SECTION 09 96 59
RESINOUS SPECIALTY GLAZED COATING SYSTEMS FOR WALLS, CEILINGS, WALLBOARD, (RES-W)

PART 1 - GENERAL

1.1 DESCRIPTION

A. Section includes surface preparation and application of high-performance seamless glazed wall coating system on new or existing surfaces including masonry CMU and wall board substrates.

1. Interior substrates:
   a. Concrete, vertical surfaces.
   b. Clay masonry.
   c. Concrete masonry units (CMU).
   d. Wall board substrates.

B. Wall systems consist of multi component epoxy and or urethane resins, primer base and finishing coats.

1.2 RELATED WORK

Color and room finish schedule: Section 09 06 00, SCHEDULE FOR FINISHES.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product to be provided.
2. Application and installation instructions.
3. Maintenance Instructions: Submit manufacturer’s written instructions for recommended maintenance practices.

C. Qualification Data: For Installer.

D. Sustainable Submittal:

1. Product data for field applied, interior, paints, coatings, and primers, include printed statement of VOC content indicating compliance with environmental requirements.

E. Samples:

1. Each color and texture specified in Section 09 06 00, SCHEDULE FOR FINISHES.
2. Samples for verification: For each (color and texture) resinous wall/ceiling system required, 6 inches (152 mm) square, applied to a rigid backing by installer for this project.

3. Sample showing construction from substrate to finish surface in thickness specified and color and texture of finished surfaces. Finished resinous coating must match the approved samples in color and texture.

F. Shop Drawings: Include plans, sections, component details, and attachment to other trades. Indicate layout of the following:
   1. Patterns.
   2. Edge configurations.

G. Certification and Approval:
   1. Manufacturer's certification of material and substrata compliance.
   2. Manufacturer's approval of installers.
   3. Contractor's certificate of compliance with Quality Assurance requirements.

H. Warranty: As specified in this section.

1.4 QUALITY ASSURANCE

A. Manufacture Certificate: Manufacture shall certify that a particular resinous coating for wall/ceiling system has been in use for a minimum of five years.

B. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.
   1. Field Technical Services Representatives shall be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.

C. Installer Qualifications: Engage an installer who is certified in writing by resinous product manufacturer, who is experienced in applying resinous coating for wall/ceiling systems similar in material, design, and extent to those indicated for this project for a minimum period of 5 years, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous coating for wall/ceiling manufacturer.

D. Source Limitations:
   1. Obtain resinous coating materials including primers, resins, hardening agents, grouting coats and finish or sealing coats from a single manufacturer.

E. Mockups: Apply mockups of each coating system indicated to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Architect will select one surface to represent surfaces and conditions for application of each coating system specified in Part 3.
      a. Wall and Ceilings provide samples of at least 100 sq. ft.
      b. Other Items: Architect will designate items or areas required.
   2. Test mock-up with anticipated chemicals to be used in the designated area.
   3. Approved mockups not damaged during the testing may become part of the completed work if undisturbed at time of Substantial Completion.
   4. Sign off from VA Resident Engineer on texture must be complete before installation of wall/ceiling system.
   5. Final approval of color selections will be based on mockups.
      a. Preliminary color selections are not approved; apply additional mockups of additional colors selected by Architect at no added cost to Owner.

F. Pre-Installation Conference
   1. Convene a meeting not less than thirty days prior to starting work.
   2. Attendance:
      a. Contractor
      b. VA Resident Engineer
      c. Manufacturer and Installer's Representative
   3. Review the following:
      a. Environmental requirements
         1) Air and surface temperature
         2) Relative humidity
         3) Ventilation
         4) Dust and contaminates
      b. Protection of surfaces not scheduled to be coated
      c. Inspect and discus condition of substrate and other preparatory work performed
      d. Review and verify availability of material; installer’s personnel, equipment needed
      e. Design and patterns and edge conditions.

