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# **ARDEX ERM™ Exterior Ramp Mortar Trowel-Grade Horizontal Concrete Repair Mortar**

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**Portland cement-based structural repair mortar**

**Polymer-modified**

**Integral corrosion inhibitor**

**Holds shape for ramping and balconies**

**Easy to apply**

**Mixes with water only**

**Installs from 1/4" - 2" (6 mm - 5.1 cm) neat and up to 8" (20.3 cm) when extended with aggregate**

**Freeze-thaw resistant**

**Suitable for normal service commercial, institutional and multi-unit residential applications**

**Use for exterior and interior concrete repair**

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# ARDEX ERM™ Exterior Ramp Mortar

## Trowel-Grade Horizontal Concrete Repair Mortar

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### Description and Usage

ARDEX ERM™ Exterior Ramp Mortar is a trowel-grade, polymer-modified Portland cement-based, structural repair mortar for deteriorated exterior and interior concrete above, on or below grade. It can be used at depths ranging from 1/4 - 2" (6 mm - 5.1 cm) neat and up to 8" (20.3 cm) when extended with aggregate. ARDEX ERM has a corrosion inhibitor built-in to protect reinforcing steel. It also is easy to apply and readily bonds to concrete. The resulting patch has low shrinkage, resists delamination and produces a surface suitable for normal commercial, institutional and multi-unit residential traffic. Typical applications include sidewalks, plazas, walkways, driveways, parking garages and balconies.

### Substrate Preparation

Prior to proceeding with any repair, please refer to the International Concrete Repair Institute's ICRI 03730 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion; ICRI 03732 Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays; and the American Concrete Institute's ACI 546R-04 Concrete Repair Guide for general guidelines for concrete repair.

Repair areas must be saw cut in basic rectangular shapes to at least 1/4" (6 mm) in depth. The cuts should be made at approximately a 90° angle and should be slightly keyed. Chip out the concrete inside the cuts to a minimum depth of 1/4" (6 mm) until the area is squared or boxed in shape.

All substrates must be solid, thoroughly clean and free of oil, wax, grease, asphalt, existing patching materials, curing and sealing compounds and any contaminant that might act as a bond breaker. Overwatered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods such as scarifying, needle scaling or similar. Use mechanical methods in accordance with ICRI 03732 to create an exposed aggregate surface with a minimum surface profile of approximately 1/16" (1.6 mm) / ICRI concrete surface profile of 5 (CSP #5). Acid etching, solvents, sweeping compounds and sanding are not acceptable means of preparing the substrate.

For cases with exposed reinforcing steel, prepare the concrete such that a minimum 3/4" (19 mm) is achieved around the steel to ensure sufficient placement of the corrosion inhibitor. Mechanically clean the steel to remove all rust and any other contaminants in accordance with ICRI 03730. Prime the steel with ARDEX BACA™ Bonding & Anti-Corrosion Agent prior to proceeding with the repair. For further details, please refer to the ARDEX technical data sheet.

### Joints and Cracks

Dormant joints and dormant cracks greater than 1/16" (1.6 mm) should be filled with a two-part, low-viscosity, 100% solids, rigid crack and joint filler, such as ARDEX ARDIFIX™ or similar, in strict accordance with the installation instructions provided by the ARDEX Technical Service Department. Please note that the repair material must be sand broadcast to refusal to create a bonding surface for the ARDEX ERM. The filling of dormant cracks and dormant joints as described is recommended to help prevent telegraphing. However, should movement occur, cracks and joints will reappear.

In no case should expansion joints, isolation joints, construction joints or moving cracks be filled with ARDEX ARDIFIX. All moving joints and cracks must be carried up through the ARDEX ERM by installing a flexible sealing compound specifically designed for use over moving joints, such as ARDEX ARDISEAL™ RAPID PLUS or similar.

### Recommended Tools

A 1/2" to 3/4" (12 to 19 mm) low-to-medium speed heavy-duty mixing drill, heavy gauge square box (butterfly) mixing paddle, mixing buckets, measuring container, margin trowel, wood or magnesium float, steel trowel and wood planking for forming where necessary. ARDEX ERM also is suitable for mixing in forced action mortar mixers.

