SECTION 09965

EPOXY WALL COATINGS (ERC-2)

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for furnishing and installing epoxy wall coating system (ERC–2) where scheduled. Epoxy wall coating system consist of undercoats, fillers, primers, body coat, vinyl flakes, and finish coats.

B. Related Sections:

1. Room mock-up is specified in Section 01430.
2. Joint sealants are specified in Section 07920.
3. Resinous flooring (ERC-1) is specified in Section 09676.
4. Epoxy paint is specified in Section 09900.

1.02 REFERENCE STANDARDS

A. Leadership in Energy and Environmental Design (LEED), www.usgbc.org/LEED (United States Green Building Council (USGBC).

1. LEED – NC v2.2 Reference Guide, first edition, dated December 2006.

1.03 SUBMITTALS

A. Refer to Section 01352 – LEED Requirements for LEED related submittal requirements.

B. Product Data: Furnish manufacturer's technical data, installation instructions, and general recommendations for each material required. Include certification indicating compliance of materials with requirements.

C. Samples: 12-inch square samples showing approximate applied thickness, color, texture, and special conditions. Make modifications as directed by the Architect until sample is approved.

D. Maintenance Instructions: Furnish manufacturer's printed instructions for maintenance of epoxy wall coating, including methods and frequency recommended for maintaining. Include precautions against materials and methods that may be detrimental to finishes and performance.

1.04 QUALITY ASSURANCE

A. Materials: Provide epoxy wall coating materials produced by a single manufacturer capable of showing prior successful production and installation of specified materials for not less than 10-years.

B. Applicator: Approved by the materials manufacturer, with a minimum of 5 Projects of similar size and complexity.

C. Pre-Installation Conference: Arrange a meeting not less than 30-days prior to starting work. Attending shall be Contractor, Architect, and manufacturer/installer.

1.05 ENVIRONMENTAL QUALITY ASSURANCE

A. Epoxy coatings shall comply with the VOC limits of Green Seal GS-11 as follows:

1. Flat Paint: Maximum 50 g/L.

2. Non-Flat Paint: Maximum 150 g/L.

B. Primers shall comply with the VOC limits of South Coast #1168. Maximum VOC limit is 250 g/L.

C. Applicable LEED Credits – Refer to Section 01352:

1. Credit EQc4.2 – Paints and Coatings.

1.06 JOB CONDITIONS

A. Proceed with work only after substrate construction and penetrating work have been completed.

B. Proceed with installation when conditions will permit work to proceed in accordance with manufacturer's recommendations.

C. Do not permit smoking, open flame, or spark producing equipment in areas of application.

D. Provide for continuous ventilation during installation, using as close to 100-percent outside air as possible.

1.07 WARRANTY

A. Warranty epoxy wall coatings to be free from defects in materials and workmanship for a period of 3-years from Date of Substantial Completion. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contract under the Contract Documents.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

A. BASF Building Systems, Inc. "Selbaglass FF Wall System", Stonehard VSD, modified with vinyl flakes or approved equal to match approved sample and mock-up.

1. Epoxy wall coating and resinous flooring (ERC-1) specified in Section 09676 shall be by the same manufacturer.

2.02 MATERIALS

A. Material: Fiberglass reinforced epoxy wall coating system incorporating vinyl flake and chemical resistant clear aliphatic urethane topcoats.

B. Color: As selected by Architect from manufacturer's standards.

C. Miscellaneous Materials:

1. Joint Sealant Materials: Type produced by epoxy wall coating manufacturer for type of service and joint condition indicated.

2.03 PHYSICAL PROPERTIES

A. Epoxy wall coating system exclusive of block filler shall comply with the following minimum test standards:

Solids	95%
Adhesion, ASTM C882	255-psi
Moisture Vapor Transmission, ASTM E96	0.4 perms
Abrasion, ASTM D4060	.087 grams loss
Impact Resistance, MIL-D-3134	No chipping, cracking or delamination
Hardness, Shore D	85
Fiberglass Nondirectional matte	0.12-oz./sq. yd.

