



The Chemical Company

SECTION 32 01 26.74

CONCRETE OVERLAYS (Trafficguard EP_35)

NOTE TO SPECIFIERS:

THE PURPOSE OF THIS GUIDE SPECIFICATION IS TO ASSIST THE SPECIFIER IN DEVELOPING A PROJECT SPECIFICATION FOR THE USE OF BASF CONSTRUCTION CHEMICALS PRODUCTS. IT IS NOT INTENDED TO BE A "STAND ALONE" DOCUMENT, NOR TO BE COPIED DIRECTLY INTO A PROJECT MANUAL. THIS GUIDE SPECIFICATION WILL NEED TO BE CAREFULLY REVIEWED FOR APPROPRIATENESS FOR THE GIVEN PROJECT AND EDITED ACCORDINGLY TO COMPLY WITH PROJECT-SPECIFIC REQUIREMENTS.

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Application of rapid-curing, skid-resistant, epoxy-based, polymer concrete overlay.

EDIT NOTE: DELETE SECTIONS BELOW NOT RELEVANT TO THIS PROJECT; ADD OTHERS AS REQUIRED.

- B. Related Sections:
 - 1. Section 03 30 00 – Cast-in-Place Concrete.
 - 2. Section 03 41 00 – Precast Structural Concrete.

1.2 SUBMITTALS

- A. Comply with Section [01 33 00] [___ _ _].
- B. Product Data: Submit manufacturer's technical data sheets and LEED product information for each product.
- C. Submit list of project references as documented in this Specification under Quality Assurance Article. Include contact name and phone number of person charged with oversight of each project.
- D. Quality Control Submittals:
 - 1. Provide protection plan of surrounding areas and non-cementitious surfaces.

1.3 QUALITY ASSURANCE

- A. Comply with Section [01 40 00] [___ _ _].
- B. Qualifications:
 - 1. Manufacturer Qualifications: Company with minimum 15 years of experience in manufacturing of specified products.
 - 2. Manufacturer Qualifications: Company shall be ISO 9001:2000 Certified.
 - 3. Applicator Qualifications: Company with minimum of 5 years experience in application of specified products on projects of similar size and scope, and is acceptable to product manufacturer.
 - a. Successful completion of a minimum of 5 projects of similar size and complexity to specified Work.
- C. Field Sample:



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EDIT NOTE: DELETE REPAIR MORTAR SAMPLE IF NOT REQUIRED.

1. Install at Project site or pre-selected area of building an area for field sample, minimum 1 cubic foot (0.10 m³), using specified mortar system.
2. Provide field sample of at least 100 sq ft (9.3 m²) to include surface preparation, sealant joint, and juncture details and allow for evaluation of mortar and overlay system performance and finish.
3. Apply material in accordance with manufacturer's written application instructions.
4. Manufacturer's representative or designated representative will review technical aspects; surface preparation, repair, and workmanship.
5. Field sample will be standard for judging workmanship on remainder of Project.
6. Maintain field sample during construction for workmanship comparison.
7. Do not alter, move, or destroy field sample until Work is completed and approved by Architect.
8. Obtain Architect's written approval of field sample before start of material application, including approval of aesthetics, texture, and appearance.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section [01 60 00] [_ _ _].
- B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Store in unopened containers at 60 to 80 degrees F (16 to 27 degrees C) in clean, dry conditions.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. Ensure ambient, surface, aggregate, and epoxy temperatures are minimum of 50 degrees F (10 degrees C) and rising at time of application.
 2. Do not apply material when rain is expected within 12 hours after application.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products from the following manufacturer:
 1. BASF Construction Chemicals
889 Valley Park Drive
Shakopee, MN 55379
Customer Service: 800-433-9517
Technical Service: 800-243-6739
Direct Phone: 952-496-6000
Internet: www.buildingsystems.basf.com
- B. Substitutions: Comply with Section [01 60 00] [_ _ _].
- C. Specifications and Drawings are based on manufacturer's proprietary literature from BASF Construction Chemicals. Other manufacturers shall comply with minimum levels of material and detailing indicated in Specifications or on Drawings. Architect will be sole judge of appropriateness of substitutions.



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2.2 MATERIALS

- A. Rapid-curing, skid-resistant, epoxy-based, polymer concrete overlay.
1. Acceptable Product: Trafficguard EP35 by BASF Construction Chemicals.
 2. Color: Dark Amber.

EDIT NOTE: FINISHED PRODUCT IS A VAPOR BARRIER AND SHOULD NOT BE APPLIED TO ON-GRADE SLABS SUBJECT TO EXTERIOR SERVICE CONDITIONS OR OTHER STRUCTURES WHERE MOISTURE-VAPOR TRANSMISSION IS A CONCERN.

