Karndean Designflooring Gluedown Installation Instructions

Karndean Designflooring is designed to be used for interior climate controlled installations only. Exterior installations are not recommended.

Subfloor Recommendations

Karndean Designflooring does not warrant any installation or underlayment products that we do not manufacture, but may recommend products that have worked well with our products in the past. Any material that is manufactured as an underlayment for LVT (resilient) flooring may be used with Karndean Designflooring.
Written assurance from the manufacturer that its product will work with Karndean Designflooring products is advised.

Acceptable Subfloors:

1. Concrete

Above-, below-, and on-grade concrete slabs that are at least 28 days old, 4" slab, and fully cured. Flatness allowance is no more than $^{3}/_{16}$" in 10'.

Concrete must be prepared to specifications in ASTM F-710. Must be smooth and, if necessary, leveled with a cementitious floor-leveling compound. Concrete should be 65-85°F (+/-5°) for at least 48 hours before, during, and after installation, and must be free from surface moisture, in addition to wax, polish, dirt, dust, grease, oil, paint, and any other substances that may interfere with the bond.

Moisture testing must be performed on all concrete subfloors, as measured by an anhydrous calcium chloride test kit according to ASTM F-1869 test method, or using an in-situ probe test for relative humidity (RH) according to ASTM F-2170. Three tests must be performed for the first 1000 sq. ft., and one for every 1000 sq. ft. thereafter.

Moisture limits vary by the type of adhesive used. Please see the "Adhesives" section or adhesive data sheet for all adhesive guidelines.

If the moisture levels in the subfloor are above the limits of the adhesives, a moisture mitigation system must be used to allow for a proper installation. The pH level of the concrete should range between 5 and 10.

Any adhesive removal, abatement, or concrete prep must be done using a mechanical method. No chemical strippers may be used, these should be done in accordance to local and national health and safety standards.

2. APA-Approved Plywood Underlayment

Underlayment panels are used to correct deficiencies in wood subfloors and to provide a smooth, even firmly-attached surface on which to attach Karndean Designflooring products. Suitable underlayments include American Plywood Association (APA) underlayment-grade plywood and most other products engineered by the manufacturer to be used as vinyl floor underlayments. The most common is 1/4" APA underlayment-grade plywood. Responsibility for the performance of the underlayment rests with the manufacturer of that product.

3. Ceramic, Porcelain, Stone or Terrazzo

These types of subfloors must be smooth and well-bonded, and any cracks or crumbled areas must be removed, patched, and leveled to within $^{3}/_{16}$" in 10'. Any waxes, sealers, or other potential bond-breaking products must be removed prior to installation. A light mechanical abrasion may be necessary to achieve proper adhesion. A pre-installation bond test is always recommended to ensure a good bond.

4. Radiant Heated Floors

To allow proper adhesive curing, the in-floor heater must be turned off 48 hours prior to installation, and remain off for at least 48 hours after the installation. If necessary, floor heat may be used to keep the floors at a minimum of 65°F.

An alternate heat system may be needed to maintain an acceptable subfloor surface temperature during installation.

48 hours after the installation is complete, the adhesive is cured and the heat system may be turned on.

Gradually increase the temperature hourly by approximately 5° until the desired temperature is reached.

The heating element (whether electric coils or mat) must be embedded to at least a 1/4 inch in the proper cement or gypsum leveler, as directed by the manufacturer.

5. Gypsum Floors

Gypsum floors must be prepared to accept adhesive and resilient flooring, as instructed by the gypsum manufacturer. Gypsum floors must be at a minimum of 2000 psi on a wood substrate and 3000 psi on a concrete substrate.

NOTE: A CLEAN SUBSTRATE IS ESSENTIAL. Suitable substrates include on- or above-grade concrete (within moisture and alkalinity specifications), one layer of well-adhered, non-cushioned, properly prepared VCT, Sheet Vinyl, Ceramic tile, Stone or Terrazzo, APA underlayment grade plywood and radiant heated floors (85°F and below). All substrates must be clean, smooth, dry and free of waxes, existing adhesives, dirt, dust, grease, oil, paint, curing compounds or sealers.