B. Epoxy wall coating shall show no chemical attack when tested in accordance with ASTM D1308 for 7-days against the following reagents and concentrations noted.

Acetate acid 20%	Ammonium hydroxide 30%
Benzene	Butyl alcohol
Chlorine, 5000 ppm in water	Citric Acid
Formaldehyde 37%	Sodium Chloride
Sodium hydroxide 16%	Xylene
Nitric Acid 40%	Sodium hydroxide 50%
Soldium hypochlorite 5000 ppm	Lactic Acid 50%

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Examine areas and conditions under which epoxy wall coating work is to be applied and notify the Architect in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Architect.

B. Report in writing surfaces left in improper condition by other trades. Application will constitute acceptance of surfaces.

3.02 PREPARATION

A. Prepare surfaces as required, in accordance with manufacturer's printed instructions.

B. Clean and correct defects in substrate surfaces before applying epoxy wall coatings.

C. Cementitious and Cement Plaster: Remove dust, dirt, loose and other foreign material. Fill hairline cracks, holes and other defects with filler and undercoat as recommended by manufacturer of epoxy wall coating and sand smooth.

D. Masonry Block Remove mortar lumps, dust, dirt, loose and other foreign material. Fill hairline cracks, holes and other defects with filler compatible with finish.

E. Masking: Mask surfaces that require protection.

3.03 INSTALLATION

A. Comply with epoxy wall coating manufacturer's instructions.

B. Concrete Block Filler: Mix in accordance with manufacturer's recommendations. Apply at a rate to completely obscure block surface and mortar joints. Sand smooth. Repeat as required to achieve uniform surface.

C. Primer/Basecoat: Mix in accordance with manufacturer's recommendation. Apply to prepared surfaces by brush or roller. Materials shall be applied in a single application at a minimum dry film thickness of 8-mils, exclusive of undercoats.

D. Receiving Coat for Fiberglass: Mix in accordance with manufacturer's instructions. Apply receiving coat at a rate of 8-mils minimum. Immediately lay fiberglass into wet epoxy receiving coat. Apply additional epoxy material to fiberglass to completely saturate surface.

E. Allow to dry. Sand surface to leave smooth finish, eliminating any protruding strands of fiberglass prior to applying topcoats. Apply topcoat at a minimum 8-mils dry film thickness to obscure fiberglass, and immediately introduce decorative flake onto the surface. For the purposes of this system, use "Microflake" or 1/16-inch size decorative flake.

F. Allow to cure. Sand if necessary prior to final topcoat.

G. Chemical Resistant Polyurethane Finish: Mix in accordance with manufacturer's recommendations. Finish shall be uniformly applied by brush or roller in two applications at a minimum dry film thickness of 3.5-mil per coat.

H. Apply materials at not less than the manufacturer's recommended spreading rate to provide a total finish dry film thickness of 35-mils, including fillers or primers.

3.04 CLEANUP

A. Remove waste materials, rubbish and debris and dispose of them off the Project site. Leave work areas in a clean condition.

3.05 PROTECTION

A. Protect the completed work from water, airborne particles or other surface contaminants until cured, tack free, approximately 18- to 24-hours after application.

B. Protect completed system from physical abuse for approximately 72-hours. Protect completed system from chemical exposure until thoroughly cure, approximately 7-days.

3.06 FIELD QUALITY CONTROL

A. The Owner retains the right to invoke the following material testing procedure at any time, and any number of times during epoxy wall coating application.

B. The Owner will engage service of an independent testing laboratory to sample materials being used on the Project. Samples of material will be taken, identified and sealed, and certified in presence of Contractor.

C. Testing laboratory will perform tests for any of characteristics specified, using applicable testing procedures.

D. If test results show materials being used do not comply with specified requirements, the Owner or Architect may direct Contractor to stop work, remove non-complying materials; pay for testing; reapply epoxy wall coating materials to properly prepared surfaces that had previously been coated with unacceptable materials.

