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# **ARDEX FDM™**

## **Full Depth Repair Mortar**

### **Concrete Repair Mortar with Corrosion Inhibitor**

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**Portland cement-based structural repair mortar  
with integral corrosion inhibitor**

**Mix with water only**

**Easy to apply – formable, pourable and pumpable**

**Installs from 1/2" to 4" neat, and up to 8" when  
extended with aggregate**

**Suitable for overlays and full depth repairs**

**Freeze-thaw resistant**

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

**Use for exterior and interior concrete repair**

**Apply coatings in as little as 72 hours after application**

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# ARDEX FDM™ Full Depth Repair Mortar

## Concrete Repair Mortar with Corrosion Inhibitor

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### Description and Usage

ARDEX FDM™ is a formable, pourable, pumpable, Portland cement-based structural repair mortar for horizontal, vertical and overhead applications for exterior and interior concrete above, on or below grade. It is used at depths ranging from 1/2" to 4" neat, and up to 8" when extended with aggregate for deeper and full depth repairs. ARDEX FDM has a corrosion inhibitor built-in to protect reinforcing steel, is easy to apply, and readily bonds to concrete. The resulting patch has low shrinkage and resists delamination. Typical applications include balconies, plaza decks, columns, walls and parking decks.

### 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.

The repair area must be saw cut in a basic rectangular shape to at least 1/2" 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 1/2" 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. Over watered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods such as scarifying or similar in accordance with ICRI 03732 to create an exposed aggregate surface with a minimum surface profile of approximately 1/16" (1.6 mm). Acid etching, solvents, sweeping compounds and sanding are not acceptable means of preparing the substrate.

For cases with exposed reinforcing steel, mechanically clean the steel to remove all rust and any other contaminants in accordance with ICRI 03730. Prime the steel with ARDEX BONDING & ANTI-CORROSION AGENT™ prior to proceeding with the repair. For further details, please refer to the ARDEX Technical Brochure.

### Cracks and Joints

Saw cuts and dormant cracks greater than 1/16" (1.6 mm) should be filled with ARDEX ARDIFIX™ joint filler or similar prior to installing ARDEX FDM. The joint filler should be installed in strict accordance with the instructions provided by the filler manufacturer. The filling of dormant cracks and joints as described is recommended to help prevent telegraphing. However, should movement occur, cracks and joints will reappear.

All moving joints and cracks must be carried up through the ARDEX FDM by installing a flexible sealing compound specifically designed for use over moving joints, such as ARDEX ARDISEAL™ RAPID PLUS joint filler or similar.

### Recommended Tools

A 1/2" to 3/4" (12 to 19 mm) low 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. Also suitable for mixing in forced action mortar mixers.

### Priming

If ARDEX BONDING & ANTI-CORROSION AGENT is specified as a primer, follow the application instructions in the ARDEX Technical Brochure.

If this primer is not used, dampen the concrete to be repaired until it is thoroughly saturated. Do not leave any bare spots. Brush or vacuum off puddles and excess liquid. The goal is to saturate the pores of the concrete while leaving the surface free of water (SSD, Saturated Surface Dry). Alternatively, ARDEX P 71™ PRIMER can be used in accordance with the ARDEX Technical Brochure. Do not allow the concrete or ARDEX P 71 to dry before installing the ARDEX FDM. Installing the mortar over a surface that is too dry can result in cracking and bond failure.

### 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. Pour in 5 to 6 pints (2.37 to 2.84 L) of clean water, and then slowly add one-third of a 50 lb (22.7 kg) bag of ARDEX FDM. Once this is blended in, add the next third and so on until all of the material is added. If mixing in a pail, mix with a low speed drill and mixing paddle for approximately 3 minutes to a uniform,

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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 FDM is easily applied to any prepared concrete surface using standard concrete practices. Once mixed, the pot life and working time are 20 to 40 minutes, depending on surface and ambient temperatures. All mixed material must be placed within this time. Once placed, allow the material to take an initial set before finishing. Cool ambient and surface temperatures will slow the setting time, while high temperatures will accelerate it.

