SECTION 03 53 00

CONCRETE FLOOR TOPPINGS

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\*\* NOTE TO SPECIFIER \*\* L&M Construction Chemicals; concrete floor toppings.  
This section is based on the products of L&M Construction Chemicals, which is located at:  
1 LATICRETE Park N.  
Bethany, CT 06524-3423  
Toll Free Tel: 800-362-3331  
Tel: 402-453-6600  
Email: [request info (info@lmcc.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=L%26M+Construction+Chemicals&coid=41606&rep=&fax=&message=RE:%20Spec%20Question%20(03530lmc):%20%20&mf=)  
Web: [www.laticrete.com/lmcc](http://www.laticrete.com/lmcc)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos41/arc41606.html) ] for additional information.  
L&M Construction Chemicals, Inc. manufactures sealers and sealants building products relating to: Concrete; Specially Placed Concrete; Concrete Curing; Curing, Sealing and Hardening Concrete Floors; Grouts; Concrete Rehabilitation; Masonry; Masonry Grout; Thermal and Moisture Protection; Water Repellents; Finishes and Floor Treatment.

1. GENERAL
   1. SECTION INCLUDES
      1. Premixed, ready to use concrete toppings for floors subjected to increased abrasion, point loading, and abuse.
   2. RELATED SECTIONS
      1. Section 03 30 00 - Cast-in-Place Concrete.
   3. REFERENCES
      1. American Concrete Institute (ACI):
         1. ACI 301 - Specification for Structural Concrete for Buildings.
         2. ACI 302.1 - Guide for Concrete Floor and Slab Construction.
         3. ACI 305 - Hot Weather Concreting.
         4. ACI 306 - Cold Weather Concreting.
         5. ACI 308 - Guide to Curing Concrete.
      2. American Society for Testing Materials (ASTM):
         1. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete.
         2. ASTM C 1315 - Liquid Membrane-Forming Compounds Having Special Properties of Curing and Sealing Concrete.
         3. ASTM C 666 - Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
   4. SUBMITTALS
      1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
      2. Product Data: Manufacturer's data sheets on each product to be used, including:
         1. Preparation instructions and recommendations.
         2. Storage and handling requirements and recommendations.
         3. Installation methods.
      3. Certification stating applicator is experienced in the application of the specified product.
   5. QUALITY ASSURANCE
      1. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
      2. Installer Qualifications: Minimum 2 year experience installing similar products.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock Up: In a location designated by the Architect, place a minimum 100 square feet floor mock up using materials, procedures and personnel proposed to be used on the project. During mock-up and initial period of installation, the manufacturer of the surface hardener will provide, at no cost, the service of a trained employee to aid in securing proper use of the product.
  1. PRE-INSTALLATION MEETINGS
     1. Convene minimum two weeks prior to starting work of this section.
     2. Pre-installation Meeting: Convene a pre-installation meeting three weeks before the start of application of the concrete topping material. Require attendance of parties directly affecting the work of this Section, including Contractor, Architect, applicator, and manufacturer representative.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
     2. Handling: Handle materials to avoid damage.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. SEQUENCING
     1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: L&M Construction Chemicals, which is located at: 1 LATICRETE Park N.; Bethany, CT 06524-3423; Toll Free Tel: 800-362-3331; Tel: 402-453-6600; Email: [request info (info@lmcc.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=L%26M+Construction+Chemicals&coid=41606&rep=&fax=&message=RE:%20Spec%20Question%20(03530lmc):%20%20&mf=); Web: [www.laticrete.com/lmcc](http://www.laticrete.com/lmcc)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. MATERIALS
     1. Heavy Duty Emery Aggregate Concrete Topping: Class 6 and 7 industrial floors. Ready-mixed with Portland cement.
        1. Product: EMERY TOP 400 by L&M Construction Chemicals
        2. Physical properties and minimum test performance:
           1. 100 percent natural emery aggregates, minimum 58% aluminum oxide and 24% ferric oxide.
           2. ACI 544.2 R89, Impact resistance. At seven day, no cracking after 4500 blows.
           3. ASTM C 1202, Chloride Ion Penetrability Results: rating: "Very Low," less than 1,000 coulombs passing.
           4. ASTM C 666/666M, Freeze-Thaw Durability Factor not less than 90%.
     2. Evaporation Retardant: E-CON, by L&M Construction Chemicals, Inc.
     3. Curing Compound: DRESS & SEAL WB 30, by L&M Construction Chemicals, Inc.
     4. Semi-Rigid Joint Filler: JOINT TITE 750, by L&M Construction Chemicals, Inc.
     5. Bonding Agent: Epo Bond by L&M Construction Chemicals, Inc.
     6. Concrete Curing Cover: Transguard 4000 by Reef industries, or Hydracure sheeting, by PNA Construction Technologies, or equal.

