

Kährs®

SUBFLOOR AND INSTALLATION PREP

RADIANT HEAT

KÄHRS WOODLOC®5S
KÄHRS WOODLOC®5G



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Note: These directions are based on industry standards and best practices. Warranty coverage may be lost due to your 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 KÄHR'S FLOORING!

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.

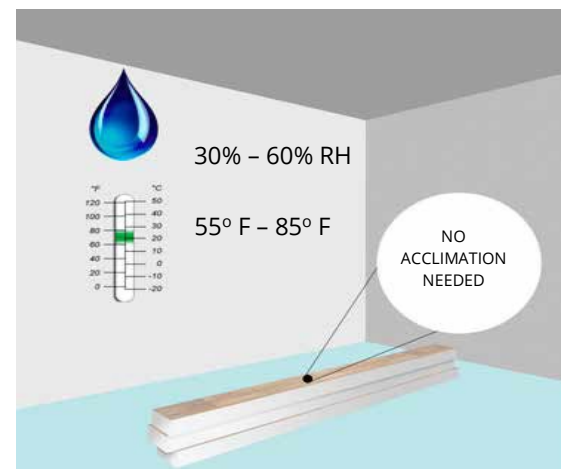
First Aid Measures in Case of Irritation: In case of irritation, flush eyes or skin with water for at least 15 minutes.

GENERAL REQUIREMENTS FOR SUBFLOORS

A floor can only be as good as the subfloor allows.

Jobsite Interior Conditions

- Kährs products must be installed only in a climate-controlled environment, with doors and windows installed and an operational HVAC system.
- Acclimation is not necessary if the engineered flooring has been stored in a climate-protected environment, and if the jobsite is maintained within the manufacturer's recommended temperature and humidity range prior to and during installation.
- If these conditions cannot be confirmed or maintained, acclimate the flooring in the installation space for a minimum of 24 hours.
- 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.
- **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.



Jobsite 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. 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.
- Basement should be free of all moisture and be weather tight. Relative Humidity of basements should not be more than 10% higher than the upper floors.
- Exterior site/structure issues are NOT the responsibility of the flooring contractor/installer or Kährs.



Moisture and Testing

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%**.

Moisture protection prevents the diffusion of moisture (moisture migration) between different building materials in a building and normally consists of 6 mil age-resistant polyethylene film. Moisture protection on the following subfloors, whatever their age, is mandatory:

- underfloor heating
- concrete floor directly on the ground (ground-supported slab)
- floor above warm or humid areas (e.g. boiler room or laundry room)
- structural floor above a ventilated crawl space foundation
- lightweight concrete floor structures

Preparation and Specifications

- All subfloors must be **clean, structurally sound, dry, and flat**. Address any movement, delamination, squeaks/noise, water damage, physical damage, etc. prior to installation. 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 an **1/8"** in an 8' radius. Check this by using the edge of a 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.
- All Kährs wood products installed over wood subfloors, lightweight or standard density concrete subfloors, or other existing floors with the float-in method must have Kährs ECO+, COMBO or QuietStride underlayment. QuietStride does not come with vapor barrier built-in, add 6mil polyethylene film for installations over concrete slab.
- Ceramic tile, resilient tile and sheet vinyl must be well-bonded to the subfloor, in good condition, clean and flat.
- Kährs floor should never be installed over an existing floating floor, over a carpet pad, or directly on joists or sleepers.
- Please refer to '*NWFA Wood Flooring Installation Guide*' for more information on subfloor types and recommendations.



Installation Environment Chart			
I. Grade Type	Glue	Staple	Float
Above Grade	Yes	Yes	Yes
On Grade	Yes	Yes	Yes
Below Grade	No	No	Yes
Over Radiant Subfloor	No	No	Yes
II. Subfloor Type	Glue	Staple	Float
Concrete (701lbs ft ³ density or higher)	Yes	No	Yes
Light-weight concrete (less than 2500 psi strength)	No	No	Yes
Min 5/8" CDX grade plywood	Yes	Yes	Yes
Underlayment grade particle board	No	No	Yes
3/4" OSB PS2 rated plywood	Yes	Yes	Yes
Old wood floors - above grade	No	No	Yes
Hardwood glued over concrete	No	No	Yes
Ceramic/Porcelain Tile	No	No	Yes
Vinyl asbestos tile	No	No	Yes
Resilient Tile / Sheet Vinyl	No	No	Yes
Rubber tile	No	No	Yes
Solid vinyl tile	No	No	Yes
Steel	No	No	Yes
Marble	No	No	Yes
Carpet	No	No	No

RADIANT HEAT APPLICATIONS, FLOAT-IN ONLY

General

Wood floors and underfloor heating are often combined nowadays and work well together. The heating system used – electrical or water – is of no significance to the wood floor. The underfloor heating system must deliver no more than 80 W/m² evenly distributed. The surface temperature of the floor must never exceed **81°F**. This applies even next to/above radiator pipes, above pipe runs and under carpets, furniture etc.

