



ARDEX K 301™

Exterior Self-Leveling Concrete Topping

A blend of Portland cements and other hydraulic cements

Smooth new or existing concrete and approved non-porous surfaces

**Install from 1/4" - 3/4" (6 - 19 mm) neat and up to 2" (5 cm)
with aggregate**

Walk on in 2 to 3 hours

Freeze-thaw resistant

Suitable for use in wet areas

For commercial, light industrial and residential applications

Use for exterior and interior applications

Suitable for use under the ARDEX MC™ Moisture Control Systems

Can be used as an underlayment prior to installing floor covering



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ARDEX K 301™

Exterior Self-Leveling Concrete Topping

Description and Usage

ARDEX K 301™ Exterior Self-Leveling Concrete Topping is a self-leveling topping and underlayment for fast-track resurfacing and smoothing for exterior and interior applications over concrete and approved, properly prepared, non-porous surfaces, including terrazzo, epoxy coatings and ceramic and quarry tile – on, above or below grade. A blend of Portland cements and other hydraulic cements, ARDEX K 301 can be sealed to create a concrete wear surface for commercial, light industrial and residential applications, including storage rooms, workshops, parking garages, parking decks, driveways, patios and plazas. It also can be used as an underlayment for finish flooring and under the ARDEX MC™ Moisture Control Systems.

ARDEX K 301 installs from 1/4" to 3/4" (6 - 19 mm) in one application and up to 2" (5 cm) with the addition of appropriate aggregate. Pourable or pumpable when mixed with water, ARDEX K 301 seeks its own level, produces a smooth, flat, hard surface and dries quickly without shrinking, cracking or spalling.

Substrate Preparation

All substrates must be solid, thoroughly clean and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing compounds, sealers and any contaminant that might act as a bond breaker. Acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Sanding equipment is not an effective method to remove curing and sealing compounds from concrete. Substrate and ambient temperatures must be a minimum of 50°F (10°C) during and for 48 hours after the installation of ARDEX K 301. For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Brochure at www.ardexamericas.com.

If necessary, mechanically clean down to a sound, solid substrate by shot blasting or similar. Overwatered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods.

Concrete surfaces must have a minimum ICRI Concrete Surface Profile of 3 (CSP #3). Approved, non-porous substrates must be mechanically abraded to create a profiled surface for bonding. Any additional preparation required to achieve these profiles must likewise be mechanical.

Recommended Tools

ARDEX T-1 Mixing Paddle; ARDEX T-10 Mixing Drum; ARDEX T-4 Spreader; ARDEX T-5 Smoother; ARDEX MB-5.0 Measuring Bucket [5 quarts (4.73 L) per 50 lb. (22.7 kg) bag]; 1/2" (12 mm) heavy-duty drill (min. 650 rpm) and baseball or soccer shoes with non-metallic cleats.

Joints and Moving Cracks

Under no circumstances should ARDEX K 301 be installed over any joints or any moving cracks. All existing expansion joints, isolation joints, construction joints and control joints (saw cuts), as well as all moving cracks, must be honored up through the topping by installing a flexible sealing compound specifically designed for use in moving joints, such as ARDEX ARDISEAL™ RAPID PLUS. Failure to do so may result in cracking and/or disbonding of the topping. Even the slightest amount of movement in a control joint will cause the ARDEX K 301 to show a hairline crack in a pattern reflective of the joint.

ARDEX cannot be responsible for problems that arise from joints, existing cracks or new cracks that may develop after the system has been installed.

Dormant Cracks

Before proceeding with the installation, all dormant cracks greater than 1/32" (0.7 mm) wide must be prefilled with a fully rigid, high-modulus, 100% solids material, such as ARDEX ARDIFIX™. Please note that the repair material must be sand broadcast to refusal while still fresh and allowed to cure fully prior to removing all excess sand and proceeding with the installation.

The filling of dormant cracks as described above is recommended to help prevent the cracks from showing through the topping. However, should movement occur, cracks will reappear.

