

Activity Floor Installation Guide

## Activity Floor Installation

July 2010

### Subfloor Preparation

**Note:** READ ALL INSTRUCTIONS CAREFULLY! 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. Installation must be performed by a certified Activity Floor Installer for Kährs Activity Floor 5 Year Limited Warranty to apply. Call Kährs Technical Services @ 1-800-800-5247 for details on Certification Program.

#### Subfloor Specifications

- The surface of the subfloor must be FLAT to within 1/8" in an 8ft. radius. Check this by using the edge of a Kährs plank to find high/low spots (see Fig. A below). To fill excessive voids or variations in the subfloor, use leveling compounds approved for your application. Consult the compound manufacturer to be sure it is appropriate. Allow the compound to dry thoroughly before beginning wood floor installation. Fifteen-pound felt or roofing paper is also appropriate to level the floor. Cut small pieces to fit the shape of the depression and then stack as many sheets as necessary to level the area. DO NOT use this method to correct extensive variations in concrete subfloors.
- You must test concrete subfloor prior to installation by one of the following methods: Concrete subfloors must not contain more than 3lbs. moisture on a dry-weight basis (calcium chloride test); Subfloor must read 4.5 or less with Tramex meter. Follow ASTM2170 - Subfloor relative humidity not to exceed 75% with in-situ probe. Moisture content of wood subfloors must be less than 12% Moisture Content (MC). Document and keep ALL test results.
- The subfloor must be clean.
- Ambient air relative humidity at the job site must be, and remain, minimum 30%, maximum 60%. Temperature setting must be, and remain, between 55° - 85° F.

#### Evaluation

Before installing a Kährs Activity Floor, inspect the job site thoroughly to determine if grade, subfloor, and subfloor conditions are acceptable for the installation.

**Exterior:** Carefully inspect the outside surroundings for improper drainage and predictable or obvious sources of moisture. The landscape 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 building:** In buildings 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 opening area equal to 1-1/2% of the square-foot area within the crawl space (eg. a 1000sq. ft. crawl space must have 15 sq. ft. of vents that remain open all year). If excessive moisture exists underneath the building, you must lay a minimum 6 mil black polyethylene moisture barrier on the ground in the crawl space below the installation area.

**Interior:** Check the moisture content of the subfloor. See item "B" above as well as "Moisture" at the end of this section. Room conditions can also indicate high moisture and relative humidity. Look for water stains, peeled paint near windows and doors, and rusty metal, especially nails.

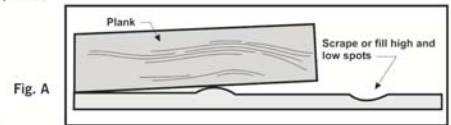


Fig. A

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#### Preparation

**Wood Subfloors:** Moisture Content (MC) must be less than 12%. To prepare the subfloor for installation, re-nail any loose areas with squeaks. Sand or plane any high spots and fill any low areas. The subfloor should not vary more than 1/8" in an 8' radius. Check this by using the edge of a Kährs plank to find any high or low spots.

**Preferred Subflooring:** 3/4" (23/32", 18.3 mm) CDX grade plywood subfloor/underlayment (Exposure 1) 4' x 8' sheets OR 3/4" (23/32" 18.3mm) OSB subfloor/underlayment grade, with joint spacing 19.2" (475mm) on center joint construction or less. Direct Glue-Down installations: 2 layers 1/2" (11.9mm) CDX plywood.

**Minimum Subflooring:** 5/8" (19/32", 15.2mm) CDX plywood subfloor/underlayment (Exposure 1) 4' x 8' sheets, maximum 16" (400mm) on center joint construction.

**Follow panel manufacturer recommendations** for spacing and fastening. Typical panel spacing for joint systems is 1/8" (3.2mm) around perimeter and fastened every 6" (150mm) on bearing edges and every 12" (300mm) along intermediate supports.

**Door casings** should be notched or undercut to avoid difficult scribe cuts.

**Concrete Subfloors:** Be sure that, as a minimum, any concrete subfloor is at least 50-60 days old before testing, then installing a wood floor over it. See Step B., Subfloor Specifications (above).

#### Moisture

To curb the adverse effects moisture will have on a Kährs Activity Floor and to determine the source of moisture problems, use the following checklist:

- Inspect the gutters, drains, and down spouts outside the building. Clear out any clogs caused by leaves, dirt, or other substances. Down spouts are designed to transport water away from a foundation.
- Check the landscaping surrounding the building to be sure the yard is sloped away from the foundation (at least 6" in 10 ft.).
- Check windows and doors for proper drainage and waterproof caulking.
- Inspect concrete subfloor for cracks or buckling. Sometimes the water table (water beneath the surface) may rise and force water up through the concrete floor with hydrostatic pressure.
- Check the ventilation system in the crawl space, basement, and attic. Moisture will collect on walls and floors if dead air (i.e. little or no ventilation) is present. As a rule, ventilation per sq. ft. should equal 1-1/2% of the sq. ft. of the area in question.
- Remember to take seasonal changes in relative humidity into consideration when installing a Kährs Activity Floor.
- Signs that the moisture content is too high include discolored (darker) concrete and evidence of actual water droplets.

