Guide Specification

Epoxy Broadcast Overlay
Section 07 18 16 Vehicular Traffic Coatings

PART 1 GENERAL

1.1 SUMMARY

A. Provide labor, materials, equipment and supervision necessary to install an epoxy, heavy to extreme duty vehicular traffic system as outlined in this specification.

B. The manufacturer's 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 90 00: Joint Protection
3. Section 07 95 00: Expansion Control

1.2 SYSTEM DESCRIPTION

A. Epoxy Broadcast Overlay shall be a complete system of compatible materials supplied by Neogard to create a heavy to extreme duty vehicular traffic system.

B. Epoxy Broadcast Overlay shall be designated for application on the specific type of substrate indicated on the drawings.

1.3 SUBMITTALS

A. Technical Data: Submit manufacturer's product data, Safety Data Sheets (SDS) and installation instructions.

B. Samples: Submit samples of Epoxy Broadcast Overlay vehicular traffic system. Samples shall only be construed as examples of finished color and texture of the system.

C. Applicator Approval: Submit letter from manufacturer stating applicator is approved to install the Epoxy Broadcast Overlay vehicular traffic system.

D. Warranty: Submit copy of manufacturer's standard sample warranty, identifying the terms and conditions stated in section 1.7 Warranty.

1.4 QUALITY ASSURANCE

A. Supplier Qualifications: Epoxy Broadcast Overlay, as supplied by Neogard, is approved for use on this project.

B. Applicator Qualifications: Applicators shall be approved to install specified system.

C. Requirement of Regulatory Agencies: Specified materials shall meet existing Federal, State and local VOC regulations.

D. Field Sample:
1. Install a field sample of at least 100 square feet at the project site or pre-selected area as agreed to by owner's representative, applicator and manufacturer.
2. Apply material in accordance with manufacturer’s written application instructions.
3. Field sample will be standard for judging color and texture on remainder of project.
4. Maintain field sample during construction for workmanship comparison.
5. Do not alter, move, or destroy field sample until work is completed and approved by Owner’s representative.

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°C). Handle products to prevent damage to container. All materials shall be stored in compliance with local fire and safety requirements. Do not store at high temperatures or in direct sunlight.

1.6 PROJECT CONDITIONS

A. Prior to starting work, read and follow the SDS and container labels for detailed health and safety information.

B. Do not proceed with application of materials when substrate temperature is less than 40°F (4°C), if precipitation is imminent, or to a damp, unclean or frosty surface. Ambient temperature should be a minimum 40°F (4°C) and rising, and more than 5°F (3°C) above dew point. Special precautions are to be taken when ambient and/or substrate temperatures are approaching, at, or above 100°F (38°C) and it may be necessary to limit material application to evening hours for exterior exposed decks.

C. Coordinate vehicular traffic system work with other trades. Applicator shall have sole right of access to the specified area for the time needed to complete the application and allow the vehicular traffic coatings to cure adequately.

D. Protect plants, vegetation or other surfaces not to be coated against damage or soiling.

E. Keep products away from spark or flame. Do not allow the use of spark-producing equipment during application and until all vapors have dissipated. Post "No Smoking" signs.

F. Maintain work area in a neat and orderly condition, removing empty containers, rags and debris daily from the site.

1.7 WARRANTY

A. Upon request, Neogard shall offer a manufacturer's standard warranty for institutional, commercial, industrial, and high-rise/multi-family residential projects only, upon substantial completion of the application and receipt of a properly executed warranty request form.