Non-Recommended Subfloors:

Particleboard, construction-grade plywood, hardboard or masonite, flakeboard, Oriented Strand Board (OSB), and cork are unstable subfloors for resilient flooring. As such, they are not RFCI-recommended underlayments.

Concrete subfloors with excessive moisture, laitance, mineral deposits, scale, curing compounds, gypsum patches or drywall mud, paint, oil, adhesive residue, or any other conditions that can affect a bond must be corrected or mechanically removed before installation begins. Chemical strippers or chemical abements are never allowed. Test areas are a safe way to check a questionable bond and are highly recommended before installation.

Moisture Testing and Acclimation

Moisture Testing

All installations must include either a calcium chloride ASTM F-1869, or in-situ probe relative humidity (RH) test ASTM F-2170 as recommended by ASTM F710. If the results are higher than Karndean Designflooring's recommended limits for the chosen adhesive, a moisture mitigation membrane or damp subfloor treatment may be necessary. It is essential to conduct three calcium chloride moisture or RH moisture tests for the first 1000 sq. ft., and one for each additional 1000 sq. ft. thereafter on all concrete floors. The test should be conducted around the perimeter of the room, at columns, and in other areas where moisture may be evident.

Moisture emissions from the concrete when using **K-91AR** adhesive should not exceed 6.0 lbs. per 1000 sq. ft. using an ASTM F-1869 calcium chloride test, or RH above 85% using an in-situ probe ASTM F-2170 test.

When using DrySet roll on adhesive or K-95HM trowel down adhesive moisture must not exceed 95% RH or 8lbs. calcium chloride. **Karndean K-Spray**, moisture must not exceed 8.0 lbs. per 1000 sq. ft. using an ASTM F-1869 calcium chloride test, or an RH above 90% using an in-situ probe ASTM F-2170 RH test. When using **Karndean K-Spray 98**, moisture must not exceed 10 lbs. per 1000 sq. ft. or an RH above 98%.

Karndean Designflooring 2 Part Expoxy Resin shall not exceed 5.0 lbs. per 1000 sq. ft. using an ASTM F-1869 calcium chloride test, or an RH above 80% using an in-situ probe ASTM F-2170 RH test.

Although these adhesives can be used up to the limits advertised, adhesive is not a proper repair for a moisture mitigation problem. If there is high moisture, find the cause and treat it accordingly. Excessive moisture held under flooring can result in mold or other health hazards.

NOTE: New concrete subfloors contain a high percentage of moisture and must be allowed to dry out. The drying time depends on several conditions, including the type of concrete used and average air temperature, as well as the thickness and location of the slab. The typical curing time for a 4" slab is 28 days. The pH levels of the concrete should range between 5 and 10.

A moisture test indicates conditions at the time of testing only. The flooring contractor cannot be held responsible if moisture appears in the future, if the installer has test results showing that moisture was not an issue prior to the installation. Without these test results, the installer can be held liable for damages.

Karndean now sells a moisture mitigation system to address excessive moisture in slabs. **Kovara™ 95** and **Kovara™ MBX** can reduce MVER up to 95% with the **Kovara™ 95**, and up to 99.5% with the **Kovara™ MBX**. This product comes in 720 sq. ft. rools that can be applied and installed on the same day. See your Karndean Business Manager or learn more online at www.gcpat.com.

Other moisture mitigation systems or damp proof membranes are available and, as long as they are intended for use under a resilient floor, they can be used with Karndean products, as well as **Kovara™**. **Kovara™** products' warranties are honored by Karndean, whereas other products will require its manufacturer to honor their warranties. Having these warranties in writing before the project begins would be advantageous. Follow all manufacturer instructions. Any moisture damage or failure due to moisture intrusion is the responsibility of the moisture mitigation manufacturer and/or the installer.

Epoxy Moisture Mitigation Systems must be skimcoated with a portland cement based patch or leveler to allow bonding of our adhesives. If our two part epoxy adhesive is used the skimcoat is not necessary.

NOTE: If installing Karndean LooseLay or Longboard with an RH over 95%, contact your Karndean representative for proper adhesive recommendation.

Acclimation

During the moisture testing period, Karndean Designflooring tile and/or plank and adhesive should be present at the job site to allow an appropriate amount of acclimation time. Generally, 48 hours is acceptable.

