



NALFA: Installation Requirements Matrix

Always check product installation instructions and Manufacturers' Installation Guide for latest requirements.

Last updated: 12/8/21	LAMINATE FLOORING COMPANIES									
	Shaw Industries, Inc.	CLASSEN	PERGO	kronospan	SWISS KRONO Group	Mannington Mills	TORLYS	Mohawk Industries	Kaindl	Quick-Step
Installation Requirements (INTERIOR)										
Expansion Gap	Minimum 1/4" between the flooring and any vertical structure	3/8" around the perimeter of the room and all other vertical objects.	3/8" - 1/2" min. depending upon installation span around perimeter, all fixed vertical objects and cabinetry.	3/8" at all fixed vertical structures	Min 5/16" at all fixed vertical structures	Min 5/16" at all fixed vertical structures	1/2" minimum, depending on range without transition mouldings	3/8" - 1/2" min. depending upon installation span around perimeter, all fixed vertical objects and cabinetry.	1/2" minimum, depending on span without transition mouldings	3/8" - 1/2" min. depending upon installation span around perimeter, all fixed vertical objects and cabinetry.
Transitions	T moldings at all doorways 6 feet wide or less. Rooms larger than 26 x 40 feet (1,040 sq. ft.) require T-molding for expansion. Floor spans should not exceed 40 feet in any direction.	Installations in rooms that are over 40 feet in length and width must use T-moldings. Also use T-moldings when installing laminate floors to separate adjacent rooms (i.e. through doorways).	T-moldings at all doorways 4 feet wide or less and at 40-ft in either direction	T-mold in all doorways less than 48" and after a distance greater than 40' in any direction	T-mold in all doorways less than the length of a plank and maximum 40 feet in length by 25 feet in width	At all doorways and 55 ft in Length and Width	At all doorways less than 32" and every 50 feet length and width	T-moldings at all doorways < 32" wide and at 50-ft in either direction	In all doorways that are 48" wide or less, and at 40-ft in either direction T-moldings are required	T-moldings at all doorways < 32" wide and at 50-ft in either direction
Laminate flooring is wood based material; each plank slightly expands or shrinks when the room humidity increases or decreases. The installed floor should be able to move freely. This is the reason why it is always recommended to not install heavy furniture on top of laminate flooring.										
Staggering of Head/End Joints	Always ensure that the end joints are staggered at least 12 to 16 inches from one row to the next.	12" minimum	> 12" minimum	8" minimum	12" minimum	12" Stagger	12" Stagger	> 12" minimum	> 16" minimum	> 12" minimum
Width of Product in Final Row	2" minimum	3" minimum	2" minimum	2 1/2" minimum	2 1/2" minimum	2" minimum	3" minimum	2" minimum	3" minimum	2" minimum

