



DIVISION 09 67 24.10 - EPOXY TROWEL-APPLIED FLOORING

1. GENERAL

1.1 SUMMARY

This specification covers the installation of a breathable, high-solids, trowel-applied, proprietary waterborne surfacing system designed specifically for applications where high slab moisture content or humidity is present or where damp conditions exist which would preclude the installation of a traditional epoxy coating or surfacing system. The system's resistance to wear, chemical attack, and thermal cycling make it an ideal choice for food processing, dairy, and pharmaceutical applications.

1.2 WORK INCLUDED

Furnish all labor and materials to prepare surface and install system in accordance with the following specifications.

1.3 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.4 DELIVERY, STORAGE, AND HANDLING

The materials shall be delivered to the job site in the original factory sealed containers bearing the product name, color, manufacturer's lot number, and precautionary labels. All products shall be manufactured or supplied by Polymerica, Inc. Materials are to be stored in a dry, enclosed area, protected from exposure to moisture, and maintained at a temperature between 60° F and 85° F.

1.5 INSTALLER QUALIFICATIONS

The installer shall be an established firm regularly engaged in the installation of polymeric flooring systems, with a minimum of five (5) years experience in successfully applying the same or similar systems. The installer shall be financially responsible, and able to supply references of jobs of a similar nature completed within the last five years. Where applicable, applicator shall be approved in writing by the materials manufacturer.

1.6 PROJECT CONDITIONS

- (a) Concrete substrate shall have cured a minimum of five (5) days prior to application and have sufficient strength to shotblast. If curing compounds have been used, they must be mechanically removed. Concrete shall be level to 1/8" in 10', have a steel troweled finish, and be free of grease or laitance.
- (b) General Contractor shall supply utilities including electric, water, and finished lighting. A minimum air and substrate temperature of 50°F (preferably 65°F - 75°F) shall be maintained during installation and curing.
- (c) Job area shall be free of other trades during installation and curing.

1.7 SUBMITTALS

The installer shall submit a finished sample of the product, color, and texture specified, along with complete product data, and Material Safety Data Sheets. All performance properties and cautions contained therein shall be considered part of this specification.

2. PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS / PRODUCTS

TrowelMaster PFS-250 Surfacing System as manufactured by Polymerica, Inc.
 White or Grey standard colors, custom colors available with restrictions.

2.2 DESCRIPTION / PROPERTIES

TrowelMaster PFS-250 Surfacing System shall be installed at a nominal 3/16" - 1/4" thickness consisting of (see Section 3 for details):

- (a) PFS Binder, a 98% solids breathable epoxy primer

COMPONENT PERFORMANCE CHARACTERISTICS	
Compressive Strength (ASTM C-579) @ 7 days	5,300 psi.
@ 28 days	5,800 psi.
Tensile Strength (ASTM C-307)	1,700 psi.
Flexural Strength (ASTM C-580)	2,800 psi.
Bond Strength (ACI Comm # 403)	350 psi. concrete fails
Thermal Coefficient of Expansion (ASTM D-696)	0.000025 inch
Thermal Shock Resistance (ASTM C-884)	passes
Water Absorption (ASTM C-413)	0.1%
Flammability (ASTM D-635)	Self-extinguishing
Impact Resistance (MIL D-3134F)	16 foot pounds concrete fractures
Indentation (MIL D-3134F)	No indentation
Hardness (Shore D, ASTM D-2240)	75 - 85
Abrasion Resistance (ASTM C-5178)	156 mg.
CS-17, 1 kg. load, 1,000 rev.	weight loss
Water Vapor Transmission (ASTM E96-95)	9.75 x 10 ⁻⁴
Water Vapor Permeance (ASTM E96-95)	6.67 x 10 ⁻⁷

- (b) TrowelMaster PFS, a trowel-applied, 98% solids, breathable epoxy surfacer

COMPONENT PERFORMANCE CHARACTERISTICS	
Compressive Strength (ASTM C-579) @ 7 days	5,834 psi.
@ 28 days	7,866 psi.
Tensile Strength (ASTM C-307)	1,524 psi.
Flexural Strength (ASTM C-580)	2,961 psi.
Bond Strength (ACI 503)	350 psi. concrete fails
Thermal Coefficient of Expansion (ASTM D-696)	0.000025 inch
Thermal Shock Resistance (ASTM C-884)	passes