Room temperature should remain between 65°-85°F for 48 hours, before and after installation.

Once the floor has been installed, the temperature should be kept in the 65°-85°F range in order to keep all manufacturer warranties in effect and to ensure maximum product performance. Any deviation from these temperatures may cause damage to the floor.

3-Season Room

When installing in an uncontrolled climate, the room(s) need to be kept at the required room temperature for 48 hours, before, during, and after installation.

Both the product and the adhesive need to be in the install area for this amount of time, as well. The adhesive and the surfaces to be bonded (i.e. vinyl flooring to be installed and the subfloor) should be kept between 65°and 85°F for 48 hours, before, during, and after installation. Any deviation from these temperatures may damage the product and will void its warranty. Any variations in temperature and/or humidity will affect the drying of the adhesive, and possibly the characteristics of the flooring to be installed. It is the responsibility of the installer to understand this and to adapt to the changing conditions.

Subfloor Preparation

Do not use a fan pointed directly at a patch or adhesive to speed up dry time. This does not allow the patch or adhesive to cure properly, resulting in improper adhesion and low PSI of the patch. A fan may be used to increase air movement by directing the fan towards the ceiling or above the floor which can speed up dry times without adverse effects on the curing.

Always fasten underlayment panels in accordance with the manufacturer's recommendations, as any failure of the underlayment or Karndean Designflooring product as a result of the underlayment is the responsibility of the underlayment manufacturer. In all cases, the underlayment manufacturer or underlayment installer is responsible for all underlayment warranties.

Concrete subfloors are suitable if its moisture content and surface condition is within specified parameters (see "**Moisture Testing**"). Seams, cracks, indentations and other subfloor irregularities should be patched using a Portland cement based patching compound or leveler. Other types of levelers, such as gypsum-based compounds, are not recommended, unless they are properly prepared to accept adhesive as instructed by the gypsum manufacturer.

Painted or Epoxy-coated Subfloors

For epoxy or painted substrates, a Karndean Designflooring technical representative must be consulted before installing over the existing coating.

Identify the existing coating. If the coating cannot be positively identified, it must be removed by mechanical methods (grinding, sanding, or shot blasting). Chemical stripping is not permitted.

The final floor prep must be a clean, smooth surface that will not interfere with the bond of the adhesive If a patch or leveler is needed to bring the substrate within specification of $^{3}/_{16}$" in 10', it must be Portland Cement-based. A Portland-based leveler or patch that has been installed to manufacturer's specifications is recommended for **K-91AR**, **K-95HM**, **DrySet**, **K-Spray** or **K-Spray 98**. The surface must meet a flatness standard of no more than $^{3}/_{16}$" in 10'.

If installing over an epoxy-poured flooring, **Karndean 2 Part Epoxy Resin** may be used without skimcoating the existing floor. A slight abrasion to the existing material after removal of waxes is all that is necessary. Epoxy painted floors will be addressed on a case-by-case basis.

Use the proper Karndean Designflooring adhesive for your installation, as directed by a Karndean Designflooring technical representative.

Adhesives

K-91AR Tack Set Adhesive

K-91AR is a trowel down adhesive and requires the following:

Porous surface: Use a 1/16 x 1/16 x 1/16 square-notched trowel.
Non-porous surface: Use a 1/32 x 1/32 x 1/16 u-notched trowel.

Use **K-91AR** adhesive when applying Karndean Designflooring tile/plank over porous subfloors (such as concrete or wood) and non-porous floors (such as existing vinyl floors). The maximum MVER is 6 lbs. per 1000 sq. ft. using an ASTM F-1869 calcium chloride test, or 85% RH using an ASTM F-2170 in-situ probe test.

For installation over porous surfaces, adhesive may be used as either a wet set or a Tack Set.

To use wet, apply adhesive with the recommended trowel (see side of adhesive pail) and allow to tack-off for 5-10 minutes before installing flooring. To use as a Tack Set adhesive, allow the adhesive to dry to a tacky state (when there is still adhesive transfer to your fingertips when lightly touched). Install flooring within 90 minutes, which is the typical adhesive working time under normal conditions.

Install flooring before adhesive skins over or dries. Position the plank or tile firmly in the adhesive without sliding it. Periodically check to ensure that at least 95% of the adhesive pattern transfers to the back of the plank/tile. If adhesive starts to set up or skins over, scrape it up and apply fresh adhesive.