f. Performance of the coating with chemicals anticipated in the area receiving the resinous coating system
g. Application and repair
h. Field quality control
i. Cleaning
j. Protection of coating systems
k. One-year inspection and maintenance
l. Coordination with other work

1.5 MATERIAL PACKAGING DELIVERY AND STORAGE

A. Deliver materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number, date of manufacture and mixing/thinning instructions.
B. Protect materials from damage and contamination in storage or delivery, including moisture, heat, cold, direct sunlight, etc.
C. Maintain temperature of storage area between 60 and 80 degrees F (15 and 26 degrees C).
D. Keep containers sealed until ready for use.
E. Do not use materials beyond manufacturer’s shelf life limits.
F. Package materials in factory pre-weighed and in single, easy to manage batches sized for ease of handling and mixing proportions from entire package or packages.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous wall/ceiling manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous wall/ceiling applications.
   1. Maintain material and substrate temperature between 65 and 85 degrees F (18 and 30 degrees C) during resinous wall/ceiling application and for not less than 24 hours after application.
B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous wall/ceiling application.
C. Close spaces to traffic during resinous wall/ceiling application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

1.7 WARRANTY

B. Warranty: Manufacture shall furnish a single, written warranty covering the full assembly (including substrata) for both material and workmanship for a extended period of (3) full years from date of installation, or provide a joint and several warranty signed on a single document by manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (3) full years from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

1.8 APPLICABLE PUBLICATIONS

A. The publication listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

C412 (2013).....Vulcanized Rubber and Thermoplastic Elastomers—Tension

D2240 (2010).....Rubber Property—Durometer Hardness

D4060(2010).....Abrasion Resistance of Organic Coatings by the Taber Abrader

E84 (2013).....Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes

C. Chemical Resistance in accordance ASTM D1308 - 02(2007) “Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes”. ASTM International, West Conshohocken, PA, 2006, DOI: 10.1520/D1308-02R07, www.astm.org. No effect to the following exposures:

1. Acetic acid (5%)
2. Ammonium hydroxide (10%)
3. Citric Acid (50%)
4. Fatty Acid
5. Motor Oil, 20W
6. Hydrochloric acid (20%)
7. Sodium Chloride
8. Sodium Hypochlorite (10%)
9. Sodium Hydroxide (30%)

10. Sulfuric acid (25%)
11. Urine, Feces
12. Hydrogen peroxide (10%)

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION (RES-W)

A. Epoxy resinous wall system includes: High performance, high solids, high gloss pigmented wall system consisting of two component epoxy primers, and base coats. Optional: aliphatic polyurethane sealer finish coat for higher UV stability, and chemical resistance. Formulated for long service, cures to a hard tile like finish.

B. System Characteristics.
   1. Color and pattern: As indicated on drawings.
   2. Wearing Surface: Smooth
   3. Overall System Thickness: 8-10 mils.

C. System Components: Manufactures standard components that are compatible with each other including primer, sealer, and finish coats as standard with manufacture of resinous system and as follows:
   1. Primer Formulation Description: Multi-component 100% solids epoxy.
   2. Body Coat:
      a. Resin: Epoxy.
      b. Formulation Description: Two component 100% solids.
      c. Application Method: Dip and roll.
      d. Coats: One.
      e. Thickness: 10 mils (wet).
   3. Sealer Finish Coat:
      a. Resin: epoxy
      b. Formulation Description: Two Component 100% solids
      c. Type: clear
      d. Finish: Gloss
      e. Number of coats: One or two
      c. Application Method: back roll nap roller.
         Optional 100% solids urethane for UV and increased chemical protection.

D. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction.

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers: 200 g/L.