3.07 WASTE MANAGEMENT

A. Set aside extra paint for future color matches, or reuse by Owner, Habitat for Humanity, etc. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.

B. Close and seal tightly all partly used paint and finish containers and store protected in well-ventilated fire-safe area at moderate temperature.

C. Place empty containers of solvent based paints in areas designated for hazardous materials.

D. Do not dispose of paints or solvents by pouring on the ground. Place in designated containers for proper disposal.

END OF SECTION

SECTION 09968

GRAFFITI-RESISTANT COATINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Section Includes: Graffiti-resistant coatings on exterior board formed concrete surfaces and decorative concrete block where indicated.

B. Related Sections:

1. Cast-in-place concrete is specified in Section 03300.

2. Concrete unit masonry is specified in Section 04220.

1.02 SUBMITTALS

A. Product Data: Manufacturer's product literature.

B. Samples: Minimum 8-inch square samples of each color of coating after for verification purposes after initial color selection has been made.

C. Certification: Duplicate copies of manufacturer's affidavit with each shipment of materials delivered to the Project site certifying that materials furnished comply with specified requirements.

D. Sample Panel: Apply specified graffiti-resistant coatings on approximately 10-square feet of wall area where directed by the Architect. Obtain Architect's approval before proceeding with coating application. Approved sample shall be used as a standard for the Project.

E. Maintenance Materials and Instructions:

1. Furnish one identified unopened 5-gallon container of each coating used, and one 5-gallon container of cleaning agent to be used for graffiti removal.

2. Coating and cleaning agent shall not be used for re-coating of touching-up damaged surfaces before final acceptance of the work.

3. Furnish Owner with instructions for graffiti removal and maintenance instructions.

1.03 QUALITY ASSURANCE

A. Applicator shall be certified by the coating manufacturer for application of graffiti-resistant coatings of the type required for this Project.

B. Graffiti-resistant coating shall be approved by the City of Palm Springs.

1.04 PERFORMANCE REQUIREMENTS

A. Provide graffiti-resistant coating system complying with the following:

1. Permanent coating system. Coating shall not require re-application regardless of number of graffiti taggings during the life of the 10-year performance warranty period.

2. Show no signs of deterioration or change of appearance after graffiti removal during the warranty period. No ghosting, staining or shadowing.

3. Capability of removing 100-percent of all types of paint and graffiti materials from treated surfaces without damaging the coating of the substrate.

4. Upon graffiti removal, no evidence of graffiti shall remain.

5. Capable of withstanding a minimum of 120 over the cleaning cycles over the same area without measurable coating deterioration.

6. Shall not increase dirt pick-up of substrate.

7. Meet the following test results for the following chemicals:

a.	MEK	No effect after 5-days.
b.	Carboxylic Acid	No effect after 5-days.
c.	75% Phosphoric Acid	No effect after 5-days.
d.	37% HCL	3 hours blister.
e.	50% Sulfuric Acid	No effect after 5-days.
f.	20% NIT	68 hours blister.

1.05 JOB CONDITIONS

A. Environmental Requirements: Comply with coating manufacturer's recommendations for environmental conditions regarding coating application. Do not apply coating in areas where dust is being generated.

B. Provide drop cloths, shields, barricades and other protection necessary to safeguard adjacent surfaces not to be painted. Post signs immediately after coating application.

C. Provide and maintain protection as required to protect finished work from damage until final acceptance.

1.06 WARRANTY

A. Warrant graffiti-resistant coatings to be free from defects in materials and workmanship for a period of 10-years from date of Substantial Completion. Graffiti-resistant coatings shall continue to repel graffiti after repeated cleaning during the 10-year warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

1.06 EXTRA MATERIALS

A. Furnish extra graffiti removal materials in quantity equal to 12 16-ounce bottles. Package materials in unopened, factory-sealed containers for storage and identify with labels describing contents.

