



T&G Installation Instructions

Applicable to:

ESTATE COLLECTION



Note: These directions are based on industry standards and best practices. Warranty coverage may be lost due to failure to strictly follow all installation instructions and recommendations and/or the use of improper materials or tools. For complete warranty information visit www.kahrs.com or call 1-800-800-5247.

READ ALL INSTRUCTIONS CAREFULLY!

THANK YOU FOR CHOOSING KÄHRS FLOORING!

Owner/Installer responsibility

The installer and customer must both ensure the product meets their expectations regarding appearance, quality, and grade prior to installation. The installer must use reasonable selectivity and set aside or cut off pieces with deficiencies, whatever the cause. Should an individual piece be doubtful as to grade, manufacture, or factory finish, the installer should not use the board.

Prior to installation of Kährs flooring, the installer/owner must ensure that the jobsite and subfloor meet the requirements of these instructions. Flooring failure resulting from unsatisfactory jobsite and/or subfloor conditions is not covered under warranty.

Any decision not to proceed must occur within the first 10% or 100 square feet of flooring installed, whichever is less.

Once installed, any board is considered as having been accepted by the installer and owner, even if the owner is absent at the time of installation. Please see *Kährs Wood Floor Guarantee document* for more information.

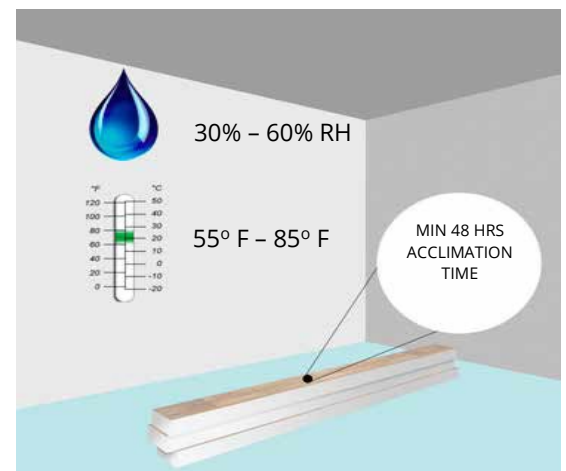
Owner must maintain the flooring in accordance with Kährs Wood Floor Care guidelines, including maintaining recommended temperature and relative humidity levels year-round.

Always store the hardwood flooring in dry conditions and do not open the cartons until just before installation.

JOBSITE CONDITIONS

Interior Conditions

- Kährs products must be installed only in a climate-controlled environment, with doors and windows installed and operational HVAC system.
- Wood flooring should be one of the last items installed for any new construction or remodel project. All work involving water or moisture should be completed before flooring installation.
- Flooring should be allowed to **acclimate for a minimum of 48 hrs.** or until conditions are at normal living conditions and meet minimum installation requirements for moisture content. Store the wood flooring in the unopened boxes at the installation area. Do not store the boxes of flooring directly on concrete. **DO NOT OPEN** more than a few boxes in advance of installation and only the number of boxes that will be installed within the next few hours. Only open enough boxes to ensure a good mix of lengths and color.
- Relative Humidity** at the job site must be, and remain, in the range of **30% - 60%**. Temperature setting must be, and remain, in normal operating range of **55°F - 85°F**. Test and record (photograph) RH readings in each area where Kährs products will be installed.
- Warning - humidity levels below 30% will likely cause movement in the flooring, including possible dry cupping, face checking and gapping between planks.



Exterior conditions

- Carefully inspect the outside surroundings for improper drainage and predictable or obvious sources of moisture. The yard should be graded (at least 6" in 10 ft.) to slope away from the foundation. Be sure that gutters and eaves sufficiently prevent rain from penetrating the foundation.
- Under the house: In homes with crawl space or pier-beam foundations, foundation vents must provide cross-ventilation with no dead air space. Vents should be located throughout the foundation with an opening area equal to 1.5% of the square-foot area within the crawl space. If excessive moisture exists underneath the house, you must lay a 6-mil black polyethylene moisture barrier on the ground in the crawl space below the installation area.

