# SECTION 09-76-00 FLUID APPLIED RESINOUS FLOORING

# **BIO-CEM MF™ URETHANE CEMENT – STANDARD SPECIFICATION**

# PART 1 GENERAL

# RELATED DOCUMENTS

1. Drawings and general provisions of the project contract, including general and supplementary conditions and division 01 specification sections, apply to this section.
	1. SUMMARY
2. System Inquiries, specification support, bidding and any other related inquiries please contact: Resinwerks (720) 484-5160 , [www.resinwerks.com/contact](http://www.resinwerks.com/contact)
3. This section includes:
	1. Fluid Applied Seamless Flooring
	2. Joint, edge and termination strips
4. Related sections:
	1. Cast-In-Place Concrete, section 02-30-00
	2. Concrete Curing, section 03-39-00
	3. Joint Sealants, Section 079200
	4. Adjacent Floor Finishes: Division 9.
	5. SYSTEM DESCRIPTION
5. This system shall consist of the application of a fluid applied polyurethane concrete slurry at a nominal thickness of 3/16” that is then broadcast with kiln-dried sand/quartz to a thickness of .25”. The system shall be finished with either a polyurethane concrete top-coat or 2-component polyapartic aliphatic polyurea topcoat. The flooring system should have the appropriate color and finish texture as specified with a nominal thickness of approximately .25”. Substrate shall be prepared, and complete system shall be applied in accordance with manufacturer’s recommendations.
6. Where applicable, any cove base, joint or crack fill, etc shall be completed as per manufacturer’s recommendations.
	1. SUBMITTALS
7. Product Data Sheets: For each type of product indicated in system. Include manufacturer’s product technical data, system technical data and any related application instructions pertaining to the products.
8. Samples for initial selection: for each type of finish required
9. Samples for verification: for each resinous flooring system required: 6 inches x 6 inches applied to rigid backing by installer for this project.
10. Product Schedule: for resinous flooring
11. Approved Applicator: please contact Resinwerks directly to verify applicator status
12. Material Certificates: where applicable, require for each flooring component from resinous flooring manufacturer
13. Certified Testing: Submit two copies of written verification that products used meet or exceed specified system’s required properties.
14. Shop Drawings: Shop drawings shall be furnished showing installation of cove base and termination details as well as details relating to flooring material transitions.
	1. Identify and provide detail for flexible joints required in area of installation.
15. Environmental product data: where required by facility manager
16. Maintenance Data: submit current copies of the flooring manufacturer’s printed recommendations on maintenance methods and products.
	1. QUALITY ASSURANCE
17. Installer Qualifications: Manufacturer’s Approved Representative
	1. Select installer who has a minimum of 3-years’ experience and is approved by resinous flooring manufacturer as having acceptable experience in performing installation of specified system.
18. Primary materials used on the floor surfacing shall be the products of a single manufacturer unless otherwise approved.
19. Mockups: Prior to the commencement of work, installer shall provide a full-scale mock-up to establish acceptable quality, durability and appearance. Mock-ups may not be less than 4 square feet in size and should be completed in an area with lighting similar to that of the area to be finished.
	1. Mock-up will serve as the acceptable standard for the quality of work.
20. Qualifications: Installer must be acceptable to specifying officer and owner
