# Hardwood Installation Instructions For High Durability Aluminum-Oxide Finished Floors

Installation is the responsibility of the Homeowner, Installer, Retailer, and Contractor. The Aspen Flooring Company assumes no liability for any installation. It is the responsibility of the installer to ensure the job site conditions and method/manner of installation meet all criteria acceptable to The National Wood Flooring Association (NWFA) as well as those listed in these instructions. Only a qualified professional hardwood flooring installer should perform your hardwood flooring installation. These Installation Instructions should be followed carefully to ensure the proper installation of your new Aspen Flooring hardwood floor.

## Product Inspection

Beautiful hardwood floors are a product of nature and therefore, are not perfect. Aspen Flooring hardwood floors are manufactured in accordance with accepted industry standards, which permit a defect tolerance not to exceed 5%. The defects may be of a manufacturing or natural manner.

It is strongly suggested that upon delivery of product to the jobsite, two or three boxes/bundles be opened and laid out before the end user. The end user/homeowner should compare the contents of each box/bundle to their floor sample to verify that it is the expected product. Reseal these boxes with tape after inspection is completed. If there is any discrepancy between what was expected/purchased and the actual product received, DO NOT PROCEED WITH THE INSTALLATION! Notify the retailer, dealer, or contractor immediately.

**Aspen Flooring prohibits the use of any adhesive tape on the flooring at any time during installation or thereafter. This includes tapes that are specially made for wood flooring, such as blue or green masking tapes. Such use of tape may void this Warranty and no claims will be addressed in regards to defects in the finish as a result of the use of tape.**

Individual wood products may vary due to dye lot changes in the staining process. Aspen Flooring cannot honor claims due to a lack of on-site product inspection/acceptance by the homeowner/purchaser.

The homeowner/installer should perform a final inspection of the boxes/bundles to check on manufacturing and factory finish of the delivered product. **The installer must use reasonable selectivity and hold out or cut off pieces with defects, whatever the cause.** Aspen Flooring shall not accept responsibility for the installation of flooring with visible defects. The use of stain, filler, or putty stick for the correction of minor defects during installation should be accepted as normal procedure.

**Note: Before installing Aspen Flooring hardwood flooring, the installer and homeowner should verify that the jobsite and sub floor conditions meet all installation requirements as outlined here. Our Limited Warranty does not cover flooring failures resulting from poor jobsite and/or poor sub floor conditions.**

## Tools Needed For The Installation

Generally, the tools needed for installation are: Handsaw or power saw, rubber mallet, crowbar, or pull bar, tape measure, pencil, chalk line, wood or plastic spacers, tapping block, adhesive trowel, carpenters square, and hardwood flooring adhesive or an equivalent adhesive suitable for hardwood flooring installation.

**CAUTION: WOOD DUST! The International Agency for Research on Cancer has classified wood dust as a nasal carcinogen. The sawing, sanding, and/ or machining of wood products can produce wood dust that can cause respiratory, eye, and skin irritations. Equipment should be equipped with a dust collector to reduce airborne wood dust. Wear an appropriate NIOSH designated dust mask to reduce exposure to airborne wood dust. Avoid contact with eyes and skin. In case of irritation, flush eyes or skin with water for at least 15 minutes. In cases of severe irritation; seek immediate medical attention.**

## Pre-Installation and Jobsite Requirements

All issues involving water or moisture should be resolved prior to the installation of your Aspen Flooring hardwood flooring. For any new construction or remodeling project, pre-finished hardwood flooring should be one of the last items installed. As a general rule, the jobsite should be monitored for consistent, normal room temperature between 60° and 80° F and relative humidity between 35% and 55% and acclimate as necessary. Failure to maintain proper temperature and humidity levels may cause damage to your Aspen Flooring hardwood floor. Such damage would not be covered under the Aspen Flooring limited warranty. Aspen Flooring hardwood floors must not be stored directly on concrete or near outside walls. It is not recommended to install Aspen Flooring hardwood flooring in areas subject to repeated moisture, such as bathrooms or laundry rooms.

Aspen Flooring hardwood floors are recommended for interior, residential and light commercial, above grade, on grade, and below grade applications.