- The basement should be free of all moisture and be weather tight.
- Exterior site/structure issues are NOT the responsibility of the flooring contractor/installer or Kährs.

SUBFLOOR REQUIREMENTS

Moisture levels

The installer must confirm subfloor moisture conditions are suitable before installing any hardwood floor.

Wood subfloor moisture must read under **12%** and differential between boards and subfloor must be less than 4%.

Concrete subfloor must be fully cured and at least 60 days old. Evaluate several areas, especially near exterior walls and walls containing plumbing. Document and keep all results.

Acceptable test methods for concrete subfloor moisture content include:

- TRAMEX Concrete Moisture Encounter Meter: Moisture readings should not exceed **4.5** on the upper scale. Concrete Moisture Meters give qualitative reading results-not quantitative ones. These results are a quick way to determine if further testing is needed.

Note: The following tests are required in residential/commercial applications. Either or both tests are acceptable.

- Calcium Chloride Test (ASTM F 1869): The maximum moisture transfer must not exceed **3 lbs./1000 ft²** in 24 hrs. (2lbs./1000 ft² for Radiant Heat installations).
- **RH** Levels in Concrete Using In-situ Probes (ASTM F 2170) should not exceed **75%**.

Preparation and specifications

A floor can only be as good as the subfloor allows. All subfloors must be **clean, structurally sound, dry, and flat**. Address any movement, delamination, squeaks/noise, water damage, physical damage, etc. prior to install. Use a vacuum cleaner to remove any debris and dirt.

Subfloor flatness is different from 'level'. Level is typically not necessary, but it is extremely important to level the subfloor to achieve the **flatness of 3/16" in an 8' radius**. Check this by using the edge of a full length Kährs plank to find any high or low spots. Sand or grind high areas or joints. Fill low areas with a latex additive cementitious leveling compound of 3,000-PSI minimum compressive strength patch and underlayment. For more information on how to correct subfloor flatness, see NWFA Installation Guidelines.

Note: Subfloor deflection and movement are the main cause of squeaking floors. If subfloor deflection exists measures must be taken to correct. Check NWFA guidelines for joist spacing and plywood thickness.

For subfloor and environmental specifications see Jobsite Conditions / Subfloor Requirements instructions at www.kahrs.com

RADIANT HEAT. Only RED OAK products are warranted for installation **over hydronic radiant heat**, HICKORY and MAPLE are not recommended for this type of installation. Estate Collection is not warranted over electric radiant heat systems. Slight surface checking (cracking), particularly at the ends of planks, should be expected in installations over radiant heat and do not constitute a product failure.

For installations over subfloors with Radiant Heat, please refer to '*Kährs Radiant Heat Special instructions*' guide at www.kahrs.com

WARNING! INSTALLERS

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.

Precautionary Measures: If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designated dust mask. Avoid dust contact with eye and skin.

First Aid Measures in Case of Irritation: In case of irritation, flush eyes or skin with water for at least 15 minutes.

Important Installation Notes

- Installer's Responsibility: Be aware of the grade, relative humidity of the room, and moisture content of the subfloor. Check that each plank is free of damage or manufacturing defects. Set aside any unusable boards for later replacement.
- Pre-selection of Boards: When possible, preselect and set aside boards that blend best with all horizontally mounted moldings (reducer/stair nose, etc.). This will ensure a uniform final appearance. Install these boards adjoining the moldings.
- Mixing Boards: Always install the floor from several cartons at the same time to ensure a good color and shade mixture.
- Starter Boards: Each carton of flooring could have up to 2 pieces that can be used to start or end a row. One end is cut straight and does not have a profile. Use these boards during installation.
- Cutting Door Jambs and Casings: Cut door jambs and casings after subfloor leveling is completed to avoid difficult scribe cuts.
- Avoiding Damage: Do not use rubber mallets or hammers on the finished edge of the floors.
- Bathroom Installations: Kährs Flooring is approved for installations in ½ bathrooms only (no bathrooms including showers or bathtubs).
- Jobsite/Subfloor Preparation: See the Jobsite/Subfloor Preparation section and follow all requirements before installation. Vacuum the subfloor thoroughly.
- Adhesive Recommendations: Recommendations for adhesives should come directly from the adhesive manufacturer of your choice. Kährs recommends choosing a premium quality hardwood flooring adhesive. Follow the adhesive manufacturer's instructions for proper use of the adhesive, application methods, flash-time, working-time, warranties, etc.