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Sealant Use	Flexible-cure Silicone sealant should be used in expansion zones in bathrooms, near kitchen sinks, dishwashers and refrigerators with icemakers.	In wet areas such as bathrooms, kitchens, laundry rooms and entryways, apply 100% flexible silicone sealant along the entire perimeter of room and around all fixed objects. To limit the amount of sealant used, first fill all expansion spaces with 3/8" compressible PE foam backer rod and cover with 100% flexible silicone sealant.	Create a watertight seal by applying flexible 100% silicone sealant to the entire perimeter of the installation. DO NOT use acrylic sealant. First fill all expansion spaces with 3/8" compressible PE foam backer rod and cover with silicone sealant. Prior to installing the moldings, apply silicone sealant to the portion of the molding or transition that will contact directly with the laminate flooring surface. Apply silicone sealant at connections to doorframes or any other fixed objects.	100% flexible silicon sealant should be used to fill gaps around potentially wet areas such as entryways and appliances. Silicone should also be applied to the top side of the tongue profile before assembling product at refrigerators, dishwashers, areas in front of sinks, baths, showers, and other wet areas.	Expansion gap at exterior doors or other potentially wet areas can be filled with 100% mildew resistant silicon. Glue may be applied to tongue 5 feet out from any sink, refrigerator with an ice makers or dishwasher.	Wet areas such as bathrooms - use 100% silicone sealant	Flexible and mildew-resistant silicone sealant, around all moisture sources: outside leading doors/sliders, wet areas (rooms with plumbing), and completely around bathroom perimeter	Create a watertight seal by applying flexible 100% silicone sealant to the entire perimeter of the installation. DO NOT use acrylic sealant. First fill all expansion spaces with 3/8" compressible PE foam backer rod and cover with silicone sealant. Prior to installing the moldings, apply silicone sealant to the molding or transition that will contact directly with the laminate flooring surface. Apply silicone sealant at connections to doorframes or any other fixed objects.	If the installation is to take place in an area that is susceptible to spills or liquid getting behind skirting (molding) boards, the perimeter of the room must be completely sealed. A 13mm (3/8") compressible polyethylene (PE) foam backer rod should be inserted to fill all expansion spaces. The backer rod should be completely covered with 100% silicone sealant around the entire perimeter of the installation. An acrylic sealant should not be used. A small silicone bead should be applied where the skirting (molding) meets the floor, creating a perimeter barrier to prevent any spills or liquids from getting underneath or behind the skirting. The same result can be achieved with waterproof skirting. Any fixed objects, door frames, etc. should be sealed in the same way using a 100% silicone sealant.	Create a watertight seal by applying flexible 100% silicone sealant to the entire perimeter of the installation. DO NOT use acrylic sealant. First fill all expansion spaces with 3/8" compressible PE foam backer rod and cover with silicone sealant. Prior to installing the moldings, apply silicone sealant to the portion of the molding or transition that will contact directly with the laminate flooring surface. Apply silicone sealant at connections to doorframes or any other fixed objects.
Subfloor Flatness	1/8" in a 6' radius; overlap radius areas when checking for flatness.	1/16" over 3' span	3/16" per 10' span	3/16" over 10' span	3/8" over 10' span	1/8" in 6'	3/16" over 10'; subfloor must be structurally sound.	3/16" per 10' span	1/8" over 3' Span	3/16" per 10' span
Slope	Laminate should not be installed on ramps. Minor off-level sub floors are governed by flatness guidelines.	Do not install on ramps or sloped surfaces.	Floating floors should not be installed on sloped surfaces.	No slope allowed	No slope allowed	No slope allowed	Minor off-level sub-floors are governed by flatness guidelines. Flooring should not be installed floating on sloped surfaces.	Floating floors should not be installed on sloped surfaces.	Floating floors should not be installed on a ramp or a slope	Floating floors should not be installed on sloped surfaces.



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Subfloor Moisture	Concrete: <5 lbs/1,000sqft/24hrs (Calcium Chloride). Wood: <12% using a wood pin probe meter.	Concrete: < 5 lbs/1,000sqft/24hrs (Calcium Chloride Test ASTM 1869) Wood: < 12% (test 20 location per 1000 square feet and average the results)	<5 lbs/1,000sqft/24hrs (ASTM F1869) or <80% RH (ASTM F2170) on concrete subfloor. ≤12% on wood subfloor (moisture meter).	<3 lbs. per 24 hours per 1000 sq. ft. on concrete per ASTM 1869 or less than 12% on wood subfloors.	5lbs per 24 hours per 1000 sq ft on concrete less than 14% on wood subfloors.	Concrete: less than 5lbs/24 hours per 1000 sq ft (calcium chloride method ASTM 1869), wood: subfloor moisture may not exceed 12%.	Concrete: less than or equal to 80% RH as per ASTM F2170. Wood: subfloor moisture may not exceed 12%.	<5 lbs/1,000sqft/24hrs (ASTM F1869) or <80% RH (ASTM F2170) on concrete subfloor. ≤12% on wood subfloor (moisture meter).	<5 lbs/1,000sqft/24hrs (ASTM F1869) or <80% RH (ASTM F2170) on concrete subfloor. ≤12% on wood subfloor (moisture meter).	<5 lbs/1,000sqft/24hrs (ASTM F1869) or <80% RH (ASTM F2170) on concrete subfloor. ≤12% on wood subfloor (moisture meter).
Relative Humidity (R.H.) Requirements	Between 35% & 65% before, during and after installation.	40%-60%	35% - 65%	35%-70%	30%-75%	RH not to exceed 65%	30-60%	35% - 65%	35% - 65% Before, During and after installation.	35% - 65%
Acclimation	Not required in climate-controlled conditions.	48 hours	Acclimate unopened product before installation. If there is no time for acclimation, there should be no more than a difference of 25° F and 20% relative humidity between the stocking/transportation environment of the flooring and the final installation environment of the flooring.	48 hours	48 hours	No acclimation required. If extreme temperature and humidity variations exist during storage or transport, acclimation to jobsite is recommended	48 hours	Acclimate unopened product before installation. If there is no time for acclimation, there should be no more than a difference of 25° F and 20% relative humidity between the stocking/transportation environment of the flooring and the final installation environment of the flooring.	48 hours	Acclimate unopened product before installation. If there is no time for acclimation, there should be no more than a difference of 25° F and 20% relative humidity between the stocking/transportation environment of the flooring and the final installation environment of the flooring.
Room Temperature	65°F - 85°F	minimum 64°F	60° - 85°F	60° - 80°F	65-85	Min 65°F Max 100°F	60-70°F (16°C - 21°C).	60° - 85°F	60° - 80°F	60° - 85°F

