**FLEXDECK SYSTEM – HEAVY TRAFFIC SYSTEMS**

**For Parking Structures**

Flexdeck System’s are waterproof, multi-layer, fluid applied, urethane and urethane/epoxy systems for protecting surfaces subjected to vehicle traffic wear. It is a flexible, waterproof, rugged system designed for concrete surfaces. It provides superior strength, high elasticity, along with abrasion resistance and resistance to thermal and mechanical movement. Aggregate is embedded into the system wear coat during application to produce a textured, non-skid, wearing surface.

***{Note to Specifier: The paragraphs below are meant to be incorporated into Parts 1, 2 and 3 of a standard CSI 3 Part Format specification, project’s General Structural Notes or directly onto the plans. They must be carefully reviewed by a qualified design professional and edited to meet the particular requirements of the project at hand, assure compliance with any governing building codes, and coordinate with other specification sections and drawings******. In no case shall these Guide Specifications be considered to be Contract Documents or serve as installation instructions for the product being discussed. In any cases of discrepancy, the manufacturer's most recently published data sheet shall take precedent.}***

*{Note to Specifier: There are three Flexdeck systems available; Light Traffic, Medium Traffic and Heavy Traffic. The use of each system is based upon the type of exposure and the amount of traffic the parking deck receives. All three systems use the same primer; DURAL EPOXY PRIMER, a two-component epoxy resin compound; and membrane; FLEXDECK MEMBRANE a two-component, elastomeric polyurethane compound. The Flexdeck Light Traffic System then uses FLEXDECK URETHANE TIECOAT for the top coat. The Medium Traffic and Heavy Traffic Systems uses the FLEXDECK WEAR COAT, a two-component epoxy resin compound as a wearing course; and a choice of two topcoats: FLEXDECK URETHANE TIECOAT a one-part aliphatic urethane, or FLEXDECK EPOXY TOPCOAT, a two-part epoxy. See list below for components used in each system:*

*This specification is specifically written for the HEAVY TRAFFIC SYSTEMS.}*

*Light Traffic*

 *Epoxy Primer – DURAL EPOXY PRIMER*

 *Urethane Membrane – FLEXDECK MEMBRANE*

 *Urethane Top Coat – FLEXDECK URETHANE TIECOAT*

*Medium Traffic*

 *Epoxy Primer - DURAL EPOXY PRIMER*

 *Urethane Membrane- FLEXDECK MEMBRANE*

 *Epoxy Wearing Course (1) coat- FLEXDECK WEAR COAT*

 *Top Coat FLEXDECK URETHANE TIECOAT or FLEXDECK EPOXY TOPCOAT*

***Heavy Traffic***

 ***Epoxy Primer - DURAL EPOXY PRIMER***

 ***Urethane Membrane- FLEXDECK MEMBRANE***

 ***Epoxy Wearing Course (2) coats- FLEXDECK WEAR COAT***

 ***Top Coat FLEXDECK URETHANE TIECOAT or FLEXDECK EPOXY TOPCOAT}***

PART 1 GENERAL

*{Note to Specifier: Insert the following paragraph and sub paragraphs as required for your project. Euclid’s recommended products are shown in italics. More info can be found on these products at www.euclidchemical.com}*

1.01 1.01 Related Work:

A. Joint Fillers – [Eucolastic](http://euclidchemical.com/products/construction-products/joint-fillers-sealants/polyurethane-sealants/), [Tammsflex](http://euclidchemical.com/products/construction-products/joint-fillers-sealants/polysulfide-sealants/), [Dural 340](http://euclidchemical.com/products/construction-products/joint-fillers-sealants/epoxy-fillers-sealants/dural-340-nssl/), [Qwikjoint UVR](http://euclidchemical.com/products/construction-products/joint-fillers-sealants/polyurea-joint-fillers/euco-qwikjoint-uvr/)

