

**Guide Specification****PART 1 GENERAL****1.1 SUMMARY**

- A. Provide labor, materials, equipment and supervision necessary to install a heavy duty aviation hangar floor system as outlined in this specification.
- B. The manufacturers application instructions for each product used are considered part of this specification and should be followed at all times.
- C. Related Sections:
  - 1. Section 03 30 00 - Cast-in-Place Concrete
  - 2. Section 07 92 00 - Joint Sealants
  - 3. Section 07 95 00 - Expansion Control

**1.2 SYSTEM DESCRIPTION**

- A. SkyGard HD shall be a complete system of compatible materials supplied by NEOGARD® to create a seamless light-reflective, UV stable, Sky-Drol resistance flooring system.
- B. SkyGard HD shall be designated for application on the specific type of substrate indicated on the drawings.

**1.3 SUBMITTALS**

- A. Product Data: Submit NEOGARD® product literature and installation instructions.
- B. Project Reference List: Submit list of projects as required by this specification.
- C. Samples: Submit samples of specified heavy duty aviation hangar floor system. Samples shall be construed as examples of finish only.
- D. Applicator Approval: Submit letter from manufacturer stating applicator is approved to install the aviation flooring system.
- E. Warranty: Submit copy of manufacturers standard warranty.

**1.4 QUALITY ASSURANCE**

- A. Supplier Qualifications: SkyGard HD, as supplied by NEOGARD®, is approved for use on this project.
- B. Applicator Qualifications: Applicators shall be approved to install specified system.

**1.5 DELIVERY, STORAGE AND HANDLING**

- A. Delivery: Materials shall be delivered in original sealed containers, clearly marked with supplier's name, brand name and type of material.
- B. Storage and Handling: Recommended material storage temperature is 75°F (23.8°C). Handle products to avoid damage to container. Do not store for long periods in direct sunlight.

**1.6 PROJECT CONDITIONS**

- A. Environmental Conditions:
  - 1. Do not proceed with application of materials when substrate temperature is less than 50°F (10°C). It is recommended to maintain a minimum concrete temperature of 50°F (10°C) for a minimum of 48 hours before, during and after installation, or until cured.
  - 2. Concrete must be free of hydrostatic, capillary or moisture vapor pressure. Substrates in contact with ground must have a properly installed, effective vapor barrier to help prevent potential problems resulting from hydrostatic, capillary or moisture vapor pressure. Moisture content of concrete not to exceed four pounds per 1,000 square feet per 24 hours when tested by the referee or quantitative calcium chloride test method.
  - 3. Do not apply materials unless surface to receive coating is clean and dry.

**1.7 WARRANTY**

- A. Upon request, NEOGARD® shall offer the manufacturer's standard warranty upon receipt of a properly executed warranty request form.

**PART 2 PRODUCTS****2.1 MANUFACTURER**

- A. NEOGARD® Division of JONES-BLAIR® Company, P.O. Box 35286, Dallas, TX 75235, Toll Free (800) 321-6588, Fax (214) 357-7532, [www.neogard.com](http://www.neogard.com).

**2.2 MATERIALS**

- A. SkyGard HD:
  - 1. Crack and Joint Filler: 70718/70719 flexible epoxy.
  - 2. Fillers: 86468 silica flour.
  - 3. Aggregate: 86364 silica quartz or #20/40 mesh aluminum oxide.
  - 4. Primer: 70714/70715 clear or pigmented epoxy.
  - 5. Chemical Resistant Urethanes: 70805/7952 clear or pigmented or ultra high solids 70815/70816 clear.

- 6. Sealant: 70991 or other polyurethane sealant approved by NEOGARD®.
- 7. Texture: 86500 Neogrip spheres.