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Underlayment Requirements	Concrete subfloor: use minimum 6-mil polyethylene sheeting as a vapor barrier Wood subfloor: no additional plastic vapor barrier should be installed	Wood: max. 3mm thick underlay. Concrete: max. 3mm thick underlay plus min. 6 mil polyethylene sheeting should be used as a moisture barrier (8" seam overlap on moisture barrier).	6-mil 100% virgin non-recycled, alkali-resistant polyethylene film with overlapped seams of 8" or more, over concrete subfloor. For planks without attached underlayment, install over a single layer of underlayment appropriate for laminate floors. Pergo Gold/Pergo Floormate permitted under pad attached products.	6-mil virgin polyethylene film for concrete installations with tape at all seams. Sound reducing underlayment is also required for products without a pre-attached acoustic backing regardless of subfloor.	6m virgin Polyethylene film over concrete. Use best underlayment that meets jobs budget, however do NOT use an underlayment if the product already has a pad attached.	Whisper 3N1 or equivalent	TORLYS brand, 6-mil poly, or equivalent	6-mil 100% virgin non-recycled, alkali-resistant polyethylene film with overlapped seams of 8" or more, over concrete subfloor. For planks without attached underlayment, install over a single layer of underlayment appropriate for laminate floors.	For Wood Subfloor: max. 3mm thick underlay with minimum compression value according to NALFA greater than 21 kPa @ 0.5mm of Deflection (2.5 psi @ 0.020") and references ASTM D 3575 Suffix D. For Concrete: max. 3mm thick underlay plus min. 6 mil polyethylene sheeting should be used as a moisture barrier (8" seam overlap on moisture barrier). Minimum compression value of 21 kPa @ 0.5mm of Deflection (2.5 psi @ 0.020") and references ASTM D 3575 Suffix D. No underlayment required if already attached to the planks.	6-mil 100% virgin non-recycled, alkali-resistant polyethylene film with overlapped seams of 8" or more, over concrete subfloor. For planks without attached underlayment, install over a single layer of underlayment appropriate for laminate floors.