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Water Absorption (ASTM C-413)	0.1%
Flammability (ASTM D-635)	Self-extinguishing
Impact Resistance (MIL D-3134F)	16 foot pounds concrete fractures
Indentation (MIL D-3134F)	No indentation
Hardness (Shore D, ASTM D-2240)	75 - 85
Abrasion Resistance (ASTM D-4060)	156 mg.
CS-17, 1 kg. load, 1,000 rev.	weight loss
Water Vapor Transmission (ASTM E96-95)	9.75×10^{-4}
Water Vapor Permeance (ASTM E96-95)	6.67×10^{-7}

(c) MasterShield WEC, a breathable water phase epoxy dress coat

COMPONENT PERFORMANCE CHARACTERISTICS	
Adhesion to concrete (ASTM D-4541)	350 psi. (concrete fails)
Hardness (Shore D, ASTM D-2240)	74 - 78
Abrasion Resistance (ASTM D-4060)	45 - 50 mg.
CS-17, 1 kg. load, 1,000 rev.	weight loss
Service Temperature	160°F (immersion), 185°F (dry heat)
Gloss 60°	90+
Solids Content	45.0 ± 1%
VOC	1.54 gal., 180 gm./liter

2.3 PACKAGING

All materials shall be factory weighed and packaged from a single source manufacturer.

2.4 SUBSTITUTIONS

No substitutions shall be allowed.

3. EXECUTION

3.1 EXAMINATION

With installer present, the substrate shall be examined for compliance with requirements for installation tolerances and other conditions affecting performance. (Reference Section 1.6) Proceed with installation only after unsatisfactory conditions including levelness tolerances have been corrected.

3.2 PREPARATION

- (a) **CONCRETE** - The concrete shall be prepared by mechanical means such as shot blasting or scarification with an integral dust collection system. Any spalled or deteriorated concrete shall be removed and filled back to the original surface with TrowelMaster MCG or TrowelMaster PFS. Consult Polymerica Bulletin SP-C for complete details.
Concrete may be damp, but with no puddles or water accumulation.
- (b) **CRACKS** - All cracks shall be routed out to 1/4" minimum in width and depth and filled with an elastomeric joint compound. Consult Polymerica Bulletin SP-D for details.
- (c) **CHASING** - All areas in which the installed overlayment does not abut against a vertical surface shall be chased. The chase shall be 3/4" wide with the outside edge chiseled to a straight saw cut with a minimum depth of 1/2".
Reference Polymerica Technical Bulletin SP-D for details.

3.3 INSTALLATION

- (a) **PRIMER** - Primer shall be TrowelMaster PFS Binder. Components shall be mixed according to manufacturer's directions, squeegee-applied, and backrolled with a short nap roller. Application rate shall be 150 - 175 square feet per mixed gallon (9 - 10 mils). Next step shall be performed while primer is still wet.
- (b) **SURFACER** - Surfer shall be TrowelMaster PFS. Components shall be mixed, screeded to desired height, and steel trowel-applied in strict accordance with instructions. For details, consult Product Data Sheet.
- (c) **DRESS COAT** - Dress coat shall be MasterShield WEC. Components shall be squeegee-applied, then back-rolled with a good quality short nap roller according to manufacturer's directions. Application rate shall be 5 mils WFT, or 300 square feet per mixed gallon.
- (d) **CLEAN-UP** -All trash and debris shall be properly disposed of and arrangements shall be made to remove all unused material from the job site.

3.4 DETAILS

- (a) **INTEGRAL COVE BASE** - Where specified, a cove base shall be installed integral with the floor in 2", 4", or 6" heights.
- (b) **EXPANSION AND ISOLATION JOINTS** - Where the flooring system covers an expansion or isolation joint in the substrate, installer shall sawcut a joint into the finished cured floor and fill with JointMaster EJC (substitute JointMaster PJC for service temperatures below 32°F) in accordance with manufacturer's directions. Where the flooring system covers non-working control joints, the above procedure shall be followed, and the joint filled with JointMaster CJC.

3.5 PROTECTION

The General Contractor shall be responsible for protection of the finished floor from damage by subsequent trades.

The preceding specifications have been prepared as a guideline for most applications. Product specification is of vital importance to the successful completion of a project. Should you have any questions, please call our Technical Department.

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