B. Deliver materials and an inventory list just prior to Substantial Completion and store where directed by Owner.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

A. American Polymer Corporation "Graffiti Solution System" (GSS) or approved equal.

2.02 GRAFFITI-RESISTANT COATINGS

A. Provide materials that comply with local Air Quality Management District's VOC classification.

B. Coatings shall meet the following requirements:

1. ASTM B117 and ASTM D714 (salt spray minimum acceptable of 8000 hours).

2. ASTM D530 (hardness).

3. ASTM D412 (tensile strength and elongation).

4. ASTM D522 (pass 3/8 inch mandrel).

5. ASTM D968 (abrasion test).

6. ASTM E96 (vapor transmission).

7. Water clear, non-yellowing, free of waxes and urethanes.

8. Non-toxic, non-flammable, biodegradable, with a PH 7 to 8.5.

9. Shall allow moisture vapor transmission.

C. Undercoating: GSS Barrier; water-based undercoating used as a sealer over porous surfaces.

D. Topcoating: GSS-10; permanent anti-graffiti top coating.

1. Finish: Matte.

2. Color: Clear.

E. Graffiti Remover: GSS Erasol; non-caustic, biodegradable and recyclable, allowing graffiti removal without the use of blasting equipment, hot water, or high-pressure wash equipment.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions under which graffiti-resistant coatings will be applied.

1. Apply coatings only after unsatisfactory conditions have been corrected and surfaces to receive coatings are thoroughly dry.

B. Review other Sections where primers or coatings are provided to ensure compatibility of total systems for various substrates.

1. If potentially incompatibility of primers applied by others exists, obtain the following from the primer applicator before proceeding:

a. Confirmation of primer's suitability for expected service conditions.

b. Confirmation of primer's ability to be top coated with specified materials.

2. Notify the Architect of anticipated problems before proceeding with application.

3.02 PREPARATION

A. Remove plates, machined surfaces, and similar items in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before coating.

B. Cleaning: Before applying coatings, clean substrates of substances that could impair bond of coatings. Remove oil and grease before cleaning. Schedule cleaning and coating application so dust and other contaminants from cleaning process will not fall on wet newly coated surfaces.

C. Surface Preparation: Clean and prepare surfaces to be coating according to manufacturer's instructions for each substrate condition.

1. Provide barrier coats over incompatible primers or remove primers and re-prime substrate.

2. Cementitious Substrates: Prepare concrete masonry, cement plaster and concrete surfaces. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods to prepare surfaces. Do not coat surfaces if moisture content exceeds manufacturer's maximum.

3. Metal Substrates: Clean ferrous metal surfaces that have been shop coated. Remove oil, grease, dirt, and other foreign substances.

D. Material Preparation: Mix and prepare coating materials in accordance with manufacturer's instructions.

1. Maintain containers used in mixing and applying coatings in a clean condition, free of foreign materials and residue.

2. Stir materials before applying to produce a mixture of uniform density. Sir as required during application.

3.03 APPLICATION

A. Apply coatings according to manufacturer's written instructions.

1. Use applicators and techniques best suited for the material being applied.

a. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.

b. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until coating has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat does not cause under-coat to lift or lose adhesion.

B. Application over Cementitious Surfaces:

1. Base: Minimum of 2 coats or as required to achieve a pinhole free surface, of specified barrier coating, 3- to 4-mils minimum dry film thickness.

2. Finish: Minimum 2 coats of top coating, 3- to 4-mils minimum dry film thickness or as required to comply with specified warranty requirements.

C. Application over Primed Metal Surfaces:

1. Finish: 2 coats of top coating, 3- to 4-mils minimum dry film thickness.

D. Completed Work: Match approved samples and mock-up for color, texture and coverage. Remove, refinish, or recoat work that does not comply with specified requirements.

3.04 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coatings are being applied:

1. Owner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of the Contractor.

2. Testing agency will perform appropriate tests for the following characteristics as requested by the Owner:

a. Quantitative materials analysis.

b. Absorption.

c. Accelerated weathering.

d. Accelerated yellowness.

e. Alkali and mildew resistance.

f. Abrasion resistance.

g. Washability.

