IF THE HIDDEN GUIDE SPECIFICATION CONVENTIONS DO NOT APPEAR PRECEEDING THIS

NOTE, TURN THEM ON AS FOLLOWS.

**FOR MICROSOFT WORD 2000 and 2003**, CLICK ON SHOW/HIDE ICON IN MENU BAR OR CHOOSE

TOOLS IN MENU BAR. THEN CLICK OPTIONS, VIEW TAB, UNDER FORMATTING MARKS, CHECK

HIDDEN TEXT.

**FOR MICROSOFT WORD 2007,** CLICK ON MICROSOFT OFFICE ICON LOCATED IN UPPER LEFT

CORNER OF MENU BAR. CLICK ON WORD OPTIONS AT BOTTOM OF DROP DOWN. THEN CLICK

ON DISPLAY. CHECK THE HIDDEN TEXT BOX.

**FOR MICROSOFT OFFICE 2010,** CLICK ON FILE BUTTON LOCATED IN UPPER LEFT CORNER OF

MENU BAR. IN THE DROP DOWN, CLICK ON OPTIONS, AND A WORD OPTIONS BOX WILL

APPEAR. CLICK ON DISPLAY. CHECK THE HIDDEN TEXT BOX.

THE GUIDE SPECIFICATION CONVENTIONS SHOULD NOW BE VISIBLE IN THE DOCUMENT.

(Delete this note before printing.)

**SECTION 09 05 61**

**COMMON WORK RESULTS FOR FLOORING PREPARATION**

(Edited from DeCA June 2022 Design Criteria)

Note to A/E: Concrete slab moisture testing is to be performed during design. Construction contractor should perform slab moisture testing only when a new slab is installed or if testing did not occur during design. Several sections identify these choices in brackets [ ]. A/E shall edit the choices as applicable to the specific project requirements.

**PART 1 - GENERAL**

1.1 SECTION INCLUDES

A. This section applies to all floors identified in the contract documents as to receive the following types of floor coverings:

1. **[Resilient Tile Flooring.]**

2. **[Tile Flooring.]**

B. Preparation of new concrete floor slabs for installation of floor coverings.

**[C.** **Testing of concrete floor slabs for moisture and pH.]**

D. Remediation of concrete floor.

1. Perform all specified remediation of concrete floor slabs that are to receive moisture sensitive flooring.

E. For remediation of concrete floor at areas to receive Resinous Flooring, follow Manufacturers remediation system as outlined in Resinous Flooring 09 67 23 specifications and warranted by the Resinous Flooring Manufacturer.

1.2 RELATED REQUIREMENTS

A. Section 01 45 00 - Quality Control: Additional requirements relating to testing agencies and testing.

B. Section 03 30 00 - Cast-In-Place Concrete: Limitations on curing requirements for new concrete floor slabs.

C. Section 09 65 19 - Resilient Tile Flooring.

D. Section 09 67 23 - Resinous Flooring.

E. Section 09 30 00 - Tiling.

1.3 REFERENCES

1. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020.
2. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019.
3. **[ ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2016a]**
4. **[ ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs using in situ Probes; 2019.]**
5. ASTM F2873 – Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring; 2020.
6. ASTM F3010 – Standard practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation System for use Under Resilient Floor Covering; 2018.

1.4 SUBMITTALS

**[A. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:**

**1. Moisture and pH limits and test methods.**

**2. Manufacturer's required bond/compatibility test procedure. ]**

**[B. Testing Agency's Report: Include:**

**1. Description of areas tested; include floor plans and photographs if helpful.**

**2. Summary of conditions encountered.**

**3. Moisture and pH test reports.**

**4. Copies of specified test methods.**

**5. Alert Contracting Officer and Government’s Designated Inspector if tests differ from the Testing Agency Report included in the Contract Documents. Remediation required in this spec section is NOT removed from the contract unless authorized in writing by the Contracting Officer.**

**6. Include certification of accuracy by authorized official of testing agency.**

**7. Submit report directly to Government Authorized Technical Representative**

**8. Submit report not more than two business days after conclusion of testing. ]**

**[C. Adhesive Bond and Compatibility Test Report.]**

D. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.

1. Manufacturer's qualification statement.

2. Test reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.

3. Manufacturer's installation instructions.

4. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.