In a standard insulated house, with a properly functioning underfloor heating system, the temperature of the floor surface is generally 2°C higher than the room temperature. In a warm water underfloor heating system, the flow temperature is usually 7–12°C higher than the floor's surface temperature.

The installation instructions for each type of floor also apply to installation over underfloor heating. This section discusses issues particularly related to wood floors over underfloor heating.

Specific requirements for wood floors over underfloor heating:

- The floor construction must have a heat-distribution layer that gives a very even temperature across the entire floor area, to avoid excessive temperatures near the heat source.
- The entire living area must be heated. However, this does not apply to comfort heating systems, which complement normal heating. The temperature in this case is significantly lower than the permitted 81°F at the floor surface.
- The floor covering (including intermediate layer) should have low thermal conductivity.
- It must be possible to control and limit the surface temperature very accurately.
- Moisture content of lightweight concrete subfloor must not exceed 2lbs. on a dry-weight basis at time of flooring installation (calcium chloride test).
- Concrete must have been installed and cured for at least four (4) weeks with no heat transference.
- Heating system should then be run at a maximum 2/3 output for a minimum of two (2) weeks to allow any remaining moisture to evaporate, attaining its final moisture content without causing damage.
- 3-4 days before flooring installation, the heating system must be reduced to suitable temperature (about 64° F or 18° C).
- The installed floor's temperature must never exceed 81°F. This also applies under carpets and furniture.
- A vapor barrier must be built into the floor construction. This should be as close to the wood floor as possible. It is particularly important that the vapor barrier is close to the wood floor if the structural floor is thick or heavy. Under no circumstances must the vapor barrier be on the opposite side of the structural floor.
- The wood floor must lie tightly to the substrate, without air gaps that may cause substantial drying of the wood.
- Provided the conditions above are met, both warm water and electrical underfloor heating systems are suitable for use with Kährs wood floors.

Note: Placing thick rugs on wood floors can result in damaging high temperatures.



INSTALLATION: FLOAT-IN ONLY!!!

Floating installations require the use of Kährs Combo or Eco+ underlayment. QuietStride underlayment needs to be installed over 6 mil plastic. These products are warranty approved for Radiant Heat installations.

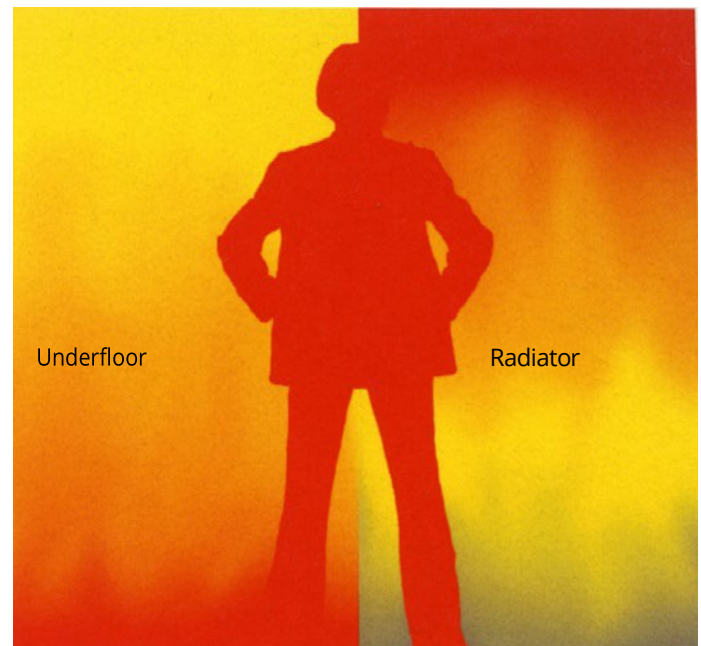
Hard Maple (Canadian Maple) and Beech floors expand and contract more than other species. Kährs does not recommend the use of Beech or Maple over Radiant Heat.

R-VALUE:

Kährs Original 15mm	1.15R
Kährs Avanti 13mm	1.12R
Kährs Life 7mm	.34R
Combo System Underlay	.39R
QuietStride Underlay	.40R

AFTER INSTALLATION

Beginning approximately two (2) days after installation is complete, gradually (over period of one week) raise temperature of heating system to its desired operating level. Surface temperature must never exceed 81° F (27° C).



Underfloor heating gives the ideal distribution of heat within a living space.



NOTES

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The Kährs logo, consisting of the word "Kährs" in white sans-serif font on a red square background.