## Radiant Heat Guidelines and Conditions

**Aspen Flooring Euro Oak and Walnut hardwood is warranted over radiant heat. Maple and Hickory are not warranted over radiant heat.**

To install any of our flooring products over radiant heat, **the following procedures and information should be followed for best results:**

Only Aspen Hardwood Flooring products, greater than 1/2" thickness are approved for installation over radiant heated subfloors using Adhered installation methods for the product. We do not warranty our 5.5 or 6 mm wear layer over radiant heat installation. Hickory or Maple engineered in any width or thickness is not recommended for installation over radiant heat installation.

- Nail or Staple Down installation methods are not recommended for Radiant Heated Sub Floors.
- Radiant Heating Systems used must be designed and controlled specifically for Hardwood flooring by the system manufacturer, and include an Outside Temperature Probe, and Surface Temperature Controls.
- The end consumer should be aware that minor gapping between wood planks during the heating season is a normal occurrence with hardwood flooring installed over radiant heated subfloors.
- Proper humidity controls within the home or business will help to minimize the natural wood reaction to seasonally changing climate conditions.
- Indoor climate should be maintained between 60-80° F and a relative humidity range of 35%-65%.

## Adhere to the following for a successful Radiant Heat Installation:

- Newly installed hydronic type radiant heated flooring systems should be in operational mode with the temperature set between 64° -72°F, for a minimum of 4 weeks to insure that all sub floor moisture has properly dried.
- Older water type radiant floor heat systems should be fully pressure tested, properly maintained, and set to a minimum of 64°F, for at least 6 days before flooring delivery; acclimation, or installation processes may begin.
- All radiant heating systems must be set to room temp. (A minimum of 64°F), for at least 6 days before flooring delivery; acclimation, or installation processes may begin.

## Adhere to the following for a successful Radiant Heat Installation:

- Always check wood sub floors to insure that the moisture content is less than 12% using an accurate wood moisture meter.
- Concrete sub floors must register "dry", using approved quantitative concrete moisture meter.
- The pH level of concrete sub floors should register between 6 and 9, on a fourteen point pH scale.
- Sub floors must fully comply with these "dry" requirements before proceeding with the delivery, acclimation, or installation of the wood flooring at the job site.
- Install the hardwood flooring according to the instructions that pertain to the product.
- After completing the installation, do not change the radiant heat setting for 48 hrs.
- Throughout the life of the installation, 3 to 5 degree daily increments must be used when adjusting system temperature for either upward or lower adjustments; so that the hardwood flooring can adjust to the temperature changes in a gradual manner.
- Never raise the flooring surface temperature setting above 85 degrees Fahrenheit.
- Regulate the job site to insure that the relative humidity is between 35% and 65%, and that temperature is between 60° and 80° F, throughout the flooring delivery, acclimation, installation and any required curing processes.
- Deliver and acclimate the engineered hardwood flooring, for at least 48 hours before installation begins.

## Acclimation Process / Jobsite Conditions

Do not open boxes/bundles of Aspen Flooring hardwood flooring until the day of installation. Always store boxes/bundles on a flat surface. Protect the boxes/bundles from moisture. The jobsite should have a consistent room temperature between 60° and 80°F. The relative humidity should be maintained between 35-55%, before, during and after installation. Do not open the boxes/bundles or take the planks out until the wood floor is acclimated and ready to be installed. This process may take several days. Room temperature and humidity level in the installation environment is a major part of the acclimation process. The humidity level must stay within the required range during the life of the wood floor.

Never have flooring material delivered to a jobsite that does not have doors and windows installed. Also, all "wet work" i.e. painting, drywall, concrete, masonry, plumbing must be complete and dry well in advance of delivery of hardwood flooring. Gutters and downspouts should be in place and the exterior grade complete to allow for proper drainage of water away from the building's exterior perimeter. Flooring should not be exposed to extremes of humidity or moisture. Permanent HVAC should be on and operational a minimum of 5 days prior to having the hardwood flooring delivered and maintained between 60° and 80°F and a relative humidity of 35%- 55% prior to delivery, during, and after installation of the flooring.