1.5 QUALITY ASSURANCE

**[A. Moisture and pH testing will be performed by an independent testing agency employed and paid by the Contractor.]**

**[B. Testing Agency Qualifications: Independent testing agency experienced in the types of testing specified.**

**1. Submit evidence of experience consisting of at least 3 test reports of the type required, with project Owner's project contact information.]**

**[C. Contractor's Responsibility Relating to Independent Agency Testing:**

**1. Retain third-party assurance agencies to conduct applicable testing.**

**2. Provide access for and cooperate with testing agency.**

**3. Confirm date of start of testing at least 10 days prior to actual start.**

**4. Allow at least 4 business days on site for testing agency activities.**

**5. Achieve and maintain specified ambient conditions.**

**6. Notify Contracting Officer and Government’s Designated Inspector when specified ambient conditions have been achieved and when testing will start.]**

**[D. Moisture and pH testing performed by the Contractor does NOT remove the requirement to provide floor remediation at areas to receive moisture sensitive flooring. If the results of the Contractor’s Moisture and pH test vary from the Moisture and pH testing report included in the Contract Documents, alert the Contracting Officer and Government Designated Inspector.]**

E. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, manufacturer approved, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

**[F. Concrete Moisture Preconstruction Meeting: After testing reports have been submitted, and 14 days prior to scheduled commencement the remediation work, conduct a meeting with the Government’s Designated Inspector, Manufacturer’s Representatives, and all other parties required to discuss performance of the work. Conduct meeting as required in section 013000.]**

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

**[1.7 FIELD CONDITIONS**

**A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F or more than 85 degrees F.**

**B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent. ]**

1.8 WARRANTY

A. System installation shall meet all Manufacturers’ requirements to receive a 20-year minimum Manufacturer's Material and Labor Warranty for Moisture Control System components, including replacement of all damaged floor covering~~.~~

**PART 2 - PRODUCTS**

2.1 MATERIALS

1. Patching Compound: BASIS OF DESIGN: Ardex Moisture Resistant Patch (MRF) or Ardex Transportation Repair Mortar (TRM).
2. Crack Repair: BASIS OF DESIGN: Ardex ArdiFix two-part polyurethane repair compound, Ardex Ardiseal for moving joints.
3. Primer: BASIS OF DESIGN: Ardex P82 Primer.
4. Remedial Floor Coating: BASIS OF DESIGN: ARDEX MC RAPID epoxy moisture control system; with either Ardex K 15 or K 13 self-leveling underlayment: www.ardexamericas.com
5. Self-Leveling Underlayment: BASIS OF DESIGN: Ardex K 15 or K 13.
6. Provide all other Manufacturer required products for a complete remediation system.
7. Approved Manufacturers (Selected system is to be comprised of products by one manufacturer):
	1. ARDEX Engineered Cements; either ARDEX MC RAPIDepoxy moisture control system; with either ARDEX K 15 or K 13 self-leveling underlayment: www.ardexamericas.com.
	2. KOSTER American Corp.; either KOSTER VAP I 2000, KOSTER VAP I 2000 F, KOSTER VAP I 2000 UFS, or KOSTER VAP I 2000 ZERO VOC epoxy moisture vapor control system; with either KOSTER SL Standard or KOSTER SL Premium self-leveling underlayment: www.kosterusa.com.
	3. MAPEI; either MAPEI Planiseal VS, or MAPEI Planiseal VS Fast epoxy moisture control system; with MAPEI Ultra plan 1 Plus, self-leveling underlayment: [www.mapei.com](http://www.mapei.com).
	4. For Remediation in areas to receive Resinous Flooring, follow Manufacturers remediation system (Basis of Design is outlined in Resinous Flooring 09 67 23 specifications) and warranted by the Resinous Flooring Manufacturer.
8. Water: Water shall be clean, potable and sufficiently cool (not warmer than 70 degrees Fahrenheit).

**PART 3 - EXECUTION**

3.1 CONCRETE SLAB PREPARATION

A. Perform following operations. Verify the sequence of operations with Manufacturers of approved products):

1. Complete Manufacturer required Pre-Installation checklist and submit copies to Government Authorized Technical Representative.

2. Preliminary cleaning.

**[3. Moisture vapor emission tests; 3 tests in the first 1000 square feet and one test in each additional 1000 square feet, unless otherwise indicated or required by flooring manufacturer.]**

**[4. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.]**

**[5. pH tests; in same locations as moisture vapor emission tests, unless otherwise indicated.]**

6. Mechanical surface prep (shot blasting or orbital grinding equipment) to achieve Manufacturer’s required Concrete Surface Profile (CSP).

1. Approved Floor Grinder Equipment:
	1. Machinery manufacturer will be HTC, SASE, Concrete Polishing Solutions, Husqvarna, Diamatic or PrepMaster.
	2. Type: Multi-orbital, planetary-action, opposing-rotational, 3 or 4 diamond-headed floor grinders.
	3. Weight: 850 pounds or more.
	4. Grinding Pressure: 600 pounds minimum.

