This specification covers **HangarSpec LP-C** Moisture Permeable Coating System. A three coat system utilizing a moisture-tolerant primer and basecoat, with a top coat of high-performance aliphatic polyester urethane with a UV block. This system produces a high-gloss, chemical-resistant, light-reflective surface. This system is recommended for concrete substrates known to have a high degree of moisture vapor transmission and high relative humidity within the concrete. This system is ideal for use in hangars or general aircraft maintenance areas, municipalities, or warehouse which needs superior stain and wear resistance over a typical polished concrete floor finish.

1.00 GENERAL

1.01 SECTION INCLUDES
A. Preparation of cast-in-place concrete slab.
B. Apply moisture-tolerant epoxy primer
C. Apply moisture tolerant epoxy basecoat
D. Apply urethane topcoat

Specifier Notes: Edit the following list as required by the project. List other sections with work directly related to the floor coating.

1.02 RELATED SECTIONS
A. Section 03 30 00 – Cast-In-Place Concrete: [existing or] new slab.
B. Section 03 35 00 – Concrete Finishing: specific chemicals on slab.
C. Section 03 39 00 - Concrete Curing
D. Section 03 01 00 – Concrete Rehabilitation

1.04 REFERENCES STANDARDS
A. For reference standards tests & results refer to Manufactures Product Data Sheets

1.05 ADMINISTRATIVE REQUIRMENTS
A. Pre installation meeting call if needed.
B. Involve: Owner, Contractor, Consultant(s), sub-contractors effected

1.06 SUBMITTALS
A. Samples: forward 4- 4" x 4" color samples representative of finish product for review.
B. Manufactures' Instructions: submit to Consultant for review.
C. Sustainable Design Submittals: as required by other sections.

1.07 CLOSEOUT SUBMITTALS
A. Applicable testing/performance data certification(s)
B. Certification(s) of compliance with owner's performance spec, if required
C. Cleaning, care and maintenance instructions
D. Material warranty information

1.08 QUALITY ASSURANCE

A. Regulatory Agency Sustainability Approvals
B. Applicator: Use applicator experienced in application of specified materials for a minimum of [5] [Five] years on projects of similar size and complexity. Provide list of completed projects including project name and location, name of architect, name of material manufacturer, and approximate quantity of materials applied.
C. Applicator's Personnel: Employ only persons trained for application of specified materials.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, batch or lot number, and date of manufacture. Do not store in direct sunlight or high heat conditions.
B. Packaging Waste Management
C. Storage:
    1. Store materials in accordance with manufacturer's instructions.
    2. Keep containers sealed until ready for use.
    3. Do not subject material to excessive heat or freezing; do not apply material that has been subjected to excessive heat or freezing. Material subjected to excessive heat or freezing shall be separated from inventory and destroyed by mixing all three components. The solid reacted product shall be disposed of in environmentally sound and regulatory compliant manner.
    4. Shelf life: 1 year after date of manufacture, in unopened containers, under normal conditions.
D. Handling: Protect materials during handling and application to prevent damage or contamination.
E. Condition materials for use to 65°F – 75°F (18°C - 24°C) for 24 hours prior to application.

1.11 SITE CONDITIONS

A. Ambient Conditions
    1. Do not apply materials if floor or air temperature is below 65°F (18°C).
    2. Do not apply materials if relative humidity is above 90 percent or within 5º of dew point at time of application.
B. Existing Conditions
    1. Utilities, including electric, water, heat and finished lighting to be supplied by General Contractor.
    2. Maintain room temperature between 65°F – 75°F (18°C - 24°C) for 48 hours before, during and 48 hours after installation, or until cured.