Techniques

Estate Collection flooring can be installed on, below and or above grade level, but should not be installed in full bathrooms or other wet environments.

GLUE DOWN INSTALLATION

1. Determine starting wall and direction to lay boards. An outside wall is typically straight and square with the room. Wood should be installed perpendicular to the joists. In cases of existing wooden floors, boards should be laid crosswise or at a 45-degree angle.
2. Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the expansion shims to your right and the long grooved length of the board is against the expansion shims in front of you.
3. Maintain expansion gap of 3/8" to 1/2" between first board and the wall by using spacers regularly along the length of the wall. Determine the straightness of wall by snapping a chalk line. If starting wall is not straight, make notation on first row and saw to shape.
4. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned against the shims. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.
5. Continue placing additional boards moving right to left using the same procedure until the first row is complete.
6. You will need to cut off the end of the final board, save the remaining piece for the next row as long as it is at least 8" long. Use the last board Puller to ensure the last board is tight against the preceding board. Place shims between the end of the last board and the wall. Use the shims to wedge the row tightly, rendering it immobile.
7. Once the first row has been cut and fit, remove the flooring and set it aside. Snap a chalk line the face width of the wood flooring plus 3/8" to 1/2" for expansion space out from the starting wall. Starting from the edge of the chalk line, apply an even layer of adhesive as instructed by the adhesive manufacturer. Only spread adhesive the width and length of the one row that was dry fit.

8. **Note On Adhesive:** Follow the adhesive manufacturer's instructions for use in this application. Wear rubber gloves and proceed carefully during adhesive application. Cured mastic is very hard and sometimes impossible to remove from the flooring as well as the tools. Do not allow any spilled or excess adhesive to remain anywhere but between the boards and the subfloor at any time during the installation. Clean up spills immediately as recommended by the adhesive manufacturer. The flooring manufacturer will not be responsible in any way for adhesive that is not removed from the hardwood flooring immediately. Any damage to the flooring caused by the adhesive allowing it to cure on the surface will be the sole responsibility of the installation mechanic.
9. Re-install the pre-cut boards from the dry fit as follows. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.
10. Continue placing additional boards moving left to right using the same procedure until the first row is complete.
11. Place shims between the end of the last board and the wall. Use the shims to wedge the row tightly rendering it immobile. Lightly weight the first row to ensure proper contact with the adhesive.
12. Stagger end joints (at least 8") and randomly install different lengths to ensure a natural appearance. Do not create discernible patterns such as "H" or "steps". Select boards to create a uniform appearance without clusters of short lengths or sections of light or dark planks. Place aside any boards that have visual defects or are not consistent with the grade being installed.
13. The end joint must be at least 8" from the end joint in the row before it. A minimum of one end joint is required in every row, regardless of width (e.g. hallways).
14. Trowel adhesive onto the subfloor as recommended by the adhesive manufacturer, place the next board in position, match the tongue and groove at the end only, then, beginning at the opposite end of the board, and tap the board onto the previous row with the tapping block. Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you will not be able to do so once the long seam is tight.
15. Continue process across the room. The last board should be sawn to an appropriate width allowing for 3/8" to 1/2" expansion space against walls and all vertical obstructions.
16. Clean up all excess adhesive from the surface of the installed flooring as recommended by the adhesive manufacturer.
17. The newly installed floor should be protected while other trades complete the work. Do not drag furniture or heavy equipment across the installed flooring.

STAPLE DOWN INSTALLATION

Note: Do not use nails or staples longer than 1.5". Always maintain a minimum 3/8" to 1/2" expansion space around all vertical obstructions (walls, cabinets, pipes, etc.) during installation. Adjust the pneumatic air pressure to ensure proper penetration of the cleat/staple through the nailing fin. Test the nailer to ensure proper adjustments have been made.