Within 30 minutes of installation, roll and cross-roll entire floor with a 100-lb. sectional roller. Use a hand roller in areas which cannot be reached with larger roller. Check 1-2 hours after installation and roll again, if necessary.

For installation over non-porous surfaces, apply adhesive with recommended trowel (see side of adhesive pail) and follow the above instructions. Drying time will vary due to room temperature and humidity. Installation over areas of incomplete drying may result in job failure. Within 30 minutes of installation, roll and cross-roll entire floor with a 100-lb. sectional roller. Use a hand roller in areas which cannot be reached with larger roller. Check 1-2 hours after installation and roll again, if necessary.

Wait 24-48 hours before allowing heavy foot traffic or rolling loads without protecting the floor to disperse the point load. Light foot traffic is allowed 2 hours after installation.

Karndean K-95HM

Karndean K-95HM is a premium high-strength adhesive for installing sheet vinyl, vinyl tiles and dimensionally stable vinyl plank in extreme moisture conditions. Karndean K-95HM can tolerate moisture as high as 95%RH providing there is no visible moisture or standing water. Read the Technical Data Sheet completely for uses and limitations before using this product. Karndean K-95HM is a solvent-free, acrylic adhesive suggested for use in occupied buildings, as it is low in odor, and contains "zero" (calculated) VOC. Karndean K-95HM contains a broad spectrum antimicrobial to improve mold and fungal resistance.

Substrates Conditions: Use on concrete substrates with up to 95% RH (per current ASTM F2170) and a MVER of up to 8 lbs. pH of 8.0–10.0.

Application: Use a 1/16" x 1/32" x 1/32" U-notch trowel. The coverage will be approximately 220-260 square feet per gallon. Always roll the installation in both directions with a 75-100 lbs. 3-section roller immediately after flooring is placed and positioned, ensuring complete contact with the adhesive.

Porous Substrates: LVT/LVP may be placed into adhesive after 10–20 minutes open time (flashoff) over a porous substrate. When installing LVT/LVP over a porous substrate, the adhesive should be allowed to dry to the touch sufficient to prevent slippage. Loss of adhesion can result if the flooring is not installed within the 2 hour working time of the adhesive.

Non-Porous Substrates: Install LVT/LVP into adhesive as it becomes dry to the touch with little or no transfer to finger when touched. This will normally require 30–60 minutes of drying time at suggested installation temperature and humidity. Do not install LVT/LVP into wet adhesive on non-porous substrates.

Karndean DrySet

Karndean DrySet is a one-coat, solvent-free, roll-on adhesive and uses a 3/8" nap roller on smooth porous or non-porous surfaces. For textured surfaces, such as Kovara™, LooseLay, or concrete with a surface profile of 2 or greater, two coats are recommended. Coverage is approximately 350-450 square feet per gallon.
This adhesive has a maximum RH of 95% RH or 8lbs. calcium chloride. This adhesive cannot be used with rubber products or over chemically cleaned substrates.
This adhesive must be kept from freezing.

Application: A roll-on application of 10 to 12 mils is recommended to achieve a smooth, even, full-spread coating. Spread rate and drying time of the adhesive depends on the porosity and texture of the substrate, and the ambient temperature and relative humidity. For applications over porous substrates or profiled floors or membranes, a second coat of Karndean DrySet should be applied, only after allowing the first coat to dry completely (the dry film will have a slight residual tack).

Installation: The completed application of Karndean DrySet must be allowed to dry, and kept clean and apart from contact with other surfaces until ready to begin the bonding process. Do not spread more adhesive than can be covered in a day's time.

Once the Karndean DrySet has dried, carefully position the flooring tiles to achieve a precise fit and proper alignment before pressing or rolling the assembly. Once in place, use a hand roller to lock the tiles in place. When all the tiles are down, roll the entire assembly in both directions with a 100 lb. roller to achieve full adhesive contact. After the assembly is rolled or pressed into place, re-positioning is usually not possible.

Normal traffic on flooring installations may resume as soon as the installation is completed. Do not allow standing water for the first 48 hours. Remove any large moisture spills that occur within the first 48 hours.