PART 2 MATERIALS

2.1 MANUFACTURER

A. Neogard, A part of Hempel, 2728 Empire Central, Dallas, TX 75235, (800) 321-6588, www.neogard.com.

2.2 MATERIALS

A. Epoxy Broadcast Overlay Materials (Hempel product numbers in parentheses):
1. Cleaner: 8500 BioDegradable Cleaner Concentrate (089JB)
2. Primer: Concrete and metal primers by Neogard
3. Sealant: 70991 urethane sealant (47XJB)
4. Fumed Silica, Cab-O-Sil: P1934 (D291)
5. Aggregates:
   a. 7992-U 12/20 Mesh Aggregate (66EJB)
   b. Grade 65-8 Flint, 4-30 mesh
   c. Black Beauty, Medium
   d. #16 Aluminum Oxide
6. Flexible Joint Filler: 70718-02/70719 series epoxy (25000)
7. Epoxy Wear Coat/Topcoat: 70750/70751 low-modulus epoxy (472JB)
8. Urethane Topcoat: FC7540/FC7964 (47QJB)
9. Cleaning Solvent: 7055 Odorless Reducer (086JB)
10. Cleaning Solvent: 08080 Hempel's Thinner

2.3 MATERIAL PERFORMANCE CRITERIA

A. Typical physical properties of cured 70750/70751 Low-Modulus Epoxy used on this project are:

1. Tensile Strength, ASTM D638, 1,362 psi ± 100
2. Elongation, ASTM D638, 81% ± 10
3. Flexural Strength, ASTM D790, 1,100 psi
4. Taber Abrasion, ASTM D4060, 60 mg/1,000 CS-17
5. Shore D, ASTM D2240, 65
6. Modulus of Elasticity, ASTM D790, 42,000 psi
7. Adhesion to Concrete, ASTM D4541, 960 psi
8. Water Resistance, ASTM D570, 1.3% at 24 hours

B. Typical physical properties of cured FC7540/FC7964 urethane used on this project are:
1. Tensile Strength, ASTM D412, 2,000 psi
2. Elongation, ASTM D412, 130%
3. Permanent Set, ASTM D412, < 10%
4. Tear Resistance, ASTM D1004, 155 pli
5. Water Resistance, ASTM D471, < 2% (7 days)
6. MVT (20 mils), ASTM E96, 1.0 English Perm
7. Taber Abrasion, ASTM D4060, 95 mg (1,000 CS-17)
8. Shore A, ASTM D2240, 80–90
9. Adhesion, ASTM D4541, 400 psi

C. The above tested results are typical values. Individual lots may vary up to 10% from the typical value. Further technical information can be found at www.neogard.com.

2.4 ACCESSORIES

A. Miscellaneous materials such as cleaning agents, adhesives, closed cell backer rod, deck drains, etc., shall be compatible with the specified Epoxy Broadcast Overlay system.

2.5 MIXING

A. Comply with manufacturer's instructions for mixing procedures.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that the work done under other sections meets the following requirements for concrete decks:
1. That the concrete deck surface is free of ridges and sharp projections. If metal forms or decks are used they should be ventilated to permit adequate drying of concrete.
2. That the concrete was cured for a minimum of 28 days. Minimum of 4,000 psi compressive strength. Water-cured treatment of concrete is preferred. The use of concrete curing agents, if any, shall be of the sodium silicate base only; others require written approval by Neogard.
3. That the concrete was finished by a power or hand steel trowel followed by soft hair broom to obtain light texture or “sidewalk” finish.
4. That damaged areas of the concrete deck be restored to match adjacent areas. Use 70714/70715-09 (45062) clear 100% solids epoxy and sand for filling and leveling.

3.2 PREPARATION

A. Cleaning: Surfaces contaminated with oil or grease shall be vigorously scrubbed with a stiff bristle broom and a strong non-sudsing detergent such as Neogard 8500 BioDegradable Cleaner. Thoroughly wash, clean, and dry. Areas where oil or other contaminants penetrate deep into the concrete may require removal by mechanical methods.

B. Shot-Blasting: Required surface preparation method for remedial construction is also the preferred method for new construction. Mechanically prepare surface by shot-blasting to industry standard surface texture (ICRI's CSP3-4) without causing additional surface defects in substrate. Shot-blasting does not remove deep penetrating oils, grease, tar or asphalt stains. Proper cleaning procedures should be followed to ensure proper bonding of the deck coating.