Priming

Prime with ARDEX EP 2000™ Substrate Preparation Epoxy Primer. Follow the recommendations for substrate preparation above, and apply the ARDEX EP 2000 with sand broadcast, carefully following the instructions in the ARDEX EP 2000 technical data sheet.

Mixing and Application

Manually

ARDEX K 301 is mixed two bags at a time. Mix each 50 lb. (22.7 kg) bag with 5 quarts (4.73 L) of clean water. Pour the water in the mixing drum first, and then add each bag of ARDEX K 301 while mixing with an ARDEX T-1 Paddle and a 1/2" (12 mm) heavy-duty drill (min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. **Do not overwater!** Yellowish foam while mixing or settling of the sand aggregate while placing indicates overwatering.

Pumping

ARDEX K 301 can be pumped using ARDEX ARDIFLO™ Automatic Mixing Pumps. ARDEX ARDIFLO Pumps provide high productivity and smooth, consistent installations. Pumps may be rented from an authorized ARDEX Distributor. Contact the ARDEX Technical Service Department for complete pump operation instructions.

ARDEX K 301 has a flow time of 10 minutes at 70°F (21°C). Elevated slab temperatures, direct sun at high temperatures or wind or drafts moving across the surface will reduce the flow time. In warm weather, use cold water to extend the flow time, and apply early in the day.

Pour the mix onto the substrate and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K 301.

Thickness of Application

ARDEX K 301 can be installed from 1/4" (6 mm) up to 3/4" (19 mm) over large areas neat and up to 2" (5 cm) with the addition of proper aggregate. ARDEX K 301 also can be tapered to meet existing elevations.

For areas with thicknesses greater than 3/4" (19 mm), mix ARDEX K 301 with washed and well-graded 1/8" to 3/8" (3 to 9.5 mm) pea gravel. Please note that the aggregate size must not exceed 1/3 the depth of the pour. Mix the ARDEX K 301 with water first, and then add 1 part aggregate by volume, mixing until the aggregate is completely coated. Do not use sand. If the aggregate is wet, reduce the amount of water to avoid overwatering.

The addition of aggregate will diminish the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. Allow the initial application to dry for 24 hours, and then prime this layer with ARDEX EP 2000 and sand broadcast, following the instructions in the ARDEX EP 2000 technical data sheet. Allow the primer to dry 16 hours before removing all excess sand and installing the neat coat of ARDEX K 301.

Curing

Although ARDEX K 301 requires no special curing procedures, avoid applying this product if rain is expected within 6 to 8 hours or if freezing temperatures could occur within 48 hours of application. As with any cementitious material, the above conditions can alter the appearance and performance of the topping.

Use as a Pre-Smoothing Compound beneath ARDEX MC™ Moisture Control Systems

If using ARDEX K 301 as a pre-smoothing compound beneath an ARDEX MC Moisture Control System, allow the ARDEX K 301 to cure 24 hours (70°F) prior to following the instructions for installing the selected ARDEX MC system in the appropriate technical data sheet. Please note that the ARDEX K 301 must be shot blasted to a minimum ICRI Concrete Surface Profile of 3 (CSP #3) prior to installing the ARDEX MC system.

Wear Surface

ARDEX K 301 will produce a flat, smooth, cementitious surface. If a reduced-slip surface is required, it can be obtained by using ARDEX CD™ Concrete Dressing and then broom finishing or by incorporating grit into the selected sealer. If ARDEX CD will be installed, allow the ARDEX K 301 to cure 24 hours, and follow the instructions for installing ARDEX CD over concrete in the ARDEX CD technical data sheet.

The surface of ARDEX K 301 always must be protected from oil, salt, water and surface wear by applying a suitable protection system, such as a concrete sealer or paint. ARDEX recommends the use of ARDEX CG™ Concrete Guard to seal ARDEX K 301 that will be exposed to normal traffic. Sealing with ARDEX CG can proceed after 24 hours under standard conditions of 70°F/21°C and 50% RH. Traffic can proceed as soon as the ARDEX CG has dried to ARDEX recommendations. For ARDEX CG installation instructions, please refer to the ARDEX CG technical data sheet.