Karndean K-Spray and K-Spray 98

K-Spray and K-Spray 98 are is a self-contained, aerosol spray applied adhesives. Store adhesive at a minimum temperature of 68°F (20°C) for 24 hours prior to installation. Condition flooring per manufacturer's recommendations. Ensure substrate, flooring and surrounding areas are clean and dust free. If dust is present, damp-mop the substrate. Only use Portland-based patching and leveling compounds. This adhesive must be kept from freezing.

Roll each section immediately upon completion with a minimum 100 lb., three-section roller. Re-roll the entire area after 1 or 2 hours. Do not clean the floor for a minimum of 48 hours after installation. Immediate foot traffic is allowed after floor is rolled.

K-Spray 98 is warranted to withstand concrete moisture emissions up to 10 lbs/24 hrs/1000 ft2 (4.5 kg/24 hrs/93 m2) and 98% RH and pH must be no more than 12.

While K-Spray 98 will stay adhered at 98%, it is not a moisture mitigation system. If you have high moisture test readings a true moisture mitigation system should be used.

Epoxy Resin

Karndean 2 Part Epoxy requires a 1/16 x 1/16 x 3/32 u-notched trowel. Use Epoxy Resin when applying Karndean Designflooring tile/plank over porous subfloors (such as concrete or wood) and non-porous floors (such as existing vinyl floors, steel decks, and marine applications). Maximum MVER is 5 lbs. calcium chloride using an ASTM F-1869 test, or 80% RH using an ASTM F-2170 test.

For installation over porous surfaces, apply adhesive with the recommended trowel (see side of adhesive pail) and position flooring into wet adhesive. Adhesive must transfer 100% to back of flooring to ensure a proper bond. Do not spread more adhesive than can be laid within 30 minutes. Open time is approximate, depending on the site's temperature and humidity, and the porosity of the subfloor. Within 30 minutes of installation, roll and cross-roll the entire floor with a 100-lb. sectional roller. Use a hand roller in areas which cannot be reached with larger roller. Check 1-2 hours after installation and roll again, if necessary.

For installation of non-porous surfaces, apply adhesive with recommended trowel (see side of adhesive pail).

Open time depends on the room temperature and humidity. Adhesive must transfer 100% to back of flooring to ensure a proper bond. Within 30 minutes of installation, roll and cross-roll the entire floor with 100-lb. sectional roller. Use a hand roller in areas which can be reached with larger roller. Check 1-2 hours after installation and roll again, if necessary.

NOTE: If installing Karndean LooseLay or Longboard with an RH over 90%, contact your Karndean representative for proper adhesive recommendation.

Cutting Techniques

When cutting a piece to fit, use a tile/plank as a straight edge. Always cover up the piece you want to keep, which will make the cut piece a little long.

When installing the cut piece, bend the end so the piece will have a hump in the middle. When the piece is completely pressed into the glue, it will naturally compress end-to-end.

To make a factory edge without a tile cutter, lay a piece of tile/plank on top of the piece to be cut. Line it up as squarely as possible and score the piece to be cut. Bend the cut piece back and under-cut from the back. Cut off the waste. Bevel the back to create a smooth edge.

Installation of Plank

Immediately upon arrival at a job site, inspect the subfloor. Fill all voids, cracks, and expansion joints with a portland cement-based leveler to achieve a flat surface.

Install any perimeter borders first, followed by any design borders around the perimeter of the room. Then begin field plank installation.

To achieve a random natural wood look, take planks and cut nominal lengths to be used on the first course - 10", 40", 15", 25", 8". At the end of the first course, all remaining cut planks should be used on the next course, and so on.

After laying the first span of courses, wipe off any adhesive on the newly-installed floor with a damp rag to keep it clean. Roll each section as you go with a minimum 100-lb. roller.

Upon completion, roll the whole pad in a north-to-south pattern, and then east-to-west, finishing off with the grain of the wood.

Installation of Tile

Work from the center of the room out. Start laying tile in the center and position the tile to have the same distance from each outside edge when finished. After achieving a stair-step layout, install within that area.

Continue laying tile towards the wall, leaving enough space from the last full tile wall to install a design border, if applicable.

Once the first section is installed, begin installing the adjacent areas.

