ARDEX GUIDE SPECIFICATION
ARDEX Underlayment HC 100™ High-Capacity Self-Leveling, HC 100R™ High-Capacity Rapid Self-Leveling Underlayment, ARDEX V 1200™ Self-Leveling Underlayment and ARDEX K 15® Premium Self-Leveling Underlayment
Cement-based Self-Leveling Underlayment for use with ARDEX ACMS™

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 a cement-based self-leveling underlayment formulated with a special blend of polymers used to level and smooth interior concrete.

1. ARDEX HC 100™ High-Capacity Self-Leveling Underlayment
2. ARDEX HC 100R™ High Capacity Rapid Self-Leveling Underlayment
3. ARDEX V 1200™ Self-Leveling Underlayment
4. ARDEX K 15® Premium Rapid Self-Leveling Underlayment
5. ARDEX MC™ Rapid One-Coat Moisture Control System For Concrete to Receive ARDEX Products
6. ARDEX Ardifix™ Low Viscosity Rigid Polyurethane Crack & Joint Repair
7. ARDEX Ardiseal™ Rapid Plus Semi-Rigid Joint Sealant
8. ARDEX Ardipeg™ Self-Leveling Pins

B. Related Sections include the following:

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

1.3 REFERENCES

A. ASTM C109M, Compressive Strength Air-Cure Only

B. ASTM C348, Flexural Strength of Hydraulic-Cement Mortars

C. ASTM E84, Surface Burning Characteristics of Building Materials

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

E. ASTM C1708, 12 Standard Test Methods for Self leveling Mortars Containing Hydraulic Cements

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product data 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 an ARDEX approved applicator, such as an ARDEX LevelMaster® Elite or Choice Contractor, using equipment and tools approved by the manufacturer. Contact ARDEX Engineered Cements (724) 203-5000 for a list of acceptable installers.

B. Product must have a 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: Products used for work in this section shall be manufactured by companies which have successfully specialized in production of this type of work for not less than 10 years. Contact Manufacturer Representative prior to installation.

1.6 WARRANTY

A. Approved applicator must file a pre-installation checklist with the manufacturer and receive written confirmation of the approval to proceed in order to obtain the extended ARDEX 20-Year Limited Warranty for the ARDEX Concrete Management Systems (ACMS™), which includes the ARDEX MC RAPID as well as ARDEX HC 100™, ARDEX HC 100R™, ARDEX V 1200™ or ARDEX K 15® and covers materials and reasonable labor costs either to repair or replace an affected area should a manufacturing defect exist..

B. ARDEX HC 100™, ARDEX HC 100R™, ARDEX V 1200™ or K 15®underlayment 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 obtain the ARDEX SystemOne Comprehensive Extended Warranty. This warranty also covers

materials and reasonable labor costs either to repair or replace an affected area should a manufacturing defect exist

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.

B. The resulting leveling once cured is suitable to be open to air and intermittent water until construction to enclose areas where self leveling is complete.

C. The ARDEX Self-Leveling Underlayment installation should be completed at least 6 hours before dew is expected to form.

D. The ARDEX Self-Leveling Underlayment installation should not be subjected to rainfall for a minimum of 24 hours following installation. In the event that the ARDEX Self-Leveling Underlayment gets wet after 24 hours from rain, other trades, etc., any ponding water should be immediately squeegeed from the surface and allowed to dry.

PART 2 - PRODUCTS

2.1 HYDRAULIC CEMENT UNDERLAYMENT

A. Hydraulic Cement-Based, Self-Leveling Underlayment

1. Acceptable Products:

a. ARDEX HC 100™ High Capacity, ARDEX HC100R™ High Capacity Rapid, ARDEX V 1200™ or ARDEX K 15® Self-Leveling Underlayment; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA 15001 USA, 724-203-5000, Contact Mike Tracy mike.tracy@ArdexAmericas.com

i. Primer for 3 day old concrete finished with rough screed and brush blasted: ARDEX MC™ RAPID One-Coat Moisture Control System for Concrete to Receive ARDEX Products

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-3°C) and 50% +/-5% relative humidity:

a. ARDEX MC RAPID

i. Application: Manual

ii. Material Requirements on CSP 3 Prepared Concrete: Approx. 170 – 190 sq. ft. (16 – 18 m^2) per unit for 14 mils

iii. Permeability (ASTM E96): 0.06 perms

iv. 14 pH solution (ASTM D1308): No effect

v. Working Time: 20 minutes

vi. Pot Life: 20 minutes

vii. VOC: 19.9 g/L, A+B, ASTM D2369

viii. Walkable: Minimum of 4 hours

ix. Prime and Install Underlayment: Minimum 4 hours, maximum 24 hours

b. ARDEX HC 100

i. Application: ARDEX ARDIFLO™ Pump System
ii. Flow Time: 10 minutes
iii. Initial Set: Approx. 30 minutes, ASTM C191
iv. Final Set: Approx. 90 minutes, ASTM C191
v. Compressive Strength: 4500 psi (280.0 kg/cm^2) at 28 days, ASTM C109M
vi. Flexural Strength: 1000 psi at 28 days (70 kg/cm^2), ASTM C348
vii. VOC: 0