- B. Performance Requirements: Provide overlay complying with the following requirements:
1. Compliance: ASTM C881, ~~Type III, Grade I, Class B and C.~~
 2. Viscosity, Brookfield Test, at 75 degrees F (24 degrees C), #3 spindle at 20 rpm: 10 to 25 poise.
 3. Gel Time, ASTM C881, at 72 degrees F (22 degrees C), 60 g: 15 to ~~25-20~~ minutes.
 4. Compressive Strength, ASTM C579, Method B, modified:
 - a. 3 Hours: ~~4,000~~150 psi (~~71.0~~ MPa).
 - b. 24 Hours: ~~5,000-4700~~ psi (~~34.532.4~~ MPa).
 - c. 7 Days: ~~6,000~~9500 psi (~~41-65.5~~ MPa).
 5. Compressive Strength, ASTM D695:
 - a. 7 Days: ~~6,500~~10,000 psi (~~51.768.9~~ MPa).
 6. Compressive Modulus, ASTM D695: ~~6.52.34~~ x 10⁴-10⁵ psi (~~448-1613~~ MPa).
 7. Tensile Strength, ASTM D638:
 - a. 7 Days: 2,500 psi (17.2 MPa).
 8. Tensile Elongation, ASTM D638:
 - a. 7 Days: ~~30-5~~ percent.
 9. Bond Strength, ASTM C882, moist:
 - a. 14 Days: ~~25,500~~ psi (~~47.237.9~~ MPa).
 10. Water Absorption, ASTM D570, 14-day cure, 24-hour immersion: 0.4 percent.
 11. Thermal Compatibility, ASTM C884, 7-day cure: No delaminations or horizontal cracks.
 12. Permeability of Chloride Ions, AASHTO T277, 28-day cure: 73 coulombs (negligible).
 13. VOC Content:
 - a. 0 lbs per gal (0 g/L), less water and exempt solvents.
- C. Aggregate:
1. Course: Dynagrip Aggregate # 8.
 2. Medium: Dynagrip Aggregate # 9.
 3. Alternate:
 - a. Angular-shaped silica or basalt aggregate.
 - b. Hardness, Mohs Scale: 7 minimum.
 - c. Clean, dry (less than 0.2 percent moisture).
 - d. Gradation, percent by weight passing US standard-sieve series:
 - 1) Sieve #4: 100 percent passing.
 - 2) Sieve #8: ~~25-30~~ to 75 percent passing.
 - 3) Sieve #16: 0 to 5 percent passing.
 - 4) Sieve #30: 0 to 1 percent passing.



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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Comply with Section [01 70 00] [_ _ _].

3.2 SURFACE PREPARATION

- A. Protection: Protect adjacent Work areas and finish surfaces from damage during overlay application.
- B. Prepare surfaces in accordance with manufacturer's instructions.
- C. Steel Preparation:
 - 1. Shotblast steel substrates and clean to meet SSPC-SP10, with a minimum 4-mil (0.2-mm) profile.
 - 2. Reblast surface if flash rust appears.
- D. Concrete Preparation:
 - 1. Ensure concrete surface is clean, dry, and free of oil, contaminants, laitance, and debris.
 - 2. Cure concrete for a minimum of 28 days.
 - 3. Patch or repair concrete delaminations, spalls, and cracks with repair product approved by overlay manufacturer.
 - 4. Mechanically prepare surface to expose coarse aggregate and remove loose materials.
 - a. Meet requirements of ICRI Guideline No. 03732 Standard CSP 6. Perform direct tension testing in accordance with ACI 503, Appendix A every 4,500 sq ft (414 m²) to ensure proper surface preparation.

3.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.
- B. Precondition materials to temperatures in accordance with manufacturer's instructions before mixing.

3.4 APPLICATION

- A. Apply materials in accordance with manufacturer's instructions.
- B. Precondition materials to temperatures in accordance with manufacturer's instructions before applying.

EDIT NOTE: DELETE METHOD IF NOT REQUIRED.

- C. Overlay by Broadcast-Aggregate Method:
 - 1. Spread mixed overlay material onto substrate at a rate of 40 sq ft per gallon (1.0 m²/L) or 2.5 gallons per 100 sq ft. Place epoxy to permit a continuous operation. Apply second mix immediately behind first mix.
 - 2. Begin aggregate broadcast immediately, but stop to maintain a wet edge. Broadcast aggregate to complete saturation (approximately 1.1 lb per sq. ft (5.4 kg/m²). If wet spots develop, immediately broadcast additional aggregate until a dry surface is re-established.
 - 3. Apply second coat in same manner, at application rate in accordance with manufacturer's instructions. Maximum recoat window is 24 hours.

EDIT NOTE: DELETE METHOD IF NOT REQUIRED.

- D. Overlay by Slurry Method:



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1. After 2 components of epoxy have been mixed, add aggregate in accordance with manufacturer's instructions to obtain desired consistency and workability.
 2. Adjust screed to desired depth of overlay. Apply epoxy at a minimum thickness of 1/4 inch (6 mm) or 4 sq ft per gallon (0.2 m²/L).
 3. Allow a minimum waiting period for resin to bleed to top of slurry.
 4. Broadcast aggregate to complete saturation, 2 to 4 lbs per sq ft (9 to 10 kg/m²).
 5. Use aggregate type in accordance with manufacturer's instructions.
 6. Immediately broadcast additional aggregate, if wet spots develop, until dry surface is re-established.
- E. Hot-Weather Application: Apply overlay in hot weather in accordance with manufacturer's instructions.
- F. Cool-Weather Application: Apply overlay in cool weather in accordance with manufacturer's instructions.
- 3.5 PROTECTION
- A. Protect applied overlay from traffic from 60 to 150 minutes, depending on material, substrate, and air temperatures, in accordance with manufacturer's instructions.
- B. Protect applied overlay from damage during construction.

END OF SECTION