3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Remove non-complying coating materials from the Project site, pay for testing, and recoat surfaces coated with rejected materials. If necessary, remove rejected materials from previously coated surfaces if, on recoating with specified materials, the two coatings are not compatible.

B. Demonstration: Apply alkyd-based graffiti to a 2-foot square treated area selected by the Architect. Allow graffiti to remain on surface for a minimum of 5-days and demonstrate complete removal in the presence of the Architect.

3.05 CLEANING

A. Cleanup: At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from the Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.06 PROTECTION

A. Protect adjacent work against damage from coating operation. Correct damage by cleaning, repairing, replacing and recoating as approved by the Architect, and leave in an undamaged condition.

B. Provide "wet paint" signs to protect newly coated finishes. After completing coating operations, rem9ove temporary protective wrappings.

C. Touch-up and restore damaged or defaced coated surfaces.

END OF SECTION

SECTION 09985

FIBERGLASS-REINFORCED PLASTIC WALL PANELS (FRP)

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section describes the requirements for furnishing and installing fiberglass reinforced plastic coated wall panels (FRP).

B. Related Sections:

1. Joint sealants are specified in Section 07920.

1.02 REFERENCE STANDARDS

A. Leadership in Energy and Environmental Design (LEED), www.usgbc.ord/LEED United States Green Building Council (USGBC).

1. LEED – NC v2.2 Reference Guide, first edition, dated December 2006.

1.03 SUBMITTALS

A. Refer to Section 01352 – LEED Requirements for LEED related submittal requirements.

B. Product Data:

1. Recycled Content: Furnish product data on post-consumer recycled content and post-industrial recycled content as a percentage of the full product composite.

2. Regional Materials: Furnish product data or letter stating the location (closest city, state) where product was manufactured (final processing or assembly) and, if available, the location where raw materials were harvested, extracted or recovered (mine, quarry, plantation, forest, recycling recovery center, etc.).

3. Furnish MSDS sheets or other proof of VOC compliance for adhesives.

1.04 ENVIRONMENTAL QUALITY ASSURANCE

A. Maximum VOC content of adhesives shall not exceed 50 g/L.

B. Applicable LEED Credits – Refer to Section 01352:

1. Credit EQc4.1 – Adhesives and Sealants.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Provide factory wrapping, packaging, and other means necessary to prevent damage or deterioration during shipment, handling, and storage.

B. Maintain protective coverings in place and in good repair until removal is necessary.

C. Store products inside enclosed storage facilities or closed building, supported above grade and slabs-on-grade.

D. Maintain storage spaces and products in dry condition within temperature extremes recommended by manufacturer.

E. Follow special instructions of manufacturer.

PART 2 - PRODUCTS

2.01 FRP WALL PANELS

A. Approved Manufacturers: Kemlite "Fire-X Glasbord", Allied Resinous Products, Inc. "Permaclean", Sequentia "Structoglas" or approved equal.

B. Color: As selected by the Architect.

C. Typical Field Size: 48-inches wide x height indicated, 0.09-inch thick.

D. Adhesive: Waterproof adhesive as recommended by panel manufacturer for installation conditions. VOC content of adhesive shall not exceed 100-g/l.

E. Moldings:

1. Top Edge: Aluminum molding with clear anodized finish.

2. Vertical Joints: PVC, color to match panels.

3. Provide inside corners, outside corners, edging, division strips, and base molding.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panels in accordance with panel manufacturer's instructions using moldings and adhesive.

B. Before installing panels in moldings, fill grooves in moldings with silicone sanitary sealant specified in Section 07920.

3.02 COMPLETION

A. When complete, panels shall be securely adhered to substrates and moldings shall be plumb and level.

B. Exposed surfaces shall be clean and free from scratches, dents, tool marks, stains, discoloration, fingerprints, and other defects and damage.

END OF SECTION