For areas to receive heavier traffic, as well as areas such as restaurants and food courts, sealing should be done using an appropriate wear protection coating. As the performance of coating systems varies greatly, the installer is responsible for assessing the suitability of these coatings. If a waterborne sealer is to be applied at a thickness not-to-exceed a total of 20 mils (500 microns), the coating can be applied to the surface of the ARDEX K 301 after 24 hours at 70°F (21°C). When using a solvent-borne or 100% solids coating applied at a total thickness of 20 mils (500 microns) or less, the ARDEX K 301 must cure for a minimum of 48 - 72 hours at 70°F (21°C). When the total application thickness will exceed 20 mils (500 microns), the ARDEX K 301 must cure 7 days at 70°F (21°C) prior to installing the protection layer.

Foot traffic can proceed as soon as the sealer / coating has cured in accordance with manufacturer recommendations. Avoid vehicular traffic for a minimum of 48 hours after the ARDEX K 301 has been installed.



If ARDEX K 301 is being used as an underlayment that will receive a finish floor covering, allow the ARDEX K 301 to cure 24 hours (70°F) prior to proceeding with the flooring installation.

Drying time is a function of jobsite temperature and humidity conditions and the installation thickness. Low substrate temperatures and/or high ambient humidity will extend the drying time. Adequate ventilation and heat will aid drying. Forced drying can dry the surface of the underlayment prematurely and is not recommended.

Cracking

ARDEX K 301 is formulated as a highly durable, nonstructural wear surface. As such, it is important to note that no one can predict with 100% accuracy the appearance of cracking in a nonstructural topping.

While there can be several causes for cracking, it must first be understood that the installation of thin layers of non-structural toppings are not capable of restraining movement in the structural slab, which could lead to reflective cracking. Conditions most likely to lead to crack telegraphing include deflection of a concrete slab; vibration of a concrete slab, such as that due to truck traffic and subways in metropolitan areas; swaying or “racking” of substrates in high rise buildings due to wind; existing cracks in the substrate; control joints or saw-cuts; expansion joints; abutment of dissimilar substrates; embedded metal ductwork and/or small cracks off of the corners of metal inserts, such as electrical boxes or vents in the floor. While priming with ARDEX EP 2000 is the best way to minimize the possibility of reflective cracking, cracks may telegraph up into the surface in any area that exhibits movement. We know of no method to prevent this telegraphing from occurring.

Additionally, certain jobsite conditions can lead to hairline cracking, also known as map cracking or crazing. Hairline cracking, while aesthetically unpleasant, typically does not affect the overall performance of the topping. The most common cause of hairline cracking is overly rapid moisture evaporation from the topping during cure, which tends to happen when ambient humidity in the space is very low and/or air is moved rapidly over the surface of the topping. Hairline cracking also can occur when there is slight substrate movement while the topping cures.

If cracking occurs, we recommend sounding the affected areas to ensure that the topping is well bonded to the substrate. As long as the topping

is well bonded, its overall performance will not be affected. If there is a desire to smooth or mask the appearance of the cracks, please contact the ARDEX Technical Service Department for a recommendation.

Notes

FOR PROFESSIONAL USE ONLY.

ARDEX K 301 wear surfaces are intended for light industrial, commercial and residential use only. While light foot traffic can proceed after 2 - 3 hours, avoid vehicular traffic for the first 48 hours after installation. Excessive service conditions, such as steel- or hard plastic-wheeled traffic or dragging heavy metal equipment or loaded pallets with protruding nails over the surface, will cause gouging and indentations. ARDEX K 301 is not a resurfacing topping for heavy-duty manufacturing areas, areas with heavy truck traffic or for chemical environments requiring customized industrial toppings. As with any floor covering (wood, soft natural stone, marble, etc.), allowances must be made for scratches or abrasion that occur due to moving or sliding furniture or fixtures over the surface. Keeping the surface clean and free of dirt or other contaminants also will help to minimize scratching and abrasion due to foot traffic.