**Retain the following paragraph for projects that require removal of existing vinyl tile flooring and replacement of new vinyl enhanced tile (VET) flooring.**

**7. [All glue from areas of removed tile must be entirely mechanically removed from the floor. Contractor shall use orbital grinding equipment per specifications to remove the glue. Based on contractor’s discretion, a 25 grit or 40 grit metal bonded diamond may be used for this removal. Contractor shall provide the Architect with photographs of the floor slab showing that glue has been removed prior to installation of the vinyl enhanced tile flooring. Manufacturer suggested HEPA filter vacuums should be used in conjunction with all grinding for glue removal.]**

8. Specified remediation as specified above and per Manufacturer’s recommendations.

9. Patching, crack filling, joint filling, smoothing, leveling, sand broadcasting and other manufacturer operations to meet remediation, flooring, and adhesive manufacturer’s requirements.

10. Self leveling underlayment.

11. Other preparation required by approved product manufacturers.

12. Adhesive bond and compatibility test.

13. Protection of substrate prior to flooring installation.

B. Remediation:

1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.

2. Moisture Remediation: Apply remedial floor coating over entire floor area that is to receive moisture sensitive flooring.

3. Excessive pH Remediation: Where remedial floor coating is installed, no additional remediation is required for excessive pH; if remedial floor coating is not installed, use an adhesive that is resistant to the level present or apply a skim coat of specified patching compound as recommended by flooring manufacturer.

3.2 PRELIMINARY CLEANING

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

**[3.3 MOISTURE VAPOR EMISSION TESTING**

**A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.**

**B. Test in accordance with ASTM F1869 and as follows.**

**C. Plastic sheet test and mat bond test may not be substituted for the specified ASTM test method, as those methods do not quantify the moisture content sufficiently.**

**D. Report: Report the information required by the test method.]**

**[3.4 INTERNAL RELATIVE HUMIDITY TESTING**

**A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the most stringent criteria.**

**B. Test in accordance with ASTM F2170 Procedure A and as follows.**

**C. Testing with electrical impedance or resistance apparatus may not be substituted for the specified ASTM test method, as the values determined are not comparable to the ASTM test values and do not quantify the moisture content sufficiently.**

**D. In the event the test values exceed floor covering manufacturers’ limits, perform remediation as indicated. In the absence of manufacturers limits, perform remediation if any test value exceeds 75% relative humidity.**

**E. Report: Report the information required by the test method.]**

**[3.5 pH TESTING**

**A. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification; comply with the most stringent criteria.**

**B. Note: This procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience.**

**C. Use a wide range pH paper, its associated chart, and, distilled or deionized water.**

**D. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the pH paper into the water, remove it, and compare immediately to chart to determine pH reading.]**

3.6 PREPARATION

1. See individual floor covering section(s) for additional requirements.
2. Comply with requirements and recommendations of floor covering manufacturer.
3. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.
4. Follow Manufacturer’s recommendations for treatment of expansion joints, isolation joints, or other moving joints.
5. Provide finish surface tolerance meeting the requirements of the floor covering manufacturer. In the absence of manufacturer tolerance specifications ensure that the surface has no deviation exceeding 1/4" in 10' measured by the straight edge method as referenced in ACI 117 Floor Flatness Tolerances. Note: where leveling compound is required, verify sequence of installation with Manufacturer.
6. Other preparation recommended by manufacturer.
7. Adhesive bond and compatibility test as recommended by manufacturer.

3.7 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.8 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

3.9 INFILLING FOR EXISTING CONCRETE SLABS

 A. Where existing concrete slab is removed and new concrete slab installed, extend the moisture remedial floor coating a minimum of 12 inch beyond the joint between the existing concrete slab and new concrete slab around the entire perimeter of new slab. Remediation Basis of Design at infill concrete slabs is as follows:

 1. Install Vapor Retarder in infill area. Connect to existing Vapor Retarder under existing slab.

2. Fill with new concrete as specified.

3. Install Ardifix Joint Filler.

4. Prep, including shot blast, for Ardex membrane system 12 inches on each side on the infill.

5. Install the Ardex membrane system as specified 12 inches on each side of the infill.

6. Install self-leveling if required.

7. Install finish flooring system.

3.10 PROTECTION

A. Protect surface of underlayment prior to installation of the finished flooring per Manufacturer’s recommendations. At a minimum cover with plywood, masonite, or other durable floor protection course prior to installation of the finished flooring.

**END OF SECTION**