SECTION 03 54 16
HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, and other related construction documents such as Division 01 specifications apply to this Section

1.2 SUMMARY

A. This Section includes an underlayment that consists of a blend of Portland cement and other hydraulic cements that is a self-smoothing, trowelable, latex leveling compound with excellent adhesion, flexibility and moisture resistance.

1. ARDEX K 60™ ARDITEX Rapid Setting Latex Smoothing and Leveling Compound
2. ARDEX P 51™ Primer
3. ARDEX P 82™ Ultra Prime
4. ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack & Joint Repair
5. ARDEX FEATHER FINISH® Self-Drying Cement Based Finish Underlayment
6. ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant

B. Related Sections include the following:

1. Section 03 30 00, Cast-In-Place Concrete
2. Section 09 05 61.13, Topical Moisture Vapor Mitigation
3. Division 09 Flooring Sections

1.3 REFERENCES

A. ASTM C109M, Compressive Strength Air-Cure Only

B. ASTM E10M, Standard Test Method for Brinell Hardness

C. ASTM F2170, Relative Humidity in Concrete Floor Slabs Using in situ Probes

D. ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data, a Revit file with applicable materials meeting the Revit Content Style Guide, and installation instructions for each material and product used. Include manufacturer’s Safety Data Sheets.

B. Qualification Data: For Installer

1.5 QUALITY ASSURANCE

A. Installation of the ARDEX product must be completed by a factory-trained applicator, such as an ARDEX LevelMaster® Elite, Choice Contractor or INSTALL Substrate Prep Certified Installer, using mixing equipment and tools approved by the manufacturer. Contact ARDEX Americas (724) 203-5000 for a list of recommended installers.

B. Product must have hydraulic cement-based inorganic binder content as the primary binder which includes Portland cement per ASTM C150: Standard Specification for Portland cement and other specialty hydraulic cements. Gypsum-based products are not acceptable.

C. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of products for not less than 10 years. Contact Manufacturer Representative prior to installation.

1.6 WARRANTY: ARDEX K 60™ ARDITEX installed as part of a floor system, shall be installed in conjunction with the recommended ARDEX Tile & Stone Installation Materials or WW HENRY Flooring Adhesive, as appropriate, to provide the ARDEX SystemOne comprehensive warranty, depending on the system installed.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. Store products in a dry area with temperature maintained between 50° and 85°F (10° and 29°C) and protect from direct sunlight.

C. Handle products in accordance with manufacturer's printed recommendations.

1.8 PROJECT CONDITIONS

A. Do not install material below 50°F (10°C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this

section. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

PART 2 – PRODUCTS

2.1 HYDRAULIC CEMENT UNDERLAYMENT

A. Hydraulic Cement-based Self-Leveling Underlayment

Acceptable Products:

1. ARDEX K 60™ ARDITEX; manufactured by ARDEX Americas, USA, (724) 203-5000, www.ardexamericas.com

   a. Primer Standard Absorbent Concrete: No primer is required.
   b. Primer To Minimize the Potential for Pinholes in Absorbent Concrete: ARDEX P 51™ c. Primer for non-ARDEX epoxy substrates, including epoxy terrazzo: ARDEX P 82™ Ultra Prime

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F+/-3°F (23° C+/-3°C) and 50% +/-5% relative humidity:

   a. Application: Barrel Mix
   b. Flow Time: 10 minutes
   c. Initial Set: Approx. 30 minutes, ASTM C191
   d. Final Set: Approx. 60 minutes, ASTM C191
   e. Walkable: 2 – 3 hours
   f. Compressive Strength: 3500 psi (245 kg/cm^2) at 28 days, ASTM C109M
   g. Brinell Hardness: Approx. 3,000 psi (211 kg/cm^2) at 24 hours, ASTM E10M
   h. VOC: 0
   i. IMO FTP Code Part 2 (Smoke and Toxicity Test) and Part 5 (Test for Surface Flammability): Certificate Number 20161101-R38625; Report Reference R38625-20161031

2.2 CRACK AND JOINT REPAIR

A. Low Viscosity Rigid Polyurethane Crack and Joint Repair; ARDEX ARDIFIX™; Manufactured by ARDEX Americas; USA; 724-203-5000, www.ardexamericas.com

