SECTION 09965 – ABRASION RESISTANT COATINGS/PRIMERS

PART 1 GENERAL

1.01 SUMMARY

A. A high performance, two-component, 100% solids epoxy for protecting interior concrete floors. Complies with VOC/VOS Rules and Regulations and L.A. Rule 66.

1.02 PERFORMANCE REQUIREMENTS

A. Chemical Resistance: Excellent chemical resistance to 30% Hydrochloric Acid (Muriatic), Ethylene Glycol (Antifreeze) and Jet Fuel (JP-4) with no adverse effects, based on 7 day spot testing on concrete.
B. See Section 2.02 Chemical Resistance for additional performance requirements.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product data, including physical properties, chemical resistance, surface preparation and application instructions.
B. Submit product test results of sample test area, already applied at AASF, Building No. 152.
B. Submit list of five projects similar in nature, which have been installed by applicator during the last five years, identified with project name, location, name of owner's representative, their phone number and date.
C. Submit manufacturer's standard warranty and applicator's warranty.

1.04 QUALITY ASSURANCE

A. Applicator Qualifications:

1. A minimum of three years experience in the application of coatings or resurfacers to concrete floors.
2. A minimum of ten jobs or 1,000,000 square feet of successful applications.
3. Approved MPE applicator.

B. Pre-Application Meeting: Convene a pre-application meeting 2 weeks before the start of application of floor coating system. Require attendance of parties directly affecting work of this section, including the Contractor, Architect, Applicator and Manufacturer's Representative. Review the surface preparation, application, cleaning, protection and coordination with other work.

C. Single Source Responsibility

1. Obtain Abrasion Resistant Coating materials including primers, base coat, and finish coats from a single manufacturer.

D. Test Area

1. Clean and repair test area in accordance with project requirement.
2. Perform moisture test to confirm acceptance of moisture levels. Test shall be performed in accordance with ASTM E1907.
3. Apply ECO-MPE to the entire space as a base primer, application shall be consistant with the 3 LB to 8 LB of water vapor requirement. ECO-MPE primer shall be installed in strict compliance with manufacturer's requirements.

1.05 PROJECT CONDITIONS

A. Maintain substrate temperature and room temperature before, during and after installation in compliance with flooring manufacturer's instructions. Provide adequate ventilation during application and curing periods.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Store materials in accordance with manufacturer's instructions.

1. Store materials in dry, enclosed area with adequate protection from moisture.
2. Keep containers sealed until ready for use.
3. Storage Temperature: 65˚F (18˚C) and 90˚F (32˚C).

1.07 WARRANTY

A. Provide three (3) year application and material warranty.

PART 2 PRODUCTS

2.01 MATERIALS

A. The following manufacturer products shall be used as a basis for performance and quality requirements.
B. Coating: ECO-MPE™.

1. Volatile Organic Compound (VOC), ASTM D3960
    1. 0 lb/gal or 0 g/L
2. Tensile Strength, ASTM D2370
    1. 8,000 psi or 55,200 kPa
3. Percent Elongation, ASTM D2370
    1. 5%

C. Cleaners and Related Products:

1. ECO-Prep mechanical stripping machine.
2. Industrial Grease Remover: Tennant Detergent
    1. Tennant detergents are available in a range of formulations which remove a variety of soilage.
3. Cleaner/Remover: Tennant 531/528 Cleaner/Remover
    1. High flash naphtha solvent, curing membrane remover
4. Remover: Tennant 510 Remover
    1. Methylene chloride based
5. Cleaner/Etchant: Tennant 409 Pre-Kote Cleaner or equivalent Tennant etchant for use by Tennant Authorized Contractor.
    1. Blend of buffered acids and emulsifiers.

2.02 TECH DATA

Eco-MPE™ -- Multi-Purpose Epoxy

Material Properties (Liquid)

Property	Test Method	Results
Flash Point, *°F (°C)* Seta Closed Cup	ASTM D3278	Part A - >200 (93) Part B - >200 (93)
Percent Solids, *by wt*	ASTM D2369	Part A - 100 Part B - 99.62
Density, *lb/gal (kg/L)*	ASTM D1475	Part A - 9.22 (1.11) Part B - 8.44 (1.01) Mixed - 8.96 (1.07)
Shelf Life	Minimum 1 year	
Viscosity, *cps* Brookfield	ASTM D2196	Part A - 700-1000 Part B - 350-550 Mixed - 500-700
Volatile Organic Compound - VOC *lb/gal (g/L)*	ASTM D3960	Mixed A+B 0 (0)