3. At the time of application ensure the minimum substrate temperature is above 60°F (15°C) and the substrate temperature is 5°F (3°C) above the measured dew point at the time of application.
4. Erect suitable barriers and post legible signs at points of entry to prevent traffic and trades from entering the work area during application and cure period of the floor.
5. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

1.12 MANUFACTURER WARRANTY

A. Provide warranty covering materials for a period of [1] [one] year after date of installation
B. Installer to provide suitable warranty covering workmanship

2.00 PRODUCTS

2.01 MANUFACTURER

A. Protective Industrial Polymers www.protectpoly.com (866) 361-3331
B. 7875 Bliss Parkway, North Ridgeville, Ohio 44039

2.02 MATERIALS

A. Protect 1200 WR Moisture-Tolerant Epoxy Primer and basecoat
B. Protect 2000 UR Urethane Topcoat with 8 oz Gloss Grip or Diamond Wear additives can be added to increase abrasion resistance.

2.03 QUALITY CONTROL

A. Tests and Inspections: as required by Manufacturer.
B. Non-Conforming Work: remove immediately and dispose off site.
C. Coordination of Other Tests and Inspections

3.00 EXECUTION

3.01 APPLICATOR

A. Must be a recognized contractor of Protective Industrial Polymers

3.02 EXAMINATION

A. Substrate:
    1. Free of curing membranes, silicate surface hardener, paint, or sealer and be structurally sound.
    2. If you suspect concrete has been treated or sealed, proceed with complete removal process.
    3. Consult your PIP representative for further instruction if silicate hardeners or membranes have been utilized.
B. Moisture:

1. Use only if the concrete has a maximum internal relative humidity of 90% using ASTM F2170.

C. Vapor / Contamination:
   1. Testing for MVT does not guarantee against future problems.
   2. If there is no known vapor barrier or the vapor barrier is inadequate, there is an elevated risk of bond failure.
   3. Other factors including the migration of oils, chemicals, excessive salts, or Alkali Silica Reaction (ASR) from the concrete from may also elevate the risk of adhesion difficulties.
   4. Consult your PIP representative for approved mitigation treatments.

D. Temperature:
   1. During the application and cure of the coating, the substrate temperature, material temperature and room conditions must be maintained between 18˚C (65˚F) and 32˚C (90˚F).

E. Humidity:
   1. Relative Humidity (RH) should be limited to 30-80%.
   2. DO NOT apply coatings unless the surface temperature is more than five degree over the dew point.

3.03 PREPARATION

A. Remove surface dirt, grease, oil, and contaminates by detergent scrubbing and rinse with clean (clear) water.

B. Mechanical Preparation: Diamond grinding the surface is the preferred method of preparation.

1) Removal of existing coating is needed you can use T-Rex PCD Diamond bits.

2) Starting with the following grit diamonds, grind to each level to a smooth finish.

   a) Grind 40 grit metals
   b) Make all repairs (See C) and joint fill. (Control)
   c) Grind 80 grit metals
   d) Grind 80 grit resins
   e) Grind 100/200 grit resins.

C. Repair major gouges and chip outs in the concrete with Protect UC series urethane concrete after the first diamond grind pass. Allow to cure and then continue with the grinding to blend and smooth the repair. Repair minor scratches with Protect Fine Patch and allow to cure just prior to the finish grind.

3.04 JOINTS

A. All non- moving joints (control joints) may be filled with a semi-rigid joint compound such as Protect JF-Epoxy or Protect JF-Polyurea.
B. Construction joints may need to be re-built and re-cut depending on conditions.
C. Isolation or expansion joints should be left uncoated.

3.05 MIXING

A. Mix material in appropriate vessel as stated in the product's corresponding Technical Data Sheet.
B. Mix material as directed in the product's corresponding Technical Data Sheet.

