder set.

L- Check Straight Line & Trim Last Row
Trim last row to fit and pull into place with pull tool. Tape last several rows in place to prevent accidental movement and opening of side joints.

M- Install Lip/Over Transition Moldings
Fasten transition moldings to the subfloor only. Attaching the lip/over to the edge of the floor prohibits the free movement of the floor.

AFTER INSTALLATION –CLEAN UP

-Sweep or vacuum floor. Clean the floor with proper hardwood floor cleaner
-Clean up any adhesive or glue residue immediately. If glue or adhesive is allowed to dry on the floor's surface, it can damage the finish when it is removed.
-Completely remove any painter's tape (never use masking tape) within 48 hours of application. If direct sunlight is hitting tape, it must be removed within 12 hours.
-Adhesive residue, glue residue, and shoe marks can be removed with a little mineral spirits.
-Remove dust and dirt regularly during installation and upon Completion with a soft brush attachment on a shop vacuum.
-Inspect final floor for nicks and or minor gaps – fill with appropriate color wood putty.
-Unused material should be left with owner and stored in a dry place in case of future repairs are needed.
-Use plywood or hardboard when moving heavy appliances or furniture across floor.