B. Concrete Repair:

1. Vertical and Overhead: [Euco V-100](http://euclidchemical.com/products/construction-products/repair/verticaloverhead-repair/eucorepair-v100/), [Tamms Structural Mortar](http://euclidchemical.com/products/construction-products/repair/verticaloverhead-repair/tamms-structural-mortar/)

2. Horizontal: [Express Repair](http://euclidchemical.com/products/construction-products/repair/horizontal-repair/cementitious-mortars/express-repair/), [VersaSpeed](http://euclidchemical.com/products/construction-products/repair/horizontal-repair/cementitious-mortars/versaspeed/)

3. Form and Pour: [Eucocrete](http://euclidchemical.com/products/construction-products/repair/horizontal-repair/cementitious-mortars/eucocrete/)

C. Crack Repair/Injection: [Dural 452 LV](http://euclidchemical.com/products/construction-products/bonding-agents-adhesives/epoxy-based/dural-452-lv/), [Dural Fast Set Epoxy Gel](http://euclidchemical.com/products/construction-products/bonding-agents-adhesives/epoxy-based/dural-fast-set-gel/)

D. Bonding Agents: [Eucoweld 2.0](https://www.euclidchemical.com/fileshare/ProductFiles/TDS/Eucoweld_2.0.pdf), [Duralprep A.C.](http://euclidchemical.com/products/construction-products/bonding-agents-adhesives/epoxy-based/duralprep-ac/), [Dural 452 MV](http://euclidchemical.com/products/construction-products/bonding-agents-adhesives/epoxy-based/dural-452-mv/), [EucoFloor Epoxy Primer](https://www.euclidchemical.com/products/construction-products/bonding-agents-adhesives/epoxy/eucofloor-epoxy-primer/)

E. Waterproofing/Dampproofing : [Tamoseal](http://euclidchemical.com/products/construction-products/waterproofing-dampproofing/waterproofing-dampproofing/tamoseal/), [Vandex Super](http://euclidchemical.com/products/construction-products/waterproofing-dampproofing/vandex-waterproofing/crystalline-waterproofing/vandex-supersuper-white/), [Hey’Di K-11](http://euclidchemical.com/products/construction-products/waterproofing-dampproofing/waterproofing-dampproofing/heydi-k-11/), [Vandex BB75](http://euclidchemical.com/products/construction-products/waterproofing-dampproofing/vandex-waterproofing/cementitious-slurry-coatings/vandex-bb-75/)

F. Architectural Coatings: [Tammscoat](http://euclidchemical.com/products/construction-products/coatings/architectural-wall-coatings/tammscoat/), [Tammolastic](https://www.euclidchemical.com/products/construction-products/coatings/coatings-architectural-wall/acrylic/tammolastic/)

G. Anti-Graffiti Coatings: [AG 100](https://www.euclidchemical.com/products/construction-products/coatings/coatings-architectural-wall/anti-graffiti/euco-ag-100/), [AG-400](http://euclidchemical.com/products/construction-products/coatings/architectural-wall-coatings/tamms-ag-400/),

H. Traffic Deck Coatings: [Tammsdeck](http://euclidchemical.com/products/construction-products/coatings/traffic-deck-coatings/urethane-based/tammsdeck-system/), [Flexdeck](http://euclidchemical.com/products/construction-products/coatings/traffic-deck-coatings/urethane-based/flexdeck-system/)

I. Decorative Floor Coatings: [Duraltex](http://euclidchemical.com/products/construction-products/coatings/decorative-floor-coatings/epoxy-based/duraltex/)

J. Epoxy Chemical Resistant Coatings: [Duralkote 240](http://euclidchemical.com/products/construction-products/coatings/industrial-coatings/epoxy-based/duralkote-240/), [Duralkote 500](http://euclidchemical.com/products/construction-products/coatings/industrial-coatings/epoxy-based/duralkote-500/), [Duraltex 1705/07](http://euclidchemical.com/products/construction-products/coatings/industrial-coatings/epoxy-based/duraltex-1705-1707/), [Duraltex 1805/07](http://euclidchemical.com/products/construction-products/coatings/industrial-coatings/epoxy-based/duraltex-1805-1807/)