#### Required moisture testing for ALL Kährs Activity Floor Installations:

- Calcium Chloride Testing: Testing kits are generally available through your distributor or call the NWFA at 800-422-4556 (or 800-848-8824 in Canada) for the source nearest you.
- If calcium chloride results read over 3 lbs., but does not exceed 8 lbs. (and no obvious source of moisture can be eliminated) you must use an appropriate moisture sealer before installing floor for the Kährs Moisture Protection Warranty to apply. All concrete sealer/vinyl manufacturer testing, documentation, and installation requirements **MUST** be followed for Kährs 5 Year Limited Warranty to apply. Kährs recommends DriTac MCS 7000 (call 800-394-9310 for source nearest you) or Dependable Cutdown (call 800-227-3434 for source nearest you).
- Alternate testing method: Follow ASTM 2170-subfloor relative humidity not to exceed 75% with in-situ probe.
- All concrete sealer manufacturer testing, documentation and installation requirements **MUST** be followed for Kährs Activity Floor 5 Year Limited Warranty to apply.

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#### Kährs Activity Floor Certification

Effective Sept. 1, 2008, all installations must be performed by certified Activity Floor installers for warranty to apply. For details, contact Kährs Technical Services via e-mail (from Kährs website) or call 1-800-800-5247.

### Tools & Techniques - (Float-In for Woodloc® 5S)

Kährs Activity Floor is covered by a Limited 5 Year Warranty. However, warranty coverage may be lost due to failure to strictly follow all installation instructions and recommendations or the use of improper materials or tools. READ ALL INSTRUCTIONS CAREFULLY!

#### IMPORTANT! DO NOT ACCLIMATE KÄHRs FLOORING!

- Do not open packages until ready to begin installation! Inspect boards as you go. Kährs flooring is sealed at the factory with a 7% moisture content.
- As an installer, it is your responsibility to be aware of the grade, Relative Humidity of the room, and moisture content of the subfloor. This vital information should be recorded and retained for future reference. You should check that each plank is free of damage or manufacturing defects. Any unusable boards should be set aside for later replacement.

#### Prior to Installation

- Read Subfloor Preparation at beginning of this document and follow all requirements before installation.
- Use minimum 6 mil age-resistant polyethylene sheeting under floor. Overlap seams minimum 8" and allow 2" run-up at walls.
- Maximum floor width for Kährs Activity Floor is 84' x 164'.
- Planks should be laid parallel to longest wall in room.
- The floor will move as air humidity changes. Therefore, an expansion gap of at least 1/16" (.0625") must exist next to walls and fixed objects for every 3' of floor width and 9' of floor length. This expansion gap must be provided around entire floor. Calculate gap using examples in Fig. B below. **Note:** Use of shims to maintain gap is highly recommended.
- Any base board used must be 50% wider than expansion gap. Example: If you have calculated that you need an expansion gap of 1" between floor and wall, (next page)

#### Example 1: Calculate expansion gap C

Let A = 48"  
C = A/3 (.0625")  
C = 1" gap

#### Example 2: Calculate expansion gap D

Let B = 75"  
D = B/9' (.0625")  
D = 1/2" gap

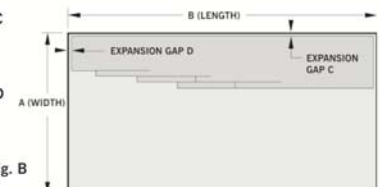


Fig. B

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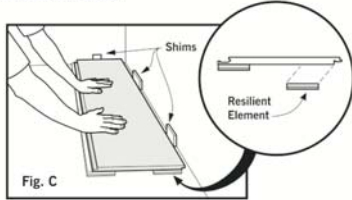
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the base board must then be 1-1/2" thick. This will insure that no gaps between base board and floor appear due to normal shrinkage of floor in dry humidity.

- Extra Resilient Element strips must be ordered for starting and ending walls. Resilient Element (sku # 7090250) must be installed using double-sided tape (not included) on underside of first and last row of planks next to wall (inset, Fig. C).