3.06 APPLICATION EQUIPMENT

A. Protective equipment and clothing as called for in the MSDS
B. Jiffy® Mixer Blade model ES
C. Clean container for mixing material
D. Low speed high torque drill motor
E. High quality short nap roller covers - ¼ - 3/8 inch nap
F. Application squeegee
G. Roller Pan

3.07 APPLICATION

A. Protect 1200 WR Water-based Epoxy Primer
    1. Apply the properly mixed material to the substrate using a notched or flat squeegee and level uniformly with a non- shed 3/8" roller.
B. Protect 1200 WR Water-based Epoxy Base Coat
    1. Apply the properly mixed topcoat to the primed substrate using a notched squeegee and level uniformly with a non- shed 3/8" roller.
C Protect 2100 UV UR (GlossGrip) or (DiamondWear) Urethane-
    1. Apply the properly mixed material to the substrate using a pan and a non - shed 18" roller.

D. Tolerances:
    1. HangarSpec MP-3-LP: 12-15 mils

3.08 SPEADING RATE

A. Primer – Protect 1200WR the degree of porosity in the concrete will greatly affect coverage rates. Typical consumption rates for primer application are 5-6 mils, (267-320 SF/gal). With the addition of 1-2 quarts of water added to the mix.

B. Epoxy Base Coat – Protect1200WR can be applied at 4-6 mils (260-400 SF/gal). With the addition of 1-2 quarts of water to the mix.

C. Top Coat - Protect 2100 UV UR- can be applied at 3.5-6 mils (267-458 SF/gal). With the addition of 8 oz of Gloss Grip texture or Diamond Wear additive can be added to increase wear , this will provide a more semi-gloss surface.

3.09 CURING

A. Allow the coating to cure (dry) for a minimum 24 hours after application at 24˚C (75˚F) and 50% RH before opening the floor to light traffic, allow more time for low temperatures and higher humidity or for heavier traffic.
B. Full coating properties may take up to 7 days to develop.

3.11 RECOAT

A. Refer to appropriate product's Technical Data Sheet for recoat timetables and allowable recoat parameters as presented by the manufacturer.
B. If the re-coat window has expired, the prior cured coating surface must be sanded with 100 grit sand paper or sanding screen installed on a swing-type floor buffer.
C. Sand to a uniform dulled surface.
D. Remove all sanding debris with a vacuum and damp mop.
E. Scrub with detergent and rinse with clean (clear) water.
F. Surface must be dry before recoating.

3.12 SITE QUALITY CONTROL

A. Site Tests and Inspections: per manufacturer's guidelines
B. Non-Conforming Work: remove immediately and dispose off site

3.13 ADJUSTING

A. Permitted only upon manufacturer's approval in writing

3.14 CLEANING

A. Remove masking, draping, and other protection from adjacent surfaces.
B. Remove remaining materials and debris from job site and dispose of them according with local rules and regulations. Leave area in clean condition free of debris.

3.15 CLOSEOUT ACTIVITIES

A. Notify manufacturer of completion of installation
B. Forward operation and maintenance data to owner/owner's rep
C. Forward effective warranty date and information to owner/owner's rep

3.16 PROTECTION

A. Pointed items or heavy items dropped on the floor may cause chipping or concrete pop out damage.
B. Plasticizer migration from rubber tires can permanently stain the floor coating.
C. If a rubber tire is planned to set on the floor for a long period of time, place a piece of acrylic sheet between the tire and the floor to prevent tire staining.

D. Rubber burns from quick stops and starts from lift trucks can heat the coating to its softening point causing permanent damage and marking.

3.17 MAINTENANCE

A. Allow floor coating to cure at least one week before cleaning by mechanical means (IE: sweeper, scrubber, disc buffer).
B. Increased life of the floor will be seen with proper maintenance and will help maintain a fresh appearance of your new Protective Industrial Polymers floor.
C. Regularly sweep to avoid ground in dirt and grit which can quickly dull the finish, decreasing the life of the coating.
D. Spills should be removed quickly as certain chemicals may stain and can permanently damage the finish.
E. Only soft nylon brushes or white pads should be used on your new floor coating. Premature loss of gloss can be caused by hard abrasive bristle Polypropylene (Tynex®) brushes.
F. Heavy objects dragged across the surface will scratch all floor coatings. Avoid gouging or scratching the surface.

END OF SECTION

See additional legal information below