**2.3 MATERIAL PERFORMANCE CRITERIA**

- A. Typical performance requirements of cured 70714/70715 epoxy used on this project are:

PERFORMANCE REQUIREMENTS OF CURED FILM		
PHYSICAL PROPERTIES	TEST METHOD	RESULTS
Compressive Strength	ASTM D695	25,300 psi
Tensile Strength	ASTM D638	3,700 psi
Elongation	ASTM D638	25%
Flexural Strength	ASTM D790	3,180 psi
Flexural Modulus	ASTM D790	57,700 psi
Shore D Hardness	ASTM D2240	78
Adhesion	ASTM D4541	350 psi
Impact Resistance	Mil-D-3134, Sec. 4.7.3	Passes 16 ft/lbs
Taber Abrasion (cs17)	ASTM D4060	25 mg/1,000 rev
Water Resistance	ASTM D570	0.21%
MVT @ 10 mils	ASTM E96	0.16 Perm
Fungus & Bacteria Resistance	Mil-F-52505	No Support of Growth Under TT-P-34

- B. Typical performance requirements of cured 70805/7952 urethane used on this project are:

PERFORMANCE REQUIREMENTS OF CURED FILM		
PHYSICAL PROPERTIES	TEST METHOD	RESULTS
Tensile Strength	ASTM D412	4,000 psi
Elongation	ASTM D412	30%
Permanent Set	ASTM D412	20%
Adhesion	ASTM D4541	300 psi
Taber Abrasion (cs17)	ASTM D4060	40 mg/1,000 rev
Water Resistance	ASTM D471	<1%
MVT @ 5 mils	ASTM E96	1.4 Perm
Fungus & Bacteria Resistance	Mil-F-52505	No Support of Growth Under TT-P-34

- C. Typical performance requirements of cured 70815/70816 urethane used on this project are:

PERFORMANCE REQUIREMENTS OF CURED FILM		
PHYSICAL PROPERTIES	TEST METHOD	RESULTS
Tensile Strength	ASTM D412	4,800 psi
Elongation	ASTM D412	40%
Permanent Set	ASTM D412	NA
Adhesion	ASTM D4541	400 psi
Taber Abrasion (cs17)	ASTM D4060	5 mg/1,000 rev
Water Resistance	ASTM D471	<2%
MVT @ 10 mils	ASTM E96	0.4 Perm
Shore A	ASTM D2240	100
Shore D	ASTM D2240	55

**2.4 MIXES**

- A. Comply with manufacturer's instructions for mixing procedures.
- B. Carefully measure and mix the components together.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify that the work done under other sections meets the following requirements:
  1. That the concrete substrate surface is free of ridges and sharp projections, sound and dry.
  2. That the concrete was cured for a minimum of 28 days (minimum of 3,500 psi compressive strength). The use of concrete curing agents, if any, shall be of a sodium silicate base only; others require written approval from NEOGARD®.
  3. That damaged areas of the concrete substrate be restored to match adjacent areas. Use 70714/70715 epoxy and oven-dry silica aggregate approved by NEOGARD® for filling and leveling at a ratio of one part epoxy mixed with four parts aggregate by volume.

**3.2 PREPARATION**

- A. Protection:
  1. Protect adjacent surfaces from damage resulting from work of this trade. If necessary, mask and/or cover adjacent surfaces, fixtures, equipment, etc. by suitable means.
  2. Provide a suitable work station to mix the coating materials.
- B. Surface Preparation:
  1. Cleaning: Surfaces contaminated with oil or grease shall be vigorously scrubbed with a power broom and a strong, non-sudsing detergent. Thoroughly wash, clean and dry. Areas where oil or other contaminants penetrate deep into the concrete may require removal by mechanical methods.
  2. Steel shotblast the surface to remove surface contaminants. Proper care and procedure should be taken to leave the concrete surface as unopened as possible. An improper steel shotblast can cause "pinholes" in concrete surfaces, which can result in blister problems during the application of the superior chemical resistant flooring system. Note: Shotblasting does not remove deep penetrating oils, grease, tar or asphalt stains. Proper cleaning procedures should be followed to insure proper bonding of the epoxy flooring.
  3. Non-moving Cracks: After shotblasting, fill all non-moving cracks with 70714/70715 epoxy mixed with P1934 fumed silica to form a paste. The mix ratio is one part 70714/70715 epoxy to 2 (up to 3) parts P1934 fumed silica by volume.
  4. Moving Cracks or Control Joints: Route all large cracks, remove dust and debris, and fill flush with 70718/70719 flexible epoxy.