1. EXECUTION
   1. EXAMINATION
      1. Verify by examination that surfaces are acceptable to receive the concrete topping. Notify the Architect immediately if surfaces are not acceptable to receive material.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. CONCRETE PLACEMENT
      1. Follow ACI 302.1R-96 recommendations for placement for concrete toppings.
      2. Placement Over Plastic Concrete:
         1. Maximum slump of five inches.
         2. Maximum air content of three percent (3 percent).
         3. Do not use set accelerating admixtures, such as calcium chloride.
   4. APPLICATION

\*\* NOTE TO SPECIFIER \*\* Delete application not required.

* + 1. Over Pre-Set Concrete: The top surface of the concrete shall be scarified and left sound but irregular, exposing the topmost surface of the coarse aggregate with a minimum amplitude of 1/4 inch (6 mm) between peaks and valleys. The bonding agent is prepared by mixing one part by volume Everbond with one part by volume dry Portland cement. The bonding slurry is scrubbed into the surface of the substrate that is saturated surface damp (SSD) no more than 15 minutes before the placement of the concrete topping. Do not allow Everbond slurry mix to dry or puddle. The saturated surface damp (SSD) condition is best achieved by soaking the substrate for 12 hours and just prior to the placement of concrete topping.
    2. Over Plastic Concrete: Place the concrete and strike off using a vibratory screed. Fill float (bull float) immediately after strike off and before bleed water appears. After concrete bleed water has dissipated, darby or jitterbug surface to produce a mortar bed approximately 1/4 inch (6 mm) thick, measured from the top of the coarse aggregate. Using a tine bow rake, lightly score the concrete surface at right angles to a depth of approximately 1/8 inch (3 mm). (Caution shall be taken to not disturb coarse aggregate.) Raise the strike-off level of the vibratory screed to the specified final elevation of the concrete floor. The vibratory screed should be operating at approximately 1/4 speed. Place the freshly mixed emery concrete topping on the surface of the concrete immediately ahead of the vibratory screed. Care should be taken not to exceed the screed's capacity. The concrete topping should be approximately 1/8 inch (3 mm) above the bottom of the screed. Strike off the concrete topping with the vibratory screed.

\*\* NOTE TO SPECIFIER \*\* If coarse aggregate from the concrete starts to appear through the surface, lower the vibratory screed running speed or delay further placement of concrete topping until the concrete is less plastic.

* + 1. Use finishing machines to compact surface by a third mechanical floating if time and setting characteristics will allow. Use L&M E-CON to reduce plastic shrinkage cracks.
    2. As surface further stiffens, hand or mechanically trowel with raised blades to produce a dense, hard, wearing surface.
  1. CURING
     1. Application Over Pre-Set Concrete: Wet cure concrete topping for seven days, covering the slab with concrete curing cover materials or curing blankets. After seven days, remove cover curing, allow to dry and then continue curing with two coats of high solids, ASTM-C-1315 conforming L&M DRESS & SEAL WB 30 curing and sealing compound. Apply second coat immediately after the first coat has dried to touch, at right angles. Allow sealer to dry before opening to traffic.
     2. Application over Plastic Concrete: Cure with two coats of high solids, ASTM-C-1315 conforming L&M DRESS & SEAL WB 30 curing and sealing compound. Apply second coat immediately after the first coat has dried to touch, at right angles. Allow sealer to dry before opening to traffic.
  2. CONTROL JOINTS
     1. Saw cut control joints as soon as the surface permits the weight of the saw without causing topping edges to ravel. If the topping is placed over pre-concrete cut the joints through the topping and into the joints of the substrate concrete.
     2. After concrete has fully cured, fill joint wells with JOINT TITE 750, a two-component, polyurea control joint filler, according to manufacturer's recommendations.
  3. PROTECTION
     1. Cover floors and keep free of traffic and loads for a minimum of seven days after placement of heavy duty concrete topping

END OF SECTION