### Priming the Concrete

Prepared concrete must be primed for bonded application of ARDEX ERM. For priming with ARDEX BACA or ARDEX EP 2000, follow the application instructions in the appropriate ARDEX technical data sheet.

If ARDEX BACA is not used, use water to dampen the concrete until it is saturated thoroughly. Alternatively, ARDEX P 71™ Primer can be used in accordance with the ARDEX technical data sheet. Whether water or ARDEX P 71 is used, the goal is to saturate the pores of the concrete while leaving the surface free of liquid (SSD, Saturated Surface Dry). While the surface of the concrete must be dry and free of puddles, the pores of the concrete must be saturated with water or wet ARDEX P 71. Installing the ARDEX ERM over concrete that is dry can result in cracking and bond failure. Do not leave any bare spots. Brush or vacuum off puddles and excess liquid before installing.

### Mixing and Application

Pre-dampen the inside of a 5 gallon pail or the inside of a clean mortar mixer, and remove any excess water. Add 6 1/2 pints (3.08 L) of clean water, and slowly add one-third of a 55 lb. (25 kg) bag of ARDEX ERM. Once this is blended

in, add the next third and so on until all the material is added. If mixing in a pail, mix with a low-to-medium speed drill and mixing paddle for approximately 3 minutes to a uniform lump-free consistency. If using a mortar mixer, mix for approximately 4 minutes until uniform and lump free. For both mixing methods, avoid over mixing, which may entrap air. If additional water is required, you may add up to 8 oz. (0.24 L) of additional mix water per bag. **Do not overwater.**

ARDEX ERM is easy to apply to any prepared concrete surface using standard concrete practices. Once mixed, the pot life and working time are 25 - 45 minutes, depending on surface and ambient temperatures. All mixed material must be placed within this time.

Work a scrub coat of the mixed material into the primed or SSD concrete substrate, applying enough pressure to ensure good mortar-to-concrete contact. Apply the repair mortar while the scrub coat is still wet. If the scrub coat is allowed to dry, it must be removed mechanically and reapplied before applying the mortar. Once the mortar is applied, consolidate to remove any air pockets.

When pouring into closed forms, the repairs should be vibrated to ensure full contact and to establish bond with the substrate, as well as to ensure proper consolidation. Avoid over-vibration.

Steel trowel the mortar to the desired finish once it takes its initial set, giving consideration to any minimum surface profile that may be required for the installation of the intended finishing course. Cool ambient and surface temperatures will slow the setting time, while high temperatures will accelerate it. Applications when temperatures are above 85°F (29°C) should follow the appropriate warm weather installation guidelines available from the ARDEX Technical Service Department.

## Thickness of Installation

ARDEX ERM can be installed from a minimum of 1/4" up to 2" (6 mm - 5.1 cm) neat. For application depths greater than 2" (5.1 cm) in a single lift, including full-depth repairs up to 8" (20.3 cm), extend ARDEX ERM by adding 25 pounds (18 kg) of clean, uniformly graded, 1/4" - 3/8" (6 - 9 mm) pea gravel dampened to an SSD condition. Mix the ARDEX ERM with water first, and then add the pea gravel and mix until the aggregate is coated uniformly.

Alternatively, ARDEX ERM can be applied in 2" (5 cm) lifts up to a total of 8" (20.3 cm) without adding pea gravel. For this application, allow each lift to take an initial set, and then score the top of each lift to create a textured bonding surface for the subsequent lift.

## Curing

Direct sunlight or wind may cause unwanted ARDEX ERM surface drying. Avoid installation if rain or dew is expected within 6 - 8 hours.

Keep the surface of the installation damp for 48 hours (light water fogging, curing blanket or curing compound). Do not allow water to puddle. Do not use solvent-borne curing compounds.

**Note:** If the surface is to receive a topcoat or other type of finish, use moist curing methods only.

## Sealing, Coating, Leveling and ARDEX MC™ Moisture Control Systems

Once the repair has cured for a minimum of 3 - 7 days, it can be coated, topped or sealed as specified. Cold and/or damp conditions may extend this time. Do not use solvent-based sealers. Follow the installation instructions for the material being applied. The repaired area can then be put back into service as soon as the finishing course is ready to receive traffic.