2.2 SPECIAL WALL COATING SYSTEM.

A. Physical Properties of flooring system when tested as follows:

Property	Test	Value
Hardness	ASTM D2240	80-85
Abrasion Resistance	ASTM D4060	0.03 gm maximum weight loss
Fire Resistance of dry film	ASTM E84	Class A
Temperature Limitations	Continuous exposure Intermittent exposure	140˚F/60˚C 200˚F/93˚C
VOC		< 50 G/L
Bond Strength		100% to Substrate Failure

2.6 SPECIAL WALL COATING SYSTEM.

A. Physical Properties of flooring system when tested as follows:

Property	Test	Value
Hardness	ASTM D2240	70
Elongation	ASTM D412	200%
Tensile Strength	ASTM D412	1200 psi
Abrasion Resistance	ASTM D4060 (CS-17 Wheel)	0.03 gm maximum weight loss
Fire Resistance of dry film	ASTM E84	Class B Flame Spread 40 Smoked developed 115
Temperature Limitations	Continuous exposure Intermittent exposure	140˚F/60˚C 200˚F/93˚C
VOC		< 50 G/L
Bond Strength		100% to substrate failure

2.7 ACCESORY MATERIALS

A. Patching and Fill Material: Resinous product of or approved by resinous manufacturer for application indicated.

PART 3 – EXECUTION

3.1 EXAMINATION

A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide

clean, dry, and neutral Ph substrate for resinous wall coating application.

B. Clean sub-surface of all contaminants.

C. Examine surfaces for defects that cannot be corrected by procedures specified herein.

D. Any wall board application must have a (1) one, (2) two, or (3) three finish level. With an appropriate spackle compound. Finish Level (4) four, or (5) five is not acceptable and result in wall system failures, due to gypsum mud poor cohesive strengths.

E. Concrete block walls (CMU) must be given sufficient time for the mortar to fully cure. Excess mortar and any residual laitance or debris must be removed by mechanical means prior to installing Stonglaze.

F. Formed or poured concrete walls must be prepared by mechanical means to remove any laitance or efflorescence and provide a sandpaper texture suitable for bonding.

G. Commencement of application implies acceptance of surface conditions.

3.2 PROJECT CONDITIONS

A. Maintain temperature of materials above 21°C (70 degrees F), for 48 hours before installation.

B. Maintain temperature of rooms where work occurs, between 21°C and 32°C (70°F and 90°F) for at least 48 hours, before, during, and 24 hours after installation. Maintain temperature at least 21°C (70 degrees F) thereafter.

C. Do not install materials until building is permanently enclosed and wet construction is complete, dry, and cured.

D. Area free of other trades during and for a period of 24 hours after installation.

3.2 INSTALLATION REQUIREMENTS

A. The respective manufacturer's instructions for application and installation will be considered for use when approved by the Resident Engineer.

B. Submit proposed installation deviation from this specification to the Resident Engineer indicating the differences in the method of installation.

3.3 PREPARATION

A. General: Prepare and clean substrates according to manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral Ph substrate for resinous application.

B. Substrates: Provide sound surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible.

1. Prepare substrates as follows:
   a. Mechanically sand or hand grind if previously applied coating is present.
   a. Comply requirements of manufacturer's written instructions.
2. Repair damaged and deteriorated substrate according to manufacturer's written recommendations.
3. Verify that substrates are dry.

C. Resinous Materials: Mix components and prepare materials according to manufacturer's written instructions.

D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

3.4 APPLICATION

A. General: Apply components of resinous wall system according to manufacturer's written instructions to produce a uniform, monolithic surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous system to substrate, and optimum inter-coat adhesion.
2. Cure resinous components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

B. Apply Primer: over prepared substrate at manufacturer's recommended spreading rate.

C. Base coat(s): Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, and troweling, sanding, and top coating.

E. **Topcoat**: Mix and roller apply the topcoat(s) with strict adherence to manufacturer's installation procedures and coverage rates.

3.5 CURING, PROTECTION AND CLEANING

A. Cure resinous materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process.

B. Close area of application for a minimum of 24 hours.

C. Protect resinous materials from damage and wear during construction operation.

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