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Do not use	Do not wash or wet mop the floor with soapy-water, oil-soap detergents, or any other liquid cleaning material. Do not use steel wool, abrasive cleaners, or strong ammoniated or chlorinated type cleaners. Do not use any type of steam cleaning, buffing or polishing machine.	Do not wet mop. Do not use detergents, abrasive cleaners, soaps, oils, waxes, polishes, steel wool or scouring powder. Do no use vacuum with beater bars.	An excessively wet mop that will puddle or leave moisture standing on the floor or pour liquid directly on floor. Detergents; soaps; waxes or polishes; abrasives; floor scrubbers, jet mops or rotating beater bars. Steam mop permitted on some collections	Do not use waxes, general floor cleaners, soaps, or other detergents and harsh chemicals. Do not use vacuums with the beater bar attachment engaged. Do not wet mop the flooring or leave standing liquids of any kind. Do not buff, polish, or use any cleaners or other chemicals that have abrasives or micro-abrasive properties. Do not steam clean.	Waxes to improve gloss level or cleaners like murphys oil soap or a vacuum with a beater bar or a steam cleaner	Detergent, soap, wax, or polisher, steam cleaner, buffer machine or abrasive sponge, or vacuum with beater bar	Dependant on product; generally speaking, beater bars on vacuums, wet mops, highly acidic or alkaline cleaners, non-recommended commercial cleaners or polishes, steam cleaners, buffing or polishing machines, or a treated mop that has been used to clean other floors or furniture	An excessively wet mop that will puddle or leave moisture standing on the floor or pour liquid directly on floor. Detergents; soaps; waxes or polishes; abrasives; floor scrubbers, jet mops or rotating beater bars. Steam mop permitted on some collections	Do not use waxes, general floor cleaners, soaps, or other detergents and harsh chemicals. Do not use vacuums with the beater bar attachment engaged. Do not wet mop the flooring or leave standing liquids of any kind. Do not buff, polish, or use any cleaners or other chemicals that have abrasives or micro-abrasive properties. Steam Mop is permitted only on products designated as water-resistant.	An excessively wet mop that will puddle or leave moisture standing on the floor or pour liquid directly on floor. Detergents; soaps; waxes or polishes; abrasives; floor scrubbers, jet mops or rotating beater bars. Steam mop permitted on some collections
Special Requirements for Underfloor Heat										
Expansion	1/4" to 3/8"	3/8 in. (10 mm)	3/8"	3/8" at all fixed vertical structures	5/16-3/8		1/2" minimum, depending on range without transition mouldings	3/8"	1/2" minimum, depending on span without transition mouldings	3/8"
Transitions	Use a t-mold at all doorways 36" or less and every 45 feet in length and width.	Installations in rooms that are over 40 feet in length and width must use T-moldings. Also use T-moldings when installing laminate floors to separate adjacent rooms (i.e. through doorways).	T-moldings at all doorways 4 feet wide or less and at 40-ft in either direction.	T-mold in all doorways less than 48" and after a distance greater than 30' in any direction.	At all doorways less than the length of the plank and maximum 40 feet in length by 25 feet in width.		At all doorways less than 32" and every 50 feet length and width.	T-moldings at all doorways < 32" wide and at 50-ft in either direction.	In all doorways that are 48" wide or less, and at 40-ft in either direction T-moldings are required	T-moldings at all doorways < 32" wide and at 50-ft in either direction.
Maximum temperature at surface of subfloor	Never raise the flooring surface temperature setting above 85°F	84° F	84° F (29° C)	85° F	85° F	< 85° F	80° F (27° C)	84° F (29° C)	80° F (27° C)	84° F (29° C)