Recommended tools:

Pownail - Model 2000F, Model 50P, Model 50F, Model 1845F.
Spotnail - WS4840W6, FS7550 or similar.

1. Determine the starting wall and direction to lay boards. An outside wall is typically straight and square with the room. Wood should be installed perpendicular to the joists. In cases of existing wooden floors, boards should be laid crosswise or at a 45-degree angle. Lay felt or silicone paper in same direction as boards to provide a moisture barrier and reduce potential squeaks from wood-on-wood contact.

2. **When nailing/stapling, add a tongue and groove adhesive into the groove of the short side of each board.**
3. Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the expansion shims to your right and the long grooved length of the board is against the expansion shims in front of you.
4. Maintain expansion gap of 3/8" to 1/2" between first board and the wall by using spacers regularly along the length of the wall. Determine the straightness of wall by snapping a chalk line. If starting wall is not straight, make notation on first row and saw to shape.
5. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned against the shims. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.
6. Continue placing additional boards moving right to left using the same procedure until the first row is complete.
7. You will need to cut off the end of the final board, save the remaining piece for the next row as long as it is at least 8" long. Use the last board Puller to ensure the last board is tight against the preceding board. Place shims between the end of the last board and the wall. Use the shims to wedge the row tightly, rendering it immobile.
8. Once the first row has been cut and fit, face nail the first row, 1" from the wall to ensure the nails will be covered by molding. Once the first row is face-nailed, top nail the board every 4" to 6" at a 45-degree angle through the tongue using a pneumatic nailer/stapler and 1.5" fasteners.
9. Stagger end joints (at least 8") and randomly install different lengths to ensure a natural appearance. Do not create discernible patterns such as "H" or "steps". Select boards to create a uniform appearance without clusters of short lengths or sections of light or dark planks. Place aside any boards that have visual defects or are not consistent with the grade being installed.
10. The end joint must be at least 8" from the end joint in the row before it. A minimum of one end joint is required in every row, regardless of width (e.g. hallways).
11. Position the next board, match the tongue and groove at the end only, then, beginning at the opposite end of the board, tap the board onto the previous row with the tapping block. Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you may not be able to do so once the long seam is tight. With the flooring nailer, fasten through the tongues of the boards at 4" to 6" intervals and 2-3" from the end of each board.
12. Continue process across the room. The last board should be sawed to an appropriate width allowing for 3/8"-1/2" expansion space against walls and all vertical obstructions. Nail/staple the last row, 1" from the wall to ensure the nails will be covered by molding.

FLOATING INSTALLATION

Note: Tongue and groove **adhesive must be used** in the full length of the groove on all joints when utilizing the floating installation method. Heavy objects such as counters, large commercial stoves and refrigerators and kitchen islands should be in place prior to the installation of a floating wood floor. Compressing a floating floor against the subfloor with excessive weight will inhibit the floors' ability to move in response to changes in relative humidity and may result in gapping, cupping or squeaking.

1. Determine starting wall and direction to lay boards. An outside wall is typically straight and square with the room.
2. Lay Kährs COMBO or ECO+ underlayment in same direction as boards.
3. Begin installing the first row in the right corner of the base wall. Install the first board so the short grooved side is against the expansion shims to your right and the long grooved length of the board is against the expansion shims in front of you.