K. Penetrating Water Repellents:

1. Horizontal and Vertical: [Baracade Silane 40 WB](https://www.euclidchemical.com/products/construction-products/penetrating-sealers/new-baracade-silane-40-wb/), [Baracade WB 244](http://euclidchemical.com/products/construction-products/penetrating-sealersliquid-densifiers/penetrating-sealers/baracade-wb-244/), [Baracade 100C](http://euclidchemical.com/products/construction-products/penetrating-sealersliquid-densifiers/penetrating-sealers/baracade-silane-100c/), [Baracade Silane 40 IPA](http://euclidchemical.com/products/construction-products/penetrating-sealersliquid-densifiers/penetrating-sealers/baracade-silane-40-ipa/),

2. Vertical: [Chemstop WB Regular/Heavy Duty](http://euclidchemical.com/products/construction-products/penetrating-sealersliquid-densifiers/penetrating-sealers/chemstop-wb-regularheavy-duty/)

L. Penetrating Epoxy Sealer: [Euco #512 VOX Epoxy Sealer](http://euclidchemical.com/products/construction-products/penetrating-sealersliquid-densifiers/penetrating-sealers/euco-512-vox-epoxy-sealer/)

M. Cathodic Protection: [Sentinel Galvanic Anodes](http://euclidchemical.com/products/construction-products/repair/cathodic-protection/sentinel-galvanic-anodes/)

*N. Moisture Vapor Mitigating Treatment:* [*Dural Aquatight 100 Plus*](https://www.euclidchemical.com/products/construction-products/coatings/coatings-moisture-mitigation/dural-aquatight-100-plus/)

1.02 QUALITY ASSURANCE

A. Obtain primary Urethane/Epoxy Deck Coating System materials, including primers, membranes, seal coats and top coats etc… from one single Urethane/Epoxy Deck Coating System manufacturer. Obtain secondary materials including aggregates, sheet flashings, joint sealants, and substrate repair materials of type and from source recommended by Urethane/Epoxy Deck Coating System manufacturer.

1. Urethane/Epoxy Deck Coating System manufacturer shall have ISO 9001 Quality Certification.

B. Urethane/Epoxy Deck Coating System Mock-Up:

1. Prior to commencing Urethane/Epoxy Deck Coating System application, prepare a minimum **<<insert size>>** full scale, reference mock-up of each type, **[and][color][and][ texture]** of Urethane/Epoxy Deck Coating System surface for approval by Owner.Said reference mock-up shall be constructed in location designated by owner/architect, using the same equipment, tools, personnel and methods for installing all materials as will be used for the remaining work to be performed.

2. Once accepted by owner or owner’s representative, mock-up is to remain, and is to be protected from damage. It shall become the standard for acceptance of color and texture for Urethane/Epoxy Deck Coating System applications.

3. When Architect determines that mockup does not meet requirements, demolish and remove it from the site and cast another until the mockup is accepted.

1.03 PROJECT CONDITIONS

A. Environmental Limitations: Apply Urethane/Epoxy Deck Coating System within the range of ambient and substrate temperatures recommended in writing by manufacturer. Do not apply Urethane/Epoxy Deck Coating System to damp or wet substrates. Apply when temperatures are between 50 deg F and 90 deg F (10 deg C and 32 deg C). Do not apply when relative humidity exceeds 75 percent, or when temperatures are less than 5 deg F (-15 deg C) above dew point in working area.

1. Use a surface thermometer to monitor, as necessary, the temperature of substrates to be patched and waterproofed.

2. Do not apply material if the substrate is damp, wet or frozen or if freezing conditions are imminent

3. Coordinate Urethane/Epoxy Deck Coating System work with other trades to ensure adequate illumination, ventilation, and dust free environment during application and curing of Urethane/Epoxy Deck Coating System.

B. Conditions for Concrete

*{Note to Specifier: Moisture retaining cover cure is to be removed after seven days to allow the concrete to air dry prior to Urethane/