c. ARDEX HC 100R

i. Application: ARDEX ARDIFLO™ Pump System
ii. Flow Time: 10 minutes
iii. Initial Set: Approx. 30 minutes, ASTM C191
iv. Final Set: Approx. 90 minutes, ASTM C191
v. Compressive Strength: 5500 psi (287.0 kg/cm^2) at 28 days, ASTM C109M
vi. Flexural Strength: 1000 psi at 28 days (70 kg/cm^2), ASTM C348
vii. VOC: 0

d. ARDEX V 1200

i. Application: ARDEX ARDIFLO™ Pump System
ii. Flow Time: 10 minutes
iii. Initial Set: Approx. 30 minutes, ASTM C191
iv. Final Set: Approx. 90 minutes, ASTM C191
v. Compressive Strength: 4500 psi (280.0 kg/cm^2) at 28 days, ASTM C109M
vi. Flexural Strength: 1000 psi at 28 days (70 kg/cm^2), ASTM C348
vii. VOC: 0

e. ARDEX K 15

i. Application: ARDEX ARDIFLO™ Pump System
ii. Flow Time: 10 minutes
iii. Initial Set: Approx. 30 minutes, ASTM C191
iv. Final Set: Approx. 90 minutes, ASTM C191
v. Compressive Strength: 5500 psi (287.0 kg/cm^2) at 28 days, ASTM C109M
vi. Flexural Strength: 1000 psi at 28 days (70 kg/cm^2), ASTM C348
vii. VOC: 0

2.2 WATER: Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

PART 3 – EXECUTION

3.1 PREPARATION

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

1. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Flooring. All concrete after initial 3-7 day cure must receive a brush blast shot blast.

3. Crack and Joint Treatment:

a. Dormant control joints and dormant cracks greater than a hairline (1/32'' / 0.79 mm) must be pre-filled with ARDEX ARDIFIX™. Dormant cracks and dormant control joints must be filled in strict accordance with the installation instructions provided by the ARDEX Technical Service Department. Once the dormant cracks and dormant control joints have been filled properly, broadcast sand to refusal (ARDEX recommends wearing an N-95 dust mask when broadcasting sand), and allow these

areas to cure thoroughly. Remove all excess sand prior to proceeding with the ARDEX MC RAPID installation.

i. Do not sweep. Using a rubber squeegee, consolidate excess sand into piles.

ii. Shovel the piles of sand into barrels.

iii. Vacuum remaining sand using a heavy-duty, bucket-style (Shop-Vac®-style) vacuum and HEPA dust extraction vacuum system.

b. All moving joints and moving cracks must be honored up through the ARDEX MC RAPID, the ARDEX underlayment and the floor covering by installing a fully flexible sealing compound designed specifically for use in moving joints, such as ARDEX ARDISEAL™ RAPID PLUS.

3. Survey floor as required and use leveling pins such as ARDEX Ardipegs where needed to determine material requirements to achieve specified flatness and levelness tolerances.

3.2 APPLICATION OF ARDEX HC 100™, HC 100R™, ARDEX V 1200™ or ARDEX K 15®:

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:

1. Prime concrete substrate with ARDEX MC Rapid at 14 mils in thickness and sand broadcast to refusal (ARDEX recommends wearing an N-95 dust mask when broadcasting sand) while the ARDEX MC RAPID is still in a fresh state in accordance with the technical data sheet. Remove all excess sand prior to proceeding.

i. Do not sweep. Using a rubber squeegee, consolidate excess sand into piles.

ii. Shovel the piles of sand into barrels.

iii. Vacuum remaining sand using a heavy-duty, bucket-style (Shop-Vac®-style) vacuum and HEPA dust extraction vacuum system.

D. Mixing and Application: Comply with manufacturer's printed instructions and the following.

1. When mixing sanded materials, ARDEX recommends using the ARDEX DUSTFREE™ or a standard “gutter hook” vacuum attachment in combination with a wet/dry (Shop-Vac® style) vacuum and HEPA dust extraction vacuum system. Additionally, each bag should be handled with care and emptied slowly to avoid creating a plume of dust. Contact the ARDEX Technical Service Department for more details on ARDEX products and air quality management.

E. Curing

1. ARDEX HC 100, HC 100R™, ARDEX V 1200™ and ARDEX K 15® can be walked on in 2-3 hours. Moisture-insensitive tiles such as ceramic quarry and porcelain can be installed after 6 hours. ARDEX HC 100R™ and ARDEX K 15® can accept all other finish floor covering materials after 16 hours at 70°F and 50% relative humidity. For installations up to 3/8" in thickness, ARDEX HC 100™ and ARDEX V 1200™ can accept all other finish floor covering materials after 24 hours at 70ºF and 50% relative humidity. For installations greater than 3/8" in thickness, ARDEX HC 100™ and ARDEX V 1200™ can accept all other finish floor covering materials at 70ºF and 50% relative humidity once mat testing in accordance with ASTM D4263 confirms the material is dry. For resinous systems such as epoxy and polyurethane floors please contact the ARDEX Technical Services Department.

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. here are no in situ test procedures for the evaluation of compressive strength.

3.4 TOLERANCES

A. Floor Flatness (FF) and Floor Levelness (FL): Tolerances for completed underlayment shall be in accordance with ACI 117 (ASTM 1155) as follows:

1. Specified Overall Value (SOV) FF 35 / FL 25
2. Minimum Local Value (MLV) FF 25 / FL 20
3. The minimum local area shall be bound on each side by column lines.

3.5 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