



Metalcrete Industries

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Specification for Metalpoxy Flooring - Iron Aggregate Epoxy Mortar for Heavy-Duty Wear and Impact

1.1 Summary of Work

A. Section Includes:

1.) This Section specifies an epoxy and iron aggregate specialty topping designed for floors subjected to increased impact, abrasion, and point-load gouging. The material should be factory proportioned, mixed, and packaged by the manufacturer. Metalpoxy Flooring is a multi-component system consisting of 100% solids epoxy and specially graded and selected iron aggregates.

2.) For use on new or existing concrete for both interior and exterior applications.

1.1.2. Related work described elsewhere in Section 3300.

1.2 Quality Assurance

1.2.1. Comply with requirements of standard specified herein and as listed in section _____.

1.2.2. Comply with the following codes, standards, and recommended practices:

ACI 301	Specification for Structural Concrete for Buildings
ACI-302	Guide for Concrete Floor and Slab Construction
ACI-304	Guide for Measuring, Mixing, Transporting, and Placing Concrete
ACI-305	Hot Weather Concreting
ACI-306	Cold Weather Concreting
ACI-318	Building Code Requirements for Reinforced Concrete
CRSI	Manual of Standard Practice

1.2.3. Qualifications of manufacturers: Products used in the work of this section shall be produced by a manufacturer with successful history of at least 25 years of supplying specialty high-strength floor toppings and be acceptable to the Architect / Engineer.

1.2.4. Qualification of contractors: Use adequate number of laborers and craftsmen who are thoroughly trained and experienced in the necessary skills and who are completely familiar with the specification requirements and the methods needed for proper performance of the work in this section. The contractor shall have a successful history of at least 10 years of installing industrial flooring systems and be acceptable to the Architect / Engineer.

1.3. Submittals

1.3.1. Comply with requirements of standard specified herein and as listed in section _____.

1.3.2. Manufacturers Data: Metalcrete Industries, Inc.
 4133 Payne Avenue
 Cleveland, Ohio 44103
 Phone: (440) 526-5600

1.3.3. Substitutions: Any request for product substitution must be submitted for review, with all necessary documentation, prior to time of bid. No request for substitutions will be considered after bid has been received.

1.3.4. Shop drawings for reinforcing steel and accessories prepared in accordance with ACI 315 - "Details and Detailing of Concrete Reinforcement".

1.3.5. Pre-Concrete Construction Conference: A meeting shall be held at the project-site with the architect, engineer, contractor, owner's representative, and specialty topping manufacturer to review placing techniques and finishing methods, required finishing equipment, testing and quality control assurance procedures.

2.1 Products

2.1.1 Iron Aggregate Epoxy Topping: "Metalpoxy Flooring" as manufactured by Metalcrete Industries, Inc., shall consist of 100% solids epoxy and specially graded and selected iron aggregate necessary to produce an extra heavy-duty, high-strength, abrasion resistant, impact resistant topping floor surface. The iron topping material shall be ready-to-apply over a properly prepared concrete surface. The material shall be packaged in 3-gallon units or 15-gallon units, along with the specified amount of specially graded iron aggregates, at the manufacturer's owned and controlled factory. The high-strength iron topping shall have a minimum compressive strength at 28 days of 14,000 psi in accordance with ASTM C 109. The high-strength iron topping shall be applied at a thickness between 0.25" and 0.75" as dictated by the Architect / Engineer.

2.1.2 Joint Filling Material: "Flexfill" or "Jointfill 302" as manufactured by Metalcrete Industries, Inc., shall exceed the performance requirements of ACI 302, Section 4.10. The joint filler shall be a two-component epoxy system.

3.1 Execution

3.1.1 Iron Aggregate Epoxy Topping Application: "Metalpoxy Flooring" shall be applied at a thickness between 0.25" and 0.75" as dictated by the Architect / Engineer. Mill, shot blast, or chip concrete down to proper elevation to sound concrete and to accommodate topping thickness. Remove all loose material and debris. Clean floor surface of all dust and dirt with compressed air. Make sure all concrete dust is removed from pore structure of concrete surface. Failure to properly clean the surface will prevent proper bond. Saw cut the perimeter of the repair area and key into the base concrete. All concrete surfaces must be primed with Diamite Epoxy Primer, as manufactured by Metalcrete Industries. Mix and apply material in accordance with printed instructions. Thorough blending of all Metalpoxy Flooring components is essential. Use a power drill with a Metco Jiffy mixing paddle. First, mix the binder separately, then, mix the activator separately. Next, add the mixed activator to the mixed binder at the rate of 2 parts binder to 1 part activator by volume and thoroughly blend for at least two minutes at revolution speeds that will not entrap air bubbles into the freshly mixed Metalpoxy Flooring liquids. After the binder and activator are completely mixed, add all the iron aggregate to the liquid compound and mix until all the aggregate is thoroughly coated with epoxy. The iron aggregate is added at the rate of 75 pounds per mixed gallon of liquid epoxy. Utilize a high-powered mortar mixer with an extremely strong drive mechanism. Properly mixed Metalpoxy Flooring will be a damp pack consistency. After the substrate has been primed, distribute the mixed Metalpoxy Flooring mortar onto the area to be overlaid. For smaller repairs, the mortar may be placed with a trowel or float. For larger repairs, it is good practice to use screed bars or rails to act as guides for screeding operations. Care should be exercised to leave the surface free of trowel marks, ridges, and other imperfections. A power trowel may be used to increase smoothness and surface density. Finish material immediately after placement.

3.2 Curing and Protection

3.2.1 For best results, Metalpoxy Flooring should be protected from moisture and traffic for at least 48 hours. Ideal cure temperature is 70°F (21°C).

3.3 Construction and Control Joints

3.3.1 Flexfill or Jointfill 302 as manufactured by Metalcrete Industries shall be applied into all construction and control joints. Place Flexfill or Jointfill 302 full depth of the joint to protection joint edges from spalling and impact.