#### Tools and Materials Required

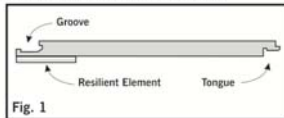
- Tape Measure
- Hammer
- Power Saw
- Wood Chisel
- Woodloc 5S Lock/Unlock Tool or standard size utility knife
- Double-Sided Tape
- Jigsaw
- Reducer (sku 710601)
- Resilient Element (sku 7090250)
- Activity Floor Installation Block (sku 710281)

#### Installation Tips

Calculate how many boards needed to complete the job. If the last plank across the room width is narrower than 3", you will need to saw both first and last joints to achieve a reasonable width for both. When installing flooring with Woodloc joints it is best to start with the long side that has the most doors. If there are doors on the short side of the room, begin each plank row there. Remember that planks can be laid from left or right. If first row must be cut to match crooked or uneven wall, trace shape of wall on flooring, making sure to allow space for expansion gap. Install cut boards as described below. Activity Floor's finished thickness is 30mm (1 3/16"). If use of reducer is not desired, pre-construction recessing of the concrete slab is necessary. Kährs does not provide transitional T-Molding for this product, it will need to be manufactured by the flooring contractor. Important: appropriate expansion gap is required (see "Prior to Installation").

#### Step 1

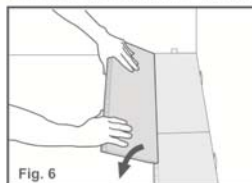
Start in a corner with **groove** side (Fig. C, Fig. 1) facing out toward room. Proper expansion gap must be checked once first three rows are installed.



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### Tools & Techniques - (Float-In for Woodloc® 5S)



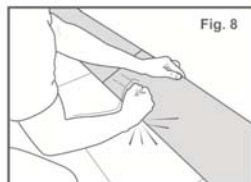
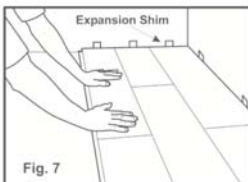
\* Locking pins in first row can be engaged as second row boards are installed, however best results may be obtained by using method 1 or 2, thereby locking first row boards as you go.

#### Step 5

Install second row boards as shown in Fig. 6. If possible, start second row with left-over piece from last board of first row. Hold board at approx. 45° angle to board in front. Press forward to engage joint and lay flat on floor. Continue until entire second row is installed. End joints must be staggered by at least 20". Butt seam must be placed in each row regardless of width, e.g. hallways.

#### Step 6

When three rows have been laid, pull floor away from starting wall until there is proper amount of expansion space. Place expansion shims between floor and wall to maintain this space, as shown in Fig. 7., then continue installation as described.



#### Step 7- Custom Fitting First or Last Rows

If first (or last) row must be cut to match crooked wall, first disengage row of boards adjacent to crooked wall by gripping long side and pulling upward while simultaneously giving long joint a light tap along entire length (Fig. 8). Now trace shape of wall onto first/last row boards, making sure space is allowed for expansion. See Fig. 9 at right. Saw to shape.



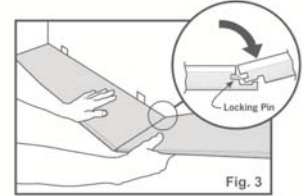
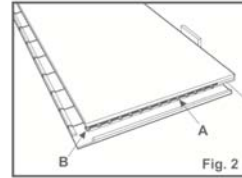
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### Tools & Techniques - (Float-In for Woodloc® 5S)

#### Step 2

Kährs Woodloc 5S employs a locking pin (Fig. 2, A) to engage short end of boards. Ensure locking pin is in proper alignment - parallel to board edge and flush or slightly protruding (1/16" or less) from wear layer on long side of board (Fig. 2, B).



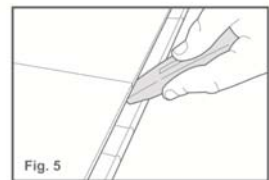
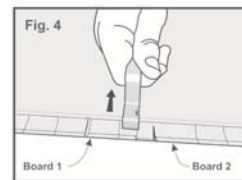
#### Step 3

Hold second board against first board at approx. 45° angle. If locking pin is not positioned correctly board will not engage. Lay second board flat.

#### Step 4

Engage locking pin to secure second board. **Note:** There are three (3) methods for engaging locking pin:

1. Use Kährs Lock/Unlock tool to push locking pin into locked position (preferred method) as shown in Fig. 4.
2. Use standard size utility knife to engage pin as shown in Fig. 5. With knife blade in retracted position, run knife along inside of groove to push locking pin into locked position.
3. After installation of entire first row, boards in subsequent rows will engage locking pins of previous row as they are installed. Refer to Fig. 6 on next page.