When overlaying, 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 mechanically removed and reapplied before applying the mortar. Once the mortar is applied, consolidate to remove any air pockets.

When pouring into closed forms, the repairs can 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. 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 FDM can be installed from a minimum of 1/2" up to 4" neat (12.7 mm to 10.2 cm). For application depths greater than 4", including full depth repairs up to 8" (20.3 cm), extend ARDEX FDM by adding 25 pounds (11.3 kg) of clean, uniformly graded, 3/8" (0.95 mm) aggregate dampened to an SSD condition. Mix the ARDEX FDM with water first, then add the aggregate and mix until it is uniformly coated.

## Curing

Direct sunlight or wind may cause unwanted rapid surface drying. 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 top coat or other type of finish, use moist curing methods only.

## Surface Finish and Sealing

Once the repair has cured for a minimum of 72 hours it can be coated, topped or sealed as specified. Cold and damp conditions may extend this time. To view the toppings, dressing and sealers available from ARDEX, please visit [www.ardex.com](http://www.ardex.com).

## Notes

The working time and pot life of ARDEX FDM are approximately 20 to 40 minutes at 70°F (21°C). Pot life and working time will vary with ambient temperatures.

ARDEX FDM is intended for repairing and resurfacing exterior or interior concrete in institutional, commercial and multi-unit residential areas.

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. 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 48 hours after the installation of ARDEX FDM. Install quickly if the substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

## Precautions

ARDEX FDM contains Portland cement and silica. Avoid eye and skin contact. Mix in a well-ventilated area and avoid breathing powder or dust. **KEEP OUT OF REACH OF CHILDREN.** Carefully read and follow all cautions and warnings on the product label. For complete safety information, please refer to the Material Safety Data Sheet or visit our website at [www.ardex.com](http://www.ardex.com).

## Technical Data According to ARDEX Quality Standards

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

**Mixing Ratio:** 5 to 6 pints (2.37 to 2.84 L) of water  
per 50 lb (22.7 kg) bag

**Yield:** 0.40 cu. ft. per 50 lb bag  
(0.0113 m<sup>3</sup> per 22.7 kg bag)  
9.6 sq. ft. per 50 lb bag at 1/2"  
(0.890 m<sup>2</sup> per 22.7 kg bag at  
12.7 mm)

		NEAT	EXTENDED
<b>Compressive Strength:</b>	1 day	3500	—
<b>(psi) ASTM C109</b>	7 days	5500	—
	28 days	7000	—
<b>Compressive Strength</b>	1 day	—	3200
<b>(psi): ASTM C39</b>	7 days	—	4800
	28 days	—	6000
<b>Flexural Strength (psi):</b>	1 day	1100	700
<b>ASTM C293</b>	28 days	1150	750
<b>Splitting Tensile:</b>	7 days	—	425
<b>Strength (psi)</b>	28 days	—	600
<b>ASTM C496</b>			
<b>Modulus of Elasticity:</b>	28 days	3.7 x 10 <sup>6</sup>	3.9 x 10 <sup>6</sup>
<b>(psi) ASTM C469</b>			
<b>Length Change %:</b>	28 days	<0.065	<0.030
<b>ASTM C157</b>			
<b>Direct Tensile Bond:</b>	28 days	260	210
<b>(psi) ASTM D 4541</b>			
<b>Pot Life/:</b>	20 to 40 minutes		
<b>Working Time</b>			
<b>Coat or Seal:</b>	Min. 72 hours		
<b>Color:</b>	Gray		
<b>Packaging:</b>	50 lb (22.7 kg) net weight bags		
<b>Storage:</b>	Store in a cool dry area. Do not leave bags exposed to direct sunlight. Keep from freezing.		
<b>Shelf Life:</b>	One year if unopened		
<b>Warranty:</b>	ARDEX Engineered Cements Standard Limited Warranty Applies		

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