ARDEX ERM is suitable for full-depth slab repair and for pre-leveling prior to the installation of ARDEX self-leveling and patching materials and ARDEX MC™ Moisture Control Systems. For the installation of certain ARDEX products, including all ARDEX topping materials, ARDEX EP 2000™ Substrate Preparation Epoxy Primer and all ARDEX MC Systems, the surface of the ARDEX ERM must be prepared to a minimum ICRI concrete surface profile of 3 (CSP #3). Consult the ARDEX technical data sheet for the product being installed to confirm profile requirements. Proper profile can be achieved as the ARDEX ERM is roughed in or via mechanical preparation methods, such as shot blasting, once the product is cured. To view the toppings, underlayments, moisture control materials, dressings and sealers available from ARDEX, please visit [www.ardexamericas.com](http://www.ardexamericas.com).

## Notes

The pot life and working time of ARDEX ERM are 25 - 45 minutes at 70°F (21°C). Pot life and working time will vary with ambient temperatures.

ARDEX ERM is intended for repairing and resurfacing exterior or interior concrete in institutional, commercial and multi-unit residential areas. For horizontal applications, use only for areas subject to normal foot and rubber-wheeled traffic.

Always install an adequate number of properly located test areas, including the finishes, to determine the suitability of the products for the intended use. As finishes vary, always contact and rely upon the finish manufacturer for specific directives such as maximum allowable moisture content, sealer selection and intended end use of the product.

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. These temperatures must also be maintained during and for a minimum of 48 hours after the installation of ARDEX ERM. Install quickly if substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

Dispose of packaging and residue in accordance with federal, state and local waste disposal regulations. Do not flush material down drains.

## 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](http://www.ardexamericas.com).

Made in the USA.

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## Technical Data According to ARDEX Quality Standards

All data based on recommended mix ratio (neat) at 70°F (21°C). Physical properties are typical values and not specifications.

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<b>Mixing Ratio:</b>	6 1/2 pints (3.08 L) of water per 55 lb (25 kg) bag
<b>Coverage:</b>	0.46 cu. ft. per 55 lb. bag (0.01 m <sup>3</sup> per 25 kg bag) 22 sq. ft. per 55 lb. bag at 1/4" (2.04 m <sup>2</sup> per 25 kg bag at 6 mm)
<b>Compressive Strength (ASTM C109):</b>	7 days: 7000 psi (490.0 kg/cm <sup>2</sup> ) 28 days: 8200 psi (574.0 kg/cm <sup>2</sup> )
<b>Flexural Strength (ASTM C293):</b>	7 days: 1200 psi (84.0 kg/cm <sup>2</sup> ) 28 days: 1500 psi (105.0 kg/cm <sup>2</sup> )
<b>Modulus of Elasticity (ASTM C469):</b>	28 days: 3.67 x 10 <sup>6</sup> psi (2.6 x 10 <sup>5</sup> kg/cm <sup>2</sup> )
<b>Length Change (ASTM C157):</b>	7 days: 0.06% 28 days: 0.08%
<b>Rapid Chloride Permeability (ASTM C1202, 28 days):</b>	820 coulombs
<b>Pot Life / Working Time:</b>	25 - 45 minutes
<b>Time to Traffic:</b>	Light foot: 2 - 4 hours Normal foot: 3 days Full, including rolling loads: 5 - 7 days
<b>Coat or Seal (Minimum):</b>	3 - 7 days
<b>Color:</b>	Gray
<b>Packaging:</b>	55 lb. (25 kg) bag
<b>Storage:</b>	Store in a cool dry area. Do not leave bags exposed to direct sunlight. Keep from freezing.
<b>Shelf Life:</b>	1 year, if unopened.
<b>Warranty:</b>	ARDEX Engineered Cements Standard Limited Warranty applies.

For easy-to-use ARDEX Product Calculators and Product Information On the Go, download the ARDEX App at the iTunes Store or Google Play.



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