4. Maintain an expansion gap of 1/2" between first board and the wall by using spacers regularly along the length of the wall. Determine the straightness of wall by snapping a chalk line. If starting wall is not straight, make notation on first row and saw to shape.
5. Holding the board finished side down, apply 1/8" bead of tongue and groove adhesive into the groove on the end of the second board. Connect the end of the second board to the end of the first board, making sure the boards are tightly connected and firmly positioned against the shims. Use the hammer/rubber mallet and tapping block to tap the tongue end of the second board to ensure a tight fit. Never use the hammer or rubber mallet directly on the flooring as this will cause damage to the board.
6. Continue placing additional boards moving right to left using the same procedure until the first row is complete.
7. You will need to cut off the end of the final board. Save the remaining piece for the next row as long as it is at least 8" long. Use the last board Puller to ensure the last board is tight against the preceding board. Place shims between the end of the last board and the wall. Use the shims to wedge the row tightly, rendering it immobile.
8. Stagger end joints (at least 8") and randomly install different lengths to ensure a natural appearance. Do not create discernible patterns such as "H" or "steps". Select boards to create a uniform appearance without clusters of short lengths or sections of light or dark planks. Place aside any boards that have visual defects or are not consistent with the grade being installed. The end joint must be at least 8" from the end joint in the row before it. A minimum of one end joint is required in every row, regardless of width (e.g. hallways).
9. Holding the board finished side down, apply 1/8" bead of tongue and groove adhesive into the short end and long side grooves and position the next board, match the tongue and groove at the end only, then, beginning at the opposite end of the board, tap the board onto the previous row with the tapping block. Move the tapping block back toward the right side of the board until you get near the connections with the previous board. Before you finish tapping the board onto the previous row, you must be sure the end joint is tight. If the end joint is not completely tight you may not be able to do so once the long seam is tight.
10. Continue process across the room. The last board should be sawn to appropriate width allowing for 1/2" expansion space against walls and all vertical obstructions.
11. Do not install floating floors more than 30 feet in length or width without the use of transitions.
12. Use transitions at doorways and other adjacent floors.
13. Do not affix the floor to the subfloor at any point.

AFTER INSTALLATION

Regular Cleaning: Regularly vacuum or clean the floor using a dry dust mop or cloth. Use Kährs Wood Floor Cleaner as needed.

Avoid Harmful Products: Do not use oil soap, water-emulsion, self-polishing waxes, or water mixed with vinegar.

No Wet Mopping: NEVER wet mop the floor. Always clean up spills and standing water as soon as possible.

Furniture Protection: Place floor protectors on furniture legs to prevent damage.

Rug Maintenance: All mats or rugs should be cleaned and/or replaced regularly. Move them around occasionally to allow natural color changes caused by light to occur evenly in all areas. Never use latex or rubber-backed mats or rugs; they could permanently stain the floor.

Further Information: See the Kährs Floor Care Guide & Lifetime Guarantee for full details (available at www.kahrs.com).

Relative Humidity in the room

Maintain the Relative Humidity levels within 30%-60% range to avoid unwanted climate-related damage and movements in the wood floor, e.g., cracks, gaps, noise, cupping etc. In summer you may need to dehumidify the air, while in winter it may instead be necessary to increase the humidity in the air. At a too high or too low Relative Humidity, permanent shape changes of the wood floor can occur. It is important to ensure that even in empty and uninhabited spaces, the temperature and humidity are correct (especially important when installing in new constructions or major renovations). Damage caused by failing to maintain the proper humidity levels is not manufacturing related and will void the floor's warranty.

Color change

Wood is a natural material that gradually matures to its natural color, this change occurs fastest immediately after installation. To avoid uneven color change, do not lay carpets on the floor during the first few months after installation. Additionally, gloss reduction is not considered wear-through.

Warranty Exclusions

- **Squeaking, Popping, or Crackling:** These issues resulting from low spots, uneven subfloors, insufficient expansion space, or staple-down installation methods are not covered by the product warranty.
- **Dimpling:** Dimpling on the face of the flooring due to nail/staple down installation is not covered by the product warranty.
- **Indentations, Scratches, or Damages:** The following are not covered by the product warranty:
 - Negligence or exposure to extreme heat, dryness, or water saturation (including, but not limited to, a leaky faucet, broken pipe, and wet mopping).
 - Accidents, abuse, or misuse.
 - Indentations from high heels or pet nails.
 - Pet stains.
 - Damage from furniture rollers.
 - Stains resulting from chemical or industrial products.
 - Failure to follow all manufacturer's specific written installation and maintenance instructions.
 - Insufficient protection or improper alterations of the original product.