Cured Coating Properties (Dry Film)

Property	Test Method	Results
Abrasion Resistance, *mg loss** Taber Abraser	ASTM D4060*	83
Coefficient of Friction - COF James Friction Tester	ASTM D2047	0.59-0.62
Tensile Strength, *psi (kPa)*	ASTM D2370	8,000 (55,200)
Percent Elongation	ASTM D2370	5
Shore D Hardness	ASTM D2240	80-85 @ 0 sec 75-80 @ 15 sec

*ASTM D4060, CS-17 Taber Abrasion Wheel (1,000 gram load, 1,000 revolutions)

Application Characteristics

Per Manufacturer’s requirements for type of application.

Chemical Resistance

		1 Day	7 Days
Acids, Inorganic	10% Hydrochloric Acid	E	E
	30% Hydrochloric Acid (Muriatic)	E	E
	10% Nitric Acid	E	G
	50% Phosphoric Acid	F	P
	37% Sulfuric Acid (Battery Acid)	G	G
Acids, Organic	10% Acetic Acid	F	P
	10% Citric Acid	E	G
	Oleic Acid	G	F
Alkalies	10% Ammonium Hydroxide	E	E
	50% Sodium Hydroxide	E	E
Solvents (Alcohols)	Ethylene Glycol (Antifreeze)	E	E
	Isopropyl Alcohol	F	F
	Methanol	F	F
Solvents (Aliphatic)	d-Limonene	E	E
	Jet Fuel - JP-4	E	E
	Gasoline	E	G
	Mineral Spirits	E	E
Solvents (Aromatic)	Xylene	F	F
Solvents (Chlorinated)	Methylene Chloride	P	P
Solvents (Ketones & Esters)	Methyl Ethyl Ketone (MEK)	P	P
	Propylene Glycol Methyl Ether Acetate (PMA)	F	F
Miscellaneous Chemicals	20% Ammonium Nitrate	E	E
	Brake Fluid	F	F
	Bleach	G	G
	Motor Oil (SAE30)	E	E
	Skydrol® 500B	F	P
	Skydrol® LD4	F	P
	20% Sodium Chloride	E	E
	1% Tide® Laundry Soap	E	E
	10% Trisodium Phosphate	E	E

Based on 1 day and 7 day spot testing on concrete. Coating cured 2 weeks prior to testing.

Legend:
E - Excellent (No Adverse Effect)
G - Good (Limited Adverse Effect)
F - Fair (Moderate Adverse Effect)
P - Poor (Unsatisfactory)

Tide is a registered trademark of Proctor and Gamble. Skydrol is a registered trademark of Monsanto.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine concrete surface to receive floor coating system. Notify the Architect if surface is not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.
B. Allow concrete substrate to cure a minimum of 30 days.
C. Perform moisture testing as called for in Section 1.04D.

3.02 PREPARATION

A. Prepare surface in accordance with manufacturer's instructions.

1. Cleaning: Scrub with Tennant detergent and rinse with clean water to remove surface dirt, grease and oil.
2. Remove coating or membrane for existing concrete with the following method:
    1. Mechanically strip with ECO-prep stripping machine
    2. Vacuum sweep concrete surface.

B. Joint sealant application (see Division 07900).

1. Complete all joint sealant work prior to primer application.
2. Allow all joint sealants to be fully cured prior to application.
3. Concrete repairs
    1. Complete all required concrete repair work prior to primer application.
    2. Allow concrete repair/patch work to be fully cured and at acceptable moisture levels prior to primer application.

3.03 APPLICATION

A. Apply floor coating system in accordance with manufacturer's instructions.

1. Assemble squeegees and rollers; clean rollers to remove residual lint.
2. Primer: Eco-MPE™.
    1. Mix per Manufacturer’s requirements.
    2. Mix only enough material which can be applied within time limits of product.
    3. Apply 1 coat of MPE at Manufacturer’s recommended rate. Allow each coat to dry per Manufacturer’s recommendation prior to application of next coat.
    4. Allow coating to cure 3 to 8 hours at 75 degrees F (24 degrees C) and 50% relative humidity.
    5. Apply minimum 1 coat of primer.
3. Top coating: Eco-HPS™ -- High Performance System, see Division 09966.

3.04 PROTECTION

A. Close job site to traffic for a period of 24 hours after coating application

END OF SECTION 09965