21. Installer to maintain daily log of the date of installation, type, color and finish of resinous flooring system being installed. Log to be made available for inspection upon request.
22. Pre-Installation Conference: Conduct a pre-installation conference with specifier, owners representative, general contractor and resinous flooring installer to provide clarity to this specification, review application procedure, quality control, inspection, production schedule and any other topics related to the installation.
	1. PROJECT CONDITIONS
23. Maintain ambient room and floor substrate temperatures at 60ºF – 80ºF for a period of at least 72-hours prior to, during and following installation.
24. The humidity in the specific location to be coated shall be no more than 85% during application.
25. Applicator shall ensure there is adequate ventilation for the entire work area.
26. Lighting: Provide permanent lighting, or if permanent lighting is not in place, simulate permanent lighting conditions during the flooring application.
27. Close spaces to traffic during resinous flooring application and for a period no less than 24-hours following application or longer contingent on manufacturer recommendation. Advise other trades that flooring is not be disturbed until it is fully cured and protected.
28. Dew Point: Substrate temperature must be a minimum of 5ºF above dew point prior to, during and up to 24-hours following application. Avoid application in environments with increasing humidity levels.
29. Concrete shall be cured for a minimum of 28-days prior to the application of the coating system, unless incorporating manufacturer’s recommended vapor barrier primer. Reference manufacturer’s specific recommendations for moisture in concrete and associated requirements.
30. Concrete shall have a flat finish, float or light steel trowel. Hard or power-trowel finishes are not required nor desirable for resinous flooring. Sealers, densifiers and curing compounds should not be used.
31. On-grade concrete surfaces should be constructed with appropriate vapor barrier underlayment to help prevent moisture vapor transmission.
	1. PROTECTION & SAFETY
32. All adjacent surfaces not scheduled for application shall be properly masked off with tape, masking paper or by other means necessary.
33. Provide adequate ventilation and fire protection at all mixing and placing operations. Prohibit smoking or use of flame within 50-feet of any mixing or placing station.
34. Strictly adhere to all manufacturer’s recommended safety instructions.
35. Owner shall be responsible for removing any food or merchandise from the work area and surrounding spaces prior to application.
36. Non-work personnel shall not be allowed to enter the work area.
	1. PRODUCT DELIVERY, STORAGE & HANDLING
37. All materials shall be delivered to the project site in original manufacturer’s sealed containers including type of material, batch numbers, date of manufacture, and labels intact.
38. Store materials in a dry protected area at a temperature in between 60ºF and 80ºF
39. Closely adhere to all manufacturer’s recommended instructions as it pertains to safety practices and handling.
40. Applicator shall maintain product safety data sheets onsite at all times.
	1. WARRANTY
41. Resinwerks warrants that materials shipped to the buyer are free from material defects at the time of shipment and will perform as per manufacturer’s guidelines provided they are used within the specified shelf-life and in accordance with the manufacturer’s application guidelines.
42. Product defects occurring over the duration of the warranty period shall be repaired in a manner satisfactory to the owner and architect. Warranty Period: 1-year
43. Resinwerk’s liability is limited to the value of the material purchase.

# PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Basis of design product: subject to compliance with requirements.
2. System Description: Bio-Cem MF™ Polyurethane Concrete Flooring
	1. Heavy-duty three-component polyurethane concrete slurry application followed by a and/quartz broadcast, polyurethane concrete grout cat and final 2-compinent polyaspartic top-coat.
	2. Color / Texture: As selected by architect or owner’s representative
	3. Specifications and quality of design standard based on Resinwerks, LLC: (720) 484-5160, [www.resinwerks.com](http://www.resinwerks.com)
	4. MATERIALS:
3. Primer/Broadcast Coat: Resinwerks Bio-Cem MF™ polyurethane concrete slurry
4. Sand / Quartz Broadcast: Broadcast to refusal
5. Top Coat: Bio-Cem TC™ Polyurethane Concrete Top-Coat (pigmented)
6. Seal-Coat (2): Kinetic HS™ 2-Component Polyaspartic (pigmented)
	1. ACCESSORIES:
7. Patch & Fill:
	1. Resinwerks K-Patch™ Concrete Repair
	2. Resinwerks Semi-rigid Epoxy Joint Filler
8. Moisture Vapor Reduction: NOT APPLICABLE
9. Cove Base:
10. Resinwerks BIO-Cem CB™ Cove Base system

# PART 3 EXECUTION

3.1 PREPARATION

1. Obtain mock-up approval prior to installation of flooring system.
2. Inspect surface to be coated and verify that condition is smooth and free from any debris, contaminants or otherwise that will adversely impact the flooring system. Notify architect and owner in writing of any conditions deemed unsatisfactory for the proper installation of the flooring materials.
3. Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.
4. Retain first paragraph below for concrete substrates. Insert requirements for other substrates to suit Project.
5. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
6. Roughen concrete substrates as follows:
7. Retain one of first two subparagraphs below. See Evaluations.
	1. Mechanically profile surfaces with an apparatus that abrades the concrete surface to a concrete surface profile as specified by product technical data sheet.
	2. Comply with ASTM C 811 requirements unless manufacturer's written instructions are more stringent.
	3. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
8. Retain first subparagraph below for moisture testing. Excessive moisture vapor can cause adhesion failure of systems installed on slabs-on-grade. See "Moisture and Flooring Failures" Article in the Evaluations.
	1. Alkalinity and Adhesion Testing: Verify that concrete substrates have PH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
9. If applicable, insert, in first paragraph below, requirements for using patching and fill material to slope existing substrates to drains.
10. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
11. Some manufacturers use patching and fill material to fill control joints and other nonmoving cracks. Revise paragraph above or below to suit systems selected.
12. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.2 APPLICATION

* + - * 1. Maintain ambient room temperature of 60ºF – 80ºF for a minimum of 48 hours prior to application. All concrete shall be a minimum of 28 days cured and 7-days free of water.
				2. Dew Point: Substrate temperature must be a minimum of 5ºF above dew point with 24 hours prior right up to start of application.
				3. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum inter-coat adhesion.

Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

Retain subparagraph below for expansion or isolation joints in floor. Resinous flooring may require that flooring materials be placed over joints, cured, saw-cut and then resealed; verify procedure with manufacturer. Detail joints on Drawings and revise below to suit Project.

At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.

* + - * 1. Cove Base:

Retain first paragraph below for integral cove base. If retaining, insert requirements for installing metal or plastic cove caps if required.Apply Bio-CEM CB™ cover base as per manufacturer’s instructions at specified thickness.

Retain first paragraph below for self-leveling systems. If retaining, indicate thickness in Part 2 or insert below.

Retain first paragraph below for troweled or screeded systems. If retaining, indicate thickness in Part 2 or insert below.

* + - * 1. BaseBaBase Coat:
	1. Product Name: Bio-Cem MF™ polyurethane concrete slurry
	2. Resin: 3-component polyurethane concrete slurry
	3. Application Method: Gauge Rake and & Back-Roll
	4. Thickness of Coats: 3/16” (26 SF / kit)
	5. Number of coats: 1
	6. Full quartz / sand broadcast to refusal
		+ - 1. Top-Coat:

Product Name: Bio-Cem TC polyurethane concrete topcoat

Resin: 3-component spolyurethane concrete topcoat

Application method: Squeegee and back-roll

Thickness of coats: 20 mils (110 SF / kit)

Number of coats: 1

* + - * 1. Seal-Coat:

Product Name: Kinetic HS™

Resin: High Solids Polyaspartic Aliphatic Polyurea

Application method: Squeegee and back-roll

Thickness of coats: 8 mils (200 SF / gal)

Number of coats: 1

3.4. QUALITY CONTROL

* + - * 1. Core Sampling: At the direction of Owner and at locations designated by Owner, take one core sample per 1000 sq. ft. (92.9 sq. m) of resinous flooring, or portion of, to verify thickness. For each sample that fails to comply with requirements, take two additional samples. Repair damage caused by coring and correct deficiencies.

Retain paragraph below if size or nature of Project warrants material sampling. If retaining, revise to suit Project.

* + - * 1. Material Sampling: Owner may at any time and any number of times during resinous flooring application require material samples for testing for compliance with requirements.
	1. CLEANING & PROTECTION
1. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.
2. Remove all masking and perform cleaning where required.

END OF SECTION