C. Non-moving Cracks: Fill all nonmoving cracks with 70718/70719 epoxy mixed with P1934 fumed silica to form a paste. The mix ratio is one part 70718/70719 epoxy to 2 (up to 3) parts P1934 fumed silica by volume.

D. Moving Cracks or Control Joints: Route all large cracks, remove dust and debris, and fill flush with 70718/70719 flexible epoxy.

E. Moving Control Joints: Seal secondary control joints with 70991 sealant. Re-incorporate expansion joints and control joints into system if conditions require. Consult Neogard for details on moving cracks, expansion joint details and moving control joints.

3.3 APPLICATION

A. Factors That Affect Dry Film Thickness: Volume of solids, thinning, surface profile, application technique and equipment, overspray, squeegee, brush and roller wet out, container residue, spills and other waste are among the many factors that affect the amount of wet coating required to yield proper dry film thickness. To ensure that specified dry film thickness is achieved, use a wet mil gauge to verify actual thickness of wet coating applied, adjusting as needed for those factors which directly affect the dry film build.

B. Series 1, Extreme Service:
   1. Primer: Thoroughly mix primer and apply at a rate of 300 sf/gal (0.33 gal/100 sf) to all concrete surfaces. Within 24 hours of application of primer, wear coat must be applied. If wear coat cannot be applied within 24 hours, inspect surface for contaminants, clean surface as necessary, and re-prime.
   2. Wear Coat: Thoroughly mix 70750/70751 low-modulus epoxy and apply at a rate of 26 sf/gal (3.75 gal/100 sf, 60 wet mils) to yield 60 dry mils, and immediately broadcast 65-8 Flint aggregate to rejection, into wet coating at an approximate rate of 90 lbs/100 sf. When dry, remove excess aggregate.

C. Series 2, Heavy Duty Service:
   1. Primer (Optional): Thoroughly mix primer and apply at a rate of 300 sf/gal (0.33 gal/100 sf) to all concrete surfaces. Within 24 hours of application of primer, wear coat must be applied. If wear coat cannot be applied within 24 hours, inspect surface for contaminants, clean surface as necessary, and re-prime.
   2. Wear Coat: Thoroughly mix 70750/70751 low-modulus epoxy and apply at a rate of 32 sf/gal (3.125 gal/100 sf, 50 wet mils) to yield 50 dry mils, and immediately broadcast aggregate to rejection, into wet coating at an approximate rate of 60 lbs/100 sf. When dry, remove excess aggregate. For a double broadcast system, repeat this step.

D. Series 3, Moderate to Heavy Duty Service:
   1. Base Coat: Thoroughly mix 70750/70751 low-modulus epoxy and apply at a rate of 80 sf/gal (1.25 gal/100 sf, 20 wet mils) to yield 20 dry mils, and immediately broadcast aggregate to rejection, into wet coating at an approximate rate of 25-30 lbs/100 sf. When dry, remove excess aggregate.
   2. Topcoat:
      a. Epoxy: Apply 70750/70751 low-modulus epoxy at a rate of 100 sf/gal (1.0 gal/100 sf, 16 wet mils) to yield 16 dry mils.
      b. Urethane: Apply FC7540/FC7964 at a rate of approximately 90 sf/gal (1.1 gal/100 sf, 17 wet mils) to yield 16 dry mils.

E. Applicator is responsible for applying sufficient coating to the substrate.

3.4 CLEANING

A. Remove debris resulting from completion of coating operation from the project site.

B. Refer to the Neogard Vehicular Deck Coating Systems Maintenance Manual for typical cleaning methods.

3.5 PROTECTION

A. After completion of application, do not allow traffic on coated surfaces for a period of at least 72 hours at 75°F (23°C) and 50% relative humidity, or until completely cured.

END OF SECTION

Issued by: Hempel (USA) – Neogard Epoxy Broadcast Overlay

This Guide Specification supersedes those previously issued.

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