This product is not a vapor barrier and will allow free passage of moisture. **Follow the directives of the sealer manufacturer regarding the maximum allowable substrate moisture content, and test the substrate prior to installing ARDEX K 301.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of the ARDEX MC™ ULTRA Moisture Control System. For further information, please refer to the ARDEX technical data sheet.

ARDEX K 301 wear surfaces are not intended to be perfectly homogeneous in appearance. The physical act of spreading and smoothing will result in optical variations in the appearance of the installation even though it is very flat. The aesthetic appearance that is created is subject to possible technical and artistic tolerances. Variations in the overall finished appearance are an intended effect and should be expected.

ARDEX K 301 is formulated from Portland cement and is a light gray color when dry. As concrete color and jobsite conditions vary widely, it is not intended that this product will match the color of the concrete being resurfaced or an adjacent concrete pad. Jobsite conditions, such as direct sunlight and

wind, as well as the surface of the topping being exposed to moisture before it completely sets, can lead to color variations in the appearance of the topping. Should this be undesirable, a pigmented sealer such as ARDEX CG Concrete Guard Gray may be used. Consult the ARDEX Technical Service Department for additional information.

Always install an adequate number of properly located test areas, including the wear protection system, to determine the suitability and aesthetic value of the products for the intended use. As floor coverings and coatings vary, always contact and rely upon the manufacturer for specific directives, such as maximum allowable moisture content, coating / adhesive selection and intended end use of the product.

The finished installation does not achieve its published surface hardness until after 28 days.

While ARDEX K 301 can be installed over concrete that contains in-floor heating, ARDEX K 301 should not be used to encapsulate any heating system directly. If the concrete substrate has in-floor heating, it should be turned off, and the concrete should be allowed to cool, before installing ARDEX K 301.

ARDEX primers may need longer drying times with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 301 before the primer has dried thoroughly.

Never mix with cement or additives other than ARDEX-approved products. Observe the basic rules of concrete work. Do not install below 50°F (10°C) surface and air temperatures. Install quickly if the substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

Precautions

Carefully read and follow all precautions and warnings on the product label. For complete safety information, please refer to the Safety Data Sheet (SDS) available at www.ardexamericas.com.

Technical Data According To ARDEX Quality Standards

Physical properties are typical values and not specifications. All data based on a partial, in-lab mix. Mixing and testing completed at 70°F / 21°C and in accordance with ASTM C1708, where applicable.

Mixing Ratio:	5 quarts (4.73 L) of water per 50 lb. (22.7 kg) bag
Coverage:	23 sq. ft. per bag at 1/4" (2.1 sq. m at 6 mm) 12.5 sq. ft. per bag at 1/2" (1.1 sq. m at 12 mm)
Flow time:	10 minutes
Compressive strength (ASTM C109/mod – air cure only):	4,300 psi (301.0 kg/cm ²) at 28 days
Flexural strength (ASTM C348):	1,000 psi (70.0 kg/cm ²) at 28 days
Walkable:	2 - 3 hours
Min. Cure Time prior to coating:	Waterborne: 24 hours Solvent-borne and 100% solids (less than 20 mils/0.5 mm): 48 - 72 hours High build polymer coating (greater than 20 mils/0.5 mm): 7 days
VOC:	0
Packaging:	50 lb. (22.7 kg) net weight bag
Storage:	Store in a cool, dry area. Do not leave bags exposed to sun.
Shelf life:	1 year, if unopened
Warranty:	ARDEX Engineered Cements Standard Limited Warranty applies.

IMPORTANT TECHNICAL UPDATES

Technical update effective December 1, 2016:
Installation Environments for ARDEX Polished Concrete Systems (APCS)

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and for technical updates, which may supersede the
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