It is the installer/owner's responsibility to ensure that the jobsite conditions and jobsite subfloor are environmentally and structurally acceptable prior to the installation of any hardwood flooring. Aspen Flooring declines any responsibility for failures or deficiencies of hardwood flooring resulting from or related to sub-floor, subsurface, or job-site environmental conditions.

# Subfloors

Subfloors must be clean and free of dirt, curing compounds, sealers, drywall mud, paint, wax, grease, urethane, or other materials that may affect the integrity of the flooring material or adhesives used to install the flooring. All subfloors must be flat to a maximum height variation of 1/8" in a 6' radius or 3/16" in a 10' radius, dry, and structurally sound.

# Concrete Subfloors

Concrete slabs should be of high compressive strength and constructed to prevent groundwater from permeating the concrete. All acceptable concrete slabs are those which have been cured for at least **30 days** and have a minimum 6mil poly film moisture barrier between the ground and the concrete. 60 days cure time is preferred.

**Acceptable moisture tests for concrete slabs include:**

***Calcium Chloride test**. A moisture transfer reading that exceeds 3lbs/1000 square feet with this test requires the use of a warranted moisture barrier. Do not install Aspen Flooring hardwood flooring over any slab that gives readings over 6lbs/1000 square feet.

***Tramex concrete moisture encounter meter.** Moisture reading s hould not exceed 4.5 on the upper scale.

***Relative Humidity probe test** with a maximum reading of 75%.

***Perform at least three Calcium Chloride tests in different areas of the first 1000sf and one more for each 1000sf after that.**

**Remember:**

A "DRY" SLAB, AS DEFINED BY THESE TESTS CAN BE WET AT OTHER TIMES OF THE YEAR. THESE TESTS D O NOT GUARANTEE A "CONTINOUS" DRY SLAB. ALL CONCRETE SLABS SHOULD HAVE A MINIMUM OF 6-MIL POLY FILM MOISTURE BARRIERS BETWEEN THE GROUND AND THE CONCRETE.

Grind high spots or use a Portland-cement based leveling material (minimum compressive strength 3000 psi) to fill all low spots to a maximum height variation of 1/8" in a 6' radius or a 3/16" in a 10' radius. Follow the leveling compound manufacturer's instructions. Leveling compounds must be allowed to thoroughly cure and dry prior to installation of wood flooring.

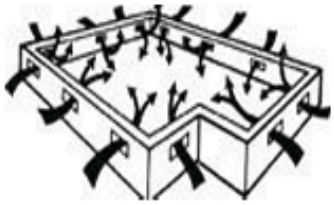
Aspen Flooring engineered hardwood flooring can be installed on, above, or below grade. In addition, it can be installed over above-ground, suspended concrete floors. The suspended concrete must be a minimum of 1-1/2" thick and must be structurally sound. The exception to this is lightweight concrete (which usually contains high amounts of gypsum) having a density of 100 pounds or less per cubic foot. Test for lightweight concrete by using a nail to scratch the surface of the concrete. If the concrete crumbles or turns to powder, it is not sound and you should **NOT** glue down the hardwood flooring. This subfloor needs to be corrected/replaced prior to installation.

## Wood Subfloors

Wood flooring, by design, is not to be used to strengthen/stiffen a subfloor and will not do so. If movement and/or squeaking of the subfloor occurs prior to installation and is not corrected, such movement and/or squeaking is likely to remain after the installation. ASPEN FLOORING WILL NOT BE RESPONSIBLE FOR SUCH MOVEMENT AND/OR SQUEAKING.

Test wood sub floors and wood flooring for moisture content using a pin-type moisture meter. Take readings of the subfloor – minimum of 20 readings per 1000 sq. ft. and average the results. In most regions, a "dry" subfloor that is ready to work on has a moisture content of 12% or less and the wood should be within 4% of the subfloor moisture content for engineered floors, 2% for solid hardwood floors.

Basements and crawl spaces must be dry. Use of a 6 mil black polyethylene is required to cover 100% of the crawl space earth. Crawl space clearance from ground to underside of joist to be no less than 18" and perimeter vent spacing should be equal to 1.5% of the total square footage of the crawl space area to provide cross ventilation.