5. Moving Control Joints: Seal secondary control joints with 70991 sealant. Re-incorporate expansion joints and control joints into flooring system if conditions require. Consult NEOGARD® for details on moving cracks, expansion joint details and moving control joints.
6. Surface Condition: Concrete must be free of hydrostatic, capillary or moisture vapor pressure. Substrates in contact with ground must have a properly installed, effective vapor barrier to help prevent potential problems resulting from hydrostatic, capillary or moisture vapor pressure. Moisture content of concrete not to exceed four pounds per 1,000 square feet per 24 hours when tested by the referee or quantitative calcium chloride test method.
7. Do not apply materials unless surface to receive coating is clean and dry.

### 3.3 APPLICATION

- A. Primer: Mix 70714/70715 clear epoxy at a ratio of 2:1 by volume for three minutes. Apply at a rate of 200 square feet per gallon (8 mils DFT) to prepared substrate. Primer should be tack free before applying base coat. Note: if the base coat is not applied within 24 hours of prime coat application, the prime coat must be lightly sanded with 60-80 grit sandpaper, solvent wiped with urethane grade solvent and re-primed with 70714/70715 clear epoxy. If this procedure is not strictly followed, inner coat delamination will occur.
- B. Base Coat: Mix 70714/70715 pigmented epoxy at a ratio of 2:1 for three minutes. Add silica flour 86468 at a ratio of 1:1 with mixed epoxy. Continue mixing until a smooth consistency. Spread mix using a 1/4" notched trowel or squeegee at a minimum rate of 40 sf/gal to achieve 40 mils DFT or as needed. Allow to self-level and de-air with a spiked roller. Allow to cure 8 to 12 hours @ 70°F (21.1°C) or until tack free.
- C. Topcoat:
  1. When using 70805/7952 clear or pigmented urethane as a topcoat, mix at a ratio of 2:1 by volume for three minutes. Apply 70805/7952 at a rate of 230 sf/gal (4.0 mils DFT) to prepared substrate and allow to cure 8 to 12 hours @ 70°F (21.1°C) or until tack free. Note: This coat requires a second topcoat as noted in 3.3D below.
  2. When using 70815/70816 clear urethane as a topcoat, mix at a ratio of 1:1 by volume for three minutes. Apply 70815/70816 at a rate of 180 sf/gal (8 mils DFT) to primed substrate and allow to cure 24 hours @ 70°F (21.1°C) before allowing foot traffic.

Note: This is the final coat unless a textured finish is desired. However, if a textured finish is desired, the 70815/70816 clear urethane topcoat must be lightly sanded with 60-80 grit sandpaper and solvent wiped with urethane grade solvent before applying optional texture.

- a. If a textured topcoat is desired to achieve a cleanable, limited slip-resistant surface, add Neogrip Spheres into 70815/70816 mixed 1:1 by volume at the rate of 4 to 6 ounces by volume of Neogrip Spheres to 2.0 gallons of 70815/70816 and mix for 3 minutes. Apply mixed textured topcoat at the rate of 370 - 400 sf/gal to yield an average of 3.5 – 3.9 mils DFT. Note: Installing the textured topcoat at a rate less than 370 sf/gal will cause the Neogrip Spheres to sink into the 70815/70816, thus eliminating the desired slip-resistant texture.
- D. Second Topcoat: Mix 70805/7952 clear or pigmented at a ratio of 2:1 by volume for three minutes. Apply 70805/7952 at a rate of 230 sf/gal (4.0 mils DFT) and allow to cure 24 hours @ 70°F (21.1°C) before allowing foot traffic. Note: This is the final coat unless a textured finish is desired.
  1. If a textured topcoat is desired to achieve a cleanable, limited slip-resistant surface, add Neogrip Spheres into the 70805/7952 mix above at the rate of 4 to 6 ounces by volume of Neogrip Spheres to 1.5 gallons of 70805/7952 and mix for 3 minutes. Apply mixed textured topcoat at the rate of 240 - 270 sf/gal to yield an average of 3.5 – 3.9 mils DFT. Note: Installing the textured topcoat at a rate less than 240 sf/gal will cause the Neogrip Spheres to sink into the 70805/7952, thus eliminating the desired slip-resistant texture.

### 3.4 CLEANING

- A. Remove debris resulting from completion of coating operation from the project site.
- B. Reference Seamless Flooring Systems Manual for typical cleaning methods.

### 3.5 PROTECTION

- A. After completion of application, do not allow heavy traffic on coated surfaces for a period of at least 24 hours at 75°F (23.8°C), or until completely cured 7 days @ 70°F (21.1°C).

END OF SECTION

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