Durável Guide Specification
Durável TCO Thin Concrete Overlayment, Microtopping

**Section 03 53 19**
**Concrete Overlayment**

## PART 1 – GENERAL

1.1 SUMMARY

A. Provide all labor, materials, Mixing and application equipment, PPE, and supervision necessary to install a single-component, copolymer-modified, cementitious topping system over existing horizontal, interior or exterior concrete slab surfaces, per the drawings, general provisions of the contract, and other related construction documents, and as outlined in this specification.

B. All applicable manufacturer's guidelines and technical documents are to be followed as part of this specification.

C. Related Sections

1. Section 03 01 50 – Maintenance of Cast Decks and Underlayment

2. Section 03 30 00 – Cast-in-Place Concrete

1.2 REFERENCES

A. ASTM C-109: Standard Test Method for Compressive Strength of Hydraulic Cement Mortars

B. ASTM C-348: Standard Test Method for Flexural Strength of Hydraulic Cement Mortars

C. ASTM D-4060: Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser

D. ASTM D-4541: Standard Text Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's Technical Data Sheet (TDS), Safety Data Sheet (SDS), any available installation guidelines, for each material and product included in this specification.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: The manufacturer shall have a minimum of five years experience in the production of the types of products and systems specified in this section.

B. Contractor Qualifications: The installing contractor shall have a minimum of three years experience in the field of concrete overlay, repair, and protection, with personnel who have received product training from a representative of the manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver all products in original, unopened packaging, labeled with product information, manufacturer name, batch number, and directions for storage.

B. Store all materials in a dry area, elevated from the ground, and protected from rain, freezing, excessive heat, and direct sunlight.

C. Store and handle all products in accordance with manufacturer's TDS and label instructions.

1.6 PROJECT CONDITIONS

A. Comply with all manufacturer's instructions regarding environmental conditions, substrate surface temperature, product temperature, and water temperature during installation and for the period of time following installation as recommended by the manufacturer.

B. Protect adjacent surfaces to avoid damage during mixing and handling of the product.

C. Protect the finished product installation from any potential damage from foot or vehicular traffic and/or from the work of other trades.

1.7 WARRANTY

A. Provide a written warranty from the manufacturer against defects of materials for a period of one year beginning with the date of completion of the product application.

**PART 2 – PRODUCTS**

2.1 MANUFACTURER

A. Approved Manufacturer: Duravel, 225 Olympic St., Charlotte NC 28273 (704)837-7991 www.duravel.com

2.2 MATERIALS

A. Highly abrasion-resistant thin decorative texture cement overlay: Duravel TCO in Gray or White formulation.

B. Additional Pigment (optional): Duravel OCP Overlay Color Packs, available in twenty-five designer colors.

2.3 PROPERTIES

A. The concrete overlayment shall be a dry blend of Portland Limestone Cements with admixtures specifically designed to enhance the performance of PLC, reinforcing fibers, and select aggregates, mixed only with potable water.

1. Packaging and Yield 40lb bags, approx. 0.40 CF
2. Color Gray or White with optional added pigment
3. Mixing Ratio 4.0 to 5.5 quarts potable water per bag
4. Application Thickness 1/16" to feather edge
5. Application Range 45 to 90 degrees F (substrate)
6. Pot Life 30 minutes at 70 deg F
7. Initial Set 2 to 6 hours
8. Full Cure 28 days
9. Compressive Strength (ASTM C-109) 4,820 psi

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|---|---|---|
| 10. | Flexural Strength (ASTM C-348) | 1,720 psi |
| 11. | Abrasion Resistance (ASTM D-4060) | 1.0g loss at 7 day |
| 12. | Adhesion to Concrete (ASTM D-4541) | 365 psi (concrete failure) |

**PART 3 – EXECUTION**

3.1 SURFACE PREPARATION

A. Concrete that is failing due to poor placement or extensive environmental abuse should be replaced, not repaired. Cracks and joints in concrete should always be treated as moving, with the possibility they will continue moving after the repair mortar is placed leading to cracking of the overlay. Expansion and contraction joints must always be honored since they allow movement in the slab. Large holes and divots in the surface should be filled in lifts, or with a suitable material such as Duravel TRM. Flexible joint sealant should only be applied after the overlay is completed and cured.

B. All concrete must be sufficiently cured to allow for proper hydration. The recommended cure time is 28 days, depending on temperature and humidity.

C. Surfaces to be overlayed should be free of contaminants and readily accept water. All potential contaminants on the surface must be removed, including but not limited to: dust, dirt, oil, grease, paints, glues, sealers, curing agents, releases, efflorescence, chemical contaminants, rust, or algae.

D. Using mechanical methods – grinding, shotblasting, scarifying – to achieve a minimum Concrete Surface Profile 2 (CSP-2) is preferred. Existing broom finished concrete that readily absorbs water may be prepared using Duravel ECP; follow all manufacturer instructions.

3.2 MIXING AND APPLICATION

A. Mix single bags in clean 5-gallon pails with a helical mixing blade. Measure mix water into pail before adding dry mix. Blend at moderate speed to a lump-free consistency then continue blending for two minutes. Follow manufacturer instructions when adding OCP pigment. When using a mortar mixer blend no more than three bags at a time, thoroughly rinsing the mixing barrel clean between batches.

B. Base coat: Pre-wet the concrete substrate to Saturated Surface Damp (SSD) and continue wetting surface as needed during product application. Pour blended product directly onto the substrate in ribbons over the immediate work area then spread evenly with trowels and/or squeegees at a rate of about 250 sf per bag.

C. Finish coat, trowel application: Repeat base coat instructions. Finish options include smooth, wood look, stencil, and other textures.

D. Finish coat, spray application: Keep the concrete substrate dry. Use a hopper gun or compressed air sprayer to apply blended product to the desired texture. Coverage ranges from 150 to 200 square feet per bag depending on texture applied. Finish options include pebble, wet bubble, and other textures.

E. Secondary Color (optional): Additional color(s) may be applied using concrete stain, concrete dye, concrete wash, and other similar products. Do not use acidic reactive stains. Durável In-Fluence water base stains are recommended.

1. Strictly follow all instructions in manufacturer's current technical data sheets (TDS) and safety data sheets (SDS).

F. Sealer, clear or pigmented:

1. Select a compatible sealer or coating to meet the design and performance requirements of the project.

2. Strictly follow all instructions in manufacturer's current technical data sheets (TDS) and safety data sheets (SDS).

## 3.3 CLEANING

A. Clean work area, remove and properly discard all debris resulting from the work.