The subfloor must be flat, meeting a maximum height variation of 1/8" in a 6' radius or 3/16" in a 10' radius. All subfloors and subfloor systems must be structurally sound and must be installed following local building codes. Keep in mind that local building codes may only establish minimum structural requirements of the subflooring system and may not provide adequate rigidity and support for proper installation and performance of a hardwood floor. Check the subfloor for any loose areas and secure them down to minimize the chance for squeaking. Whenever possible install the planks perpendicular to the floor joists for maximum stability. **The Aspen Flooring warranties DO NOT cover any problems caused by inadequate substructures or improper installation over said substructures.**

Subfloor panels should conform to U.S. Voluntary Product Standard PS1-07, Construction and Industrial Plywood and/or US Voluntary PS 2-04 and/or Canadian performance standard CAN/CSA 0325.0-92 Construction Sheathing. Other CSA standards also apply.

**Acceptable Panel Subfloors: Truss/joist spacing will determine the minimum acceptable thickness of the panel subflooring.** On truss/joist spacing of 16" o/c or less the industry standard for single-panel subflooring is minimum 5/8"(19/32", 15.1mm) CD Exposure 1 Plywood subfloor panels,(CD exposure 1) or 23/32 OSB Exposure 1 subfloor panels, 4'x8' sheets. On truss/joist spacing of more than 16", up to 19.2" (488mm) o/c, the standard is minimum ¾" (23/32", 18.3mm) T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1) or nominal ¾" 23/32", (18.3mm) OSB Exposure 1 subfloor panels, 4'x8' sheets, glued and mechanically fastened. Truss/joist systems spaced over more than 19.2" (488mm) o/c up to a maximum of 24" (610mm) require minimum 7/8" T&G CD Exposure 1 Plywood subfloor panels, (Exposure 1), or minimum 7/8" OSB Exposure 1 subfloor panels, 4'x8' sheets glued and mechanically fastened – or two layers of subflooring or brace between the truss/joist 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.

For existing wood floors, install new flooring at right angles to the existing flooring. **Do not glue, staple, or nail down hardwood flooring over particle board.** This subfloor needs to be corrected/replaced prior to installation. **Do not glue down new flooring over existing glue down hardwood floors.**

## Preparing for Installation

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. Remove door thresholds and base moldings and replace after flooring installation.

## Starting Installation

For aesthetic purposes, hardwood flooring is often laid parallel to the longest wall. However, the home owner upon the advice of the professional installer should make the final decision which direction the planks will run. Most professional installers will begin installation next to an outside wall, which is usually the straightest wall and used as a reference point in establishing a straight working line. A good way to establish a working line is to measure an equal distance from the wall at both ends and snapping a chalk line. Measure distance from the wall at the width of the plank plus another ½" or more for engineered flooring, ¾" or more for solid hardwood flooring for expansion space to establish your working line. It is advisable to dry lay a few rows before using glue, to confirm your directional layout decision and work. Adjustment of the working line may be necessary if the outside wall or other working line reference is out of square. This can be done by scribe cutting the first row of planks to match the wall and creating a straight working line.

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## Blending of Cartons

To achieve a uniform appearance across the entire floor, we highly recommend that you open and work from several cartons/bundles of Aspen Flooring hardwood flooring at a time and dry-lay the flooring, mixing the planks from several cartons/bundles. This will allow you to blend the planks for maximum aesthetic appearance. **It is imperative that you make certain the room is well lit to ensure color is consistent and that any visual defects can be seen and cut out/removed prior to installation.**

## Coordinate Transition Moldings

For best appearance, coordinate all transitions and moldings to planks that have similar color and graining. Set the moldings and matching planks aside for use as needed.

## Layout of Flooring

"Racking the Floor" is essential to achieve a random appearance. Start by either using random-length planks found in the carton or by cutting four or five planks in random lengths, differing by at least six inches. As you continue working across the floor try to maintain a 10" minimum between end joints. Randomly install different lengths to avoid a patterned appearance. Never waste materials; the end cuts from starter rows should be used at the opposite side of the room to complete rows or used to start the next row.