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Radiant Floor Heat	T moldings at all doorways 6 feet wide or less. Rooms larger than 26 x 40 feet (1,040 sq. ft.) require T-molding for expansion. Floor spans should not exceed 40 feet in any direction.	Radiant heat system must in operation for a minimum 3 weeks prior to installation of laminate flooring. Changes to temperature should be gradual (5 degree increments).	Radiant heat system must in operation for a minimum 3 weeks prior to installation of laminate flooring. Changes to temperature should be gradual (5 degree increments).	In-floor heating should be installed and on for several days before installing flooring. Actual changes to the heat settings after flooring is installed should be minimal and done gradually. Not more than 10 degrees of total deviation should occur within a 24 hour period.	Must be on 3 days before and during installation, gradual increases in temperate should not exceed 10 ⁰ F per hour.	Before installing the flooring, the system must be operated at maximum capacity to force any residual moisture from the cemetitious topping.	Temperature should be gradually increased to 80% or 2/3 of maximum output for 2 weeks, before installation. Four days before installation, the temperature of the floor heating system must be reduced to a suitable temperature of 60°F - 70°F (16°C to 21°C).	Radiant heat system must in operation for a minimum 3 weeks prior to installation of laminate flooring. Changes to temperature should be gradual (5 degree increments).	Radiant heat system must in operation for a minimum 3 weeks prior to installation of laminate flooring. Actual changes to the heat settings after flooring is installed should be minimal and done gradually in 5°F - 9°F increments.	Radiant heat system must in operation for a minimum 3 weeks prior to installation of laminate flooring. Changes to temperature should be gradual (5 degree increments).
Installation Requirements (EXTERIOR)										
Crawl Space Ventilation	Whenever moisture readings are higher than 12%, full evaluations of the joist systems, crawl spaces or basement areas beneath the wood subflooring are also necessary. Suspended wood subfloors should have a minimum of 18 inches of well-ventilated air space above the ground.	All crawl spaces must be well-ventilated. Be sure to rectify any crawl space moisture problems prior to installing flooring. Crawl spaces should be dry and meet all local building codes.	1.5 sq.ft. vent opening per 100 sq.ft. of floor area. Crawl space clearance from ground to underside of joist should not be less than 18 inches.	18" of clearance minimum with suitable ventilation	1.5% of floor surface	Min 18" clearance	Minimum 18" of clearance below suspended floor assembly with 1.5% of crawl space area ventilated. Must be cross-ventilated.	1.5 sq.ft. vent opening per 100 sq.ft. of floor area. Crawl space clearance from ground to underside of joist should not be less than 18 inches.	Crawl spaces must be well-ventilated. Any crawl space moisture problems should be addressed prior to installing Laminate flooring. Crawl space must be dry and meet all local building codes.	1.5 sq.ft. vent opening per 100 sq.ft. of floor area. Crawl space clearance from ground to underside of joist should not be less than 18 inches.
Ground Cover	6 mil polyethylene film	6 mil polyethylene film. Be sure to rectify any crawl space moisture problems prior to installing flooring. Crawl spaces should be dry and meet all local building codes.	Full coverage of crawl space earth with black 6-mil polyethylene film with minimum 8" overlap of seams	6 mil polyethylene film	6 mil polyethylene film	6 mil polyethylene film	Black 6 mil polyethylene film with 8" overlap and damproof tape at seams	Full coverage of crawl space earth with black 6-mil polyethylene film with minimum 8" overlap of seams	6 mil polyethylene film. Any crawl space moisture problems should be corrected prior to installing flooring. Crawl spaces should be dry and meet all local building codes.	Full coverage of crawl space earth with black 6-mil polyethylene film with minimum 8" overlap of seams



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Gutters and Down Spout	In good condition and directing water flow away from building foundations.	All gutters should be in place and functioning properly, drains should be sloped to run water away from the home foundations.	Clean, functional and properly directed away from and down-slope from home.	In good working condition draining water away from structure.	Drain water away from structure.	In good repair	In good repair and operating properly	Clean, functional and properly directed away from and down-slope from home.	Gutters should be in good condition and functioning properly, drains should slope away from the foundation of the home.	Clean, functional and properly directed away from and down-slope from home.
Outside Slope or Grade	Away from house	Yard grading should be sloped to run water away from the home foundation.	>1/2" per foot for 10' away from structure foundation.	Away from structure	Away from structure, 5" per 10'	Away from house	Away from house	>1/2" per foot for 10' away from structure foundation.	Slope should grade away from the Structure	>1/2" per foot for 10' away from structure foundation.
Sprinkler Systems	In good working condition; with no pooling areas adjacent to home walls and foundations.	Sprinkler systems should drain away from structures and foundations.	In good working condition; must not direct water or drain toward house or foundation.	Deliver water away from structure.	Deliver water away from structure; beware of underground systems.	In good working condition	In good working condition. Water not to be directed at structure.	In good working condition; must not direct water or drain toward house or foundation.	Any Sprinkler system or irrigation system should drain away from the structure.	In good working condition; must not direct water or drain toward house or foundation.