B. Semi-Rigid Joint Sealant; ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant; Manufactured by ARDEX Americas; USA; 724-203-5000, www.ardexamericas.com

2.3 PATCH

A. ARDEX FEATHER FINISH® Self-Drying Cement Based Finished Underlayment

PART 3 – EXECUTION

3.1 PREPARATION

A. General: Prepare substrate in accordance with manufacturer's instructions.

1. Concrete:

a. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.

b. Substrates shall be inspected in accordance with ASTM F2170 and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering. For areas where moisture vapor emissions exceed the required limits refer to Section 09 05 61.13, Moisture Vapor Emission Control and install the appropriate ARDEX Moisture Control System.

B. Crack and Joint Preparation:

1. Moving Joints and Moving Cracks – Honor all moving joints and moving cracks up through the underlayment. A flexible sealing compound such as ARDEX ARDISEAL™ Rapid Plus Semi-Rigid Joint Sealant may be installed.

2. Saw Cuts, Dormant Control Joints and Dormant Cracks – Fill all dormant control joints and dormant cracks with ARDEX ARDIFIX™ Low Viscosity Rigid Polyurethane Crack & Joint Repair or ARDEX FEATHER FINISH® Self-Drying, Cement-Based Finish Underlayment as recommended by the manufacturer.

C. Adhesive residues on concrete must first be tested to make certain they are not water-soluble. Water-soluble adhesives must be completely mechanically removed down to clean concrete. Non-water-soluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com). The prepared residue should appear as nothing more than a transparent stain on the concrete after scraping.

D. Non-ARDEX epoxy substrates, including epoxy terrazzo must be clean and free of all waxes, sealers dust, dirt, debris and any other contaminant that may act as a bond breaker. If necessary, clean by mechanical methods such as shot blasting.

E. Steel substrates must be rigid, well supported, properly anchored, and free of undue flex and vibration. Shot blast the surface prior to installation.

F. Other non-porous substrates, including burnished concrete and ceramic and quarry tile, must be clean, sound and solidly bonded to the underlying substrate.

G. Wood: The wood subfloor either must be solid hardwood flooring; a minimum of 3/4” (19 mm) tongue-and-groove, APA-rated Type 1, exterior exposure plywood; or an approved OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be properly fastened to create a sound, solid subfloor. The surface of the wood must be clean and free of oil, grease, wax, dirt, varnish, shellac, and any contaminant that might act as a bond breaker. If necessary, sand down to bare wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers, or cleaners. Vacuum all dust and debris. Open joints should be filled with ARDEX FEATHER FINISH®. It is the responsibility of the installation contractor to ensure that the wood subfloor is thoroughly clean and properly anchored prior to the installation of any ARDEX material.

H. ARDEX MC RAPID: ARDEX K 60 can be installed over the ARDEX MC RAPID Moisture Control System without the use of a primer. The ARDEX MC RAPID must cure a minimum of 4 hours before ARDEX K 60 can be installed. When installing ARDEX K 60 over ARDEX MC RAPID that has not been primed or sand broadcasted, the ARDEX K 60 must be installed within 20 hours of application of the final coat of the ARDEX MC RAPID.

3.2 APPLICATION OF ARDEX K 60™ ARDITEX

A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.

C. Priming: No primer is required for standard absorbent concrete or wood subfloors. For other priming requirements, refer to manufacturer’s printed technical data sheets.

D. Mixing: Comply with manufacturer's printed instructions and technical data sheets.

E. Application: Comply with manufacturer's printed instructions and technical data sheets.

F. Curing: ARDEX K 60 can be walked on in 2-3 hours after installation. Moisture-insensitive tiles, such as ceramic, quarry and porcelain can be installed after 6 hours. Porous-backed carpet can be installed after 12 hours. Other flooring structures can be installed after 16 to 24 hours. Skim coating application may be suitable for the installation of finish flooring in as little as 4 hours under ideal drying conditions. Refer to manufacturer’s printed instructions and technical data sheets for more information.

3.3 FIELD QUALITY CONTROL

A. Where specified, field sampling of the ARDEX underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

3.4 PROTECTION

A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.

END OF SECTION