## Expansion Space

An expansion space of ½" or more for engineered flooring and ¾" or more for solid flooring around the perimeter and all vertical surfaces is required. For floating installations, the minimum is ½" regardless of the thickness of the material. For commercial installations use a minimum of ½" expansion.

# Glue Down Installation

Prior to installing the flooring, secure a straight edge inside the chalk line to act as a guide and to prevent the row of planks from shifting during installation. The straightedge could be a straight piece of lumber or piece of flooring. Alternatively, the first row can be face-nailed with finishing nails into the wood subfloor or sprig nailed into a concrete subfloor.

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**Spreading the Adhesive**

We recommend using Adhesives, or the equivalent for Aspen Flooring hardwood flooring products. Follow Adhesive Manufacturer's guidelines for proper use. Temperature and air flow across the adhesive can have an effect on the open time of the adhesive. (See Adhesive Manufacturer label for further information). Always Follow Adhesive Manufacturers Guidelines. ASPEN FLOORING WILL NOT BE RESPONSIBLE FOR ADHESIVE RELATED ISSUES.

**Installing The Floor**

Spread the adhesive from the chalk line/straightedge out to approximately the width of two planks. Install the first row of starter planks along the chalk line/straightedge and secure into position with the tongue facing the starter wall. NOTE: Proper alignment is critical. Misaligned starter rows can cause side and end gaps to appear in proceeding rows of flooring. When you have the starter rows complete, you can begin the next row. When you are certain the first two starter rows are straight and secure, spread adhesive 2 to 3 feet wide across the length of the room. Continue to install planks and push them into place. Place the tongue of the board into the grooves of installed boards and press into the adhesive. As you continue working across the floor try to maintain a 10" minimum space between end joints. Randomly install different lengths to avoid a patterned appearance. NOTE: Never strike a rubber mallet or hammer directly on the flooring to engage the tongue-and-groove. This practice can damage the flooring and/or the finish. Remove excess adhesive from the surface of the installed flooring as you work – this will help to save time and protect the finish. A damp rag with the appropriate adhesive remover or mineral spirits will remove the excess adhesive. Frequently change towels to avoid leaving a haze on the flooring surface. DO NOT use water to remove Urethane adhesives from the flooring.

As you approach the end wall it may be necessary to cut the width of the last row – be sure to allow for the expansion space along the end wall. Once the final cuts are made set planks into place. After the installation is complete, remove the straight edge and glue down the first two boards. Restrict foot traffic for a minimum of 6-8 hours and wait 24 hours before permitting moving of furniture onto the floor. To remove excess adhesive that has dried, use the same glue remover but pay close attention not to mar the finish from excessive rubbing.

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# Final Inspection

After the floor has been cleaned, inspect the floor for nicks, scratches, gaps or planks that may have moved during installation, as well as any other imperfections that need attention. Touch up nicks and scratches with touch-up products. In typical climates, the new floor can accept foot traffic within 24 hours. In areas where additional curing time is required, more time may be needed.

**CAUTION: Adhesive that is not properly removed and allowed to dry on the finish surface can be difficult to remove and may leave a haze or residue. Use the proper cleaning method recommended by the adhesive manufacturer and ensure ALL traces of glue are removed from the surface.**

# Nail Down Installation

**Additional Tools and Material Needed:**

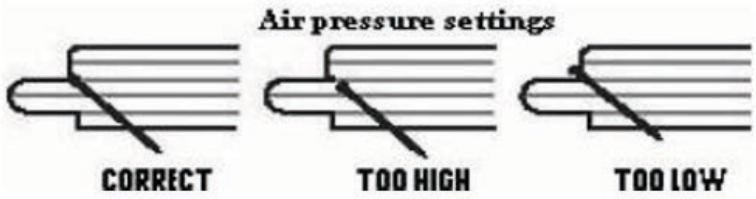
- Drill
- Tapping Block
- Compressor w/air hose and in line regulator
- Pneumatic Nailer/Stapler
- Industry approved moisture vapor retarder such as Aquabar

**NOTE: Our products are not warranted against squeaking, popping or crackling when using staple-down or 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.**