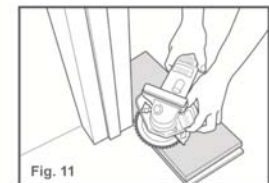
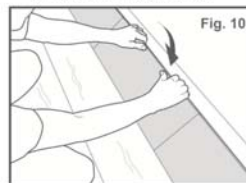
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### Tools & Techniques - (Float-In for Woodloc® 5S)

#### Step 8

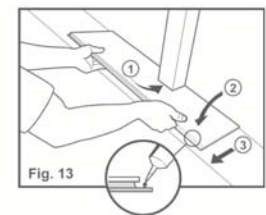
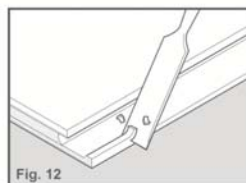
After sawing row to shape, engage and lock all end joint locking pins and lift entire row and reinstall to adjacent row (Fig. 10). Slide rows back into position against wall. Place expansion shims between floor and wall.



#### Step 9

If doorjamb (or similar) needs to be cut, use piece of board and piece of Combo Underlayment to obtain correct height (Fig. 11). If new board needs to be tapped into place, be sure to protect edges with scrap of wood before tapping with handblock.

If boards cannot be easily angled under door frame or similar, cut away locking edge as shown in Fig. 12. Then apply Landobond® adhesive and install board as shown in Fig. 13.



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### Job Completion

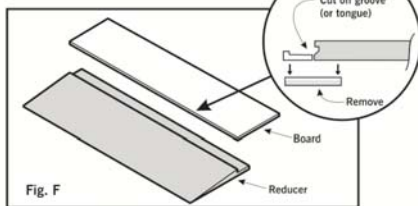
#### Reducer Installation

##### Step 1

If applicable, remove resilient element from bottom of board for entire length of reducer (Fig. F).

##### Step 2

Cut protrusion (groove or tongue) off board so that it will fit flush against reducer edge (Fig. F, inset).

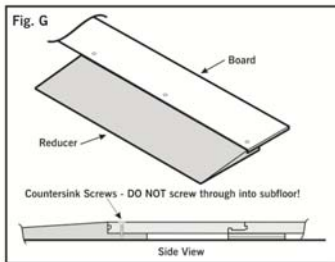
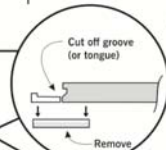
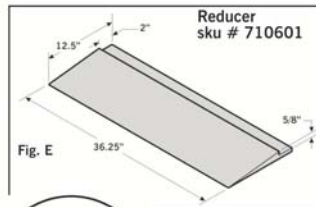


##### Step 3

Lay reducer (sku # 710601) in place. Fit board on top of 2" lip on reducer.

##### Step 4

Countersink 1" coarse thread screws directly through board and into reducer. **DO NOT** screw through into subfloor. Reducer must be free to move with normal expansion and contraction of floor. See Fig. G.



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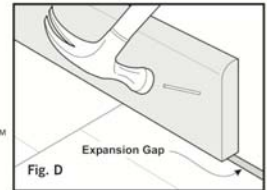
### Job Completion

- Remove expansion gap shims and trim 6 mil plastic to height of floor. Install appropriate base boards to cover gap. **Always** nail base boards to wall, **never** to flooring. See Fig. D.

- Immediately clean any Landobond™ Adhesive spilled on flooring during installation with a slightly damp cloth.

- For complete cleaning instructions, please refer to Kährs Activity Floor 5 Year Warranty and Maintenance Procedures.

- Court Lines:** Kährs recommends Bona X Sport™ Courtlines™. Contact Bona Kemi™ @ 1-800-872-5515 for details. Line painting should be performed by professionals.



- Applying additional finish** can be done 24 hours after line painting or taping has been completed. Remember that the floor needs to be cleaned again to get rid of dust and dirt. Be sure room temperature is at least 68° before applying finish. If any marks exist that cannot be removed using Kährs Cleaner, refer to finish manufacturer's specifications to determine which solvent is safe to use with finish. Only use finish suitable for sports floors such as Bona Sport™ gloss, from Bona Kemi™. **For complete instructions on cleaning and finishing**, please refer to Kährs Activity Floor 5 Year Warranty and Maintenance Procedures. Recoating floor will be necessary as painted lines begin to show wear.

- Installing Fittings:** Devices for attaching net posts and other equipment must be securely attached to concrete floor and their upper edges must be at same height as subfloor or slightly below. Cutouts for attaching equipment and installing different fittings should be made with a hole saw. Be sure to reinforce floor edges with additional resilient element. **Maintain required expansion gap** at all fixed objects.

- Care and Maintenance:** Please refer to Kährs Activity Floor 5 Year Warranty and Maintenance Procedures (available at [www.kahrs.com](http://www.kahrs.com)).