Installation of Feature Strips, Design Strips, and Borders

Before starting installation, be sure to use the border/design strip that is made to the proper height for the floor you are installing. There is a chart in the back of the Karndean Designflooring Product and Price Guide that shows the corresponding sizes for each range.

Borders

Plan the layout of borders prior to installation, making sure the corners will end up as you want, and that the field pieces are full widths. Slivers never look good.

Strips

Install strips as you go, pushing them together tightly so there is no gap. Do not use spacers and install later. Clean any remaining adhesive on top as you go.

Remember:

Do not have 4 pieces come together at a common corner. Always run full 3' pieces the same direction and precut the pieces going the opposite way. Cut the pieces a little long for a good, tight fit.

Installation of Karndean Designflooring Over Radiant Heat

Karndean Designflooring products must be acclimated for 48 hours before installation. Therefore, all material and adhesive must be onsite 48 hours prior to installation.

The radiant heat system must be turned off for 48 hours, both before and after the installation of all products. If the floor heating needs to be on in order to keep the floor temperature between 65°F and 85°F, it must be kept at 65°F to allow the adhesive to cure properly.

The heating element (whether electric coils or mat) must be embedded to at least a 1/4 inch in the proper cement or gypsum leveler, as directed by the manufacturer. If the leveler is a gypsum-based product, it must be sealed with the appropriate sealer.

Install the floor using the correct applicator for a porous or non-porous substrate (see "**Adhesives**").

Within 30 minutes of installation, roll floor in both directions with a 100-lb. roller. After 48 hours, the adhesive will be completely cured, and you may start slowly bringing up the temperature to a maximum of 85°F.

Karndean Designflooring Maintenance Procedures

Daily

Sweep floor thoroughly to keep the surface free of dirt and debris.

Damp-mop traffic areas with solution of cool water and **Karndean Clean** (see directions below) or other pH neutral cleaner, mixed per manufacturer's instructions.

Karndean Clean

Karndean Clean can be used for everyday care of your floor. To use, remove any loose dirt or dust with a soft sweeping brush. Add 1.6 fl.oz. of **Karndean Clean** (1 notch represents 1.6 fl.oz) to approximately 2 gallons of clean water or 1.5 tbsp to 1 gal of water. With a household mop, spread the **Karndean Clean** solution onto the whole floor, removing any excess liquid. Always allow your floor to dry before walking on it.

Karndean Remove

Karndean Remove prepares your floor before applying **Refresh. Always wear protective gloves when using this product.** To use, dilute 1 part **Remove** to 5 parts clean water. 6.7 fl.oz. to 1 quart of water will cover approvimately 114 sq.ft. With a household mop, spread the solution onto the floor liberally and leave to work for five minutes, making sure it does not dry. Using the blue Applicator with a wet Karndean Remove Pad from your Floor Care Kit, scrub the floor all over. Remove the residue with a household mop, rinsing the floor thoroughly with fresh, clean, warm water.
Be careful not to allow Karndean Remove to dry on the floor.

Semi-annually/Annually

We recommend, depending on wear, that you strip and refresh your floor every six to twelve months to further enhance its look and durability.

Karndean Refresh

Karndean Refresh creates a satin finish to your floor and helps protect it from marks and fine scratches. Before you start, make sure the floor is completely dry and free of all traces of **Karndean Remove**. Using the blue Applicator with the Karndean Refresh Pad from your Floor Care Kit, spread a thin and even layer of undiluted **Karndean Refresh** onto the floor, in a widthways direction. Allow this layer to dry for approximately 30 minutes, then repeat the process lengthways. Rinse the pad thoroughly after use and leave the floor to dry for approximately 6 hours or preferably over night.

If the floor has a streaky appearance, it may be that: **Karndean Remove** has not been removed completely - repeat the process, ensuring the floor is rinsed thoroughly; or irregular drying of **Karndean Refresh** due to underfloor heating, strong sunlight or drafts - repeat the **Karndean Remove** and **Refresh** process, ensuring the floor is protected from heat, sunlight and drafts until completely dry.

Most cleaning chemicals are suitable for use with Karndean Designflooring products; however, if you have any questions or concerns about the products you are using, please do not hesitate to contact your flooring professional or Karndean Designflooring directly.