**Set Up and Use of Pneumatic Staplers and Nailers**

Minor occasional noises within the flooring are inherent to all staple/nail-down installations and can change as environmental changes occur. This is not a manufacturing defect and is therefore not covered under our warranties. You can help reduce squeaking, popping, and crackling by being sure that the subfloor is structurally sound, does not have any loose decking or joists, and is swept clean prior to installation. You should also be sure that your stapler or nailer is setting the fastener properly, not damaging the planks, and that you are using the correct nailing schedule. When used improperly, staples or cleats can damage wood flooring. If the tool is not adjusted properly the staples/cleats may not be positioned at the proper angle and cause blistering, peaking, squeaking, or crackling of the floor. Some models may require the use of an adapter to adjust for proper thickness. Test the tool on a piece of scrap material first - set the stapler/nailer flush on the tongue side of the plank and install a staple/cleat.

Should the staple/cleat penetrate too deeply reduce the air pressure; if the staple/cleat is not deep enough then increase the air pressure using an in-line regulator. The crown of the staple/cleat should sit flush within the nail pocket to prevent damage to the flooring and to reduce squeaking.




Aspen Flooring is not responsible for damage caused by the mechanical fasteners or staple guns.

**Recommended Staples/Cleats for Aspen Flooring hardwood floors:**

Engineered 3/8" ..... 20 gauge, 1" – 1-1/2" length

Engineered 1/2"–5/8" ..... .20-18 gauge, 1" – 1-1/2" length

Engineered 3/4" ..... 18 gauge, 1-1/2" length

Solid 3/4" ..... 16 – 15.5 gauge, 1.5" – 2" length

# Nail Down Installation

After the subfloor has been properly cleaned and prepped cover the subfloor with an industry approved moisture vapor retarder such as Aquabar. This material will help to keep the floor clean and help to retard moisture from below (there is no complete moisture barrier system for staple or nail-down applications).

Select a starter wall. An outside wall is best: it's most likely to be straight and square with the room. Measure out from this wall, at each end, the overall width of the plank (board width + tongue + the space needed (3/8" or 1/2") for expansion). Snap a chalk line from these points, parallel to that wall. Install the first row of starter planks along the chalk line/straightedge and secure into position with the tongue facing away from the starter wall. Face nail every 6" (in the dark grain); approximately 1" from the back edge of the board to secure starter planks. Fill nail holes and remove excess filler from surface. Blind nail at a 45° angle through the tongue 1"-2" from the end joints and every 6" in between along the length of the starter boards. Depending on the width of the flooring it may be necessary to do this for the first few rows prior to using a pneumatic stapler/nailer. NOTE: Proper alignment is critical. Misaligned starter rows can cause side and end gaps to appear in proceeding rows of flooring.

**Note: The use of a floating floor 2-in-1 Vapor Barrier Underlayment should be used when stapling or nailing your flooring down. Follow manufacturer's instructions for the correct application when installing the 2-in-1 Vapor Barrier Underlayment.**

**Installing the Floor**

Continue to install the flooring making sure to nail/staple 1"-2" from the ends and every 4"– 6" thereafter. Make certain the tool is adjusted properly to ensure that the fastener is at the proper angle and is flush within the nail pocket. As you continue working across the floor try to maintain a 10" minimum space between end joints. Randomly install different lengths to avoid a patterned appearance. If needed use a tapping block to help engage the boards together until the tongue-and- groove is flush and tight and no gaps are present between adjacent planks. **NOTE:** Never use a rubber mallet or hammer **directly** on the flooring to engage the tongue-and-groove. This can damage the flooring and/or finish.

As you approach the end wall it may be necessary to cut the width of the last row – be sure to allow for the expansion along the end wall. Once the final cuts are made set planks into place. The last few rows will need to be fastened by hand. To fasten the final planks into place, you must either manually blind nail and/or face-nail through the surface on the final planks. Countersink nails and fill with appropriate colored wood filler – remove excess filler from surface with a clean rag and proper cleaner.

**Note:** Larger rooms require additional expansion 1/16" to the width of the expansion space for every 3' the room extends beyond 25'. Dimensions exceeding 40'in length or width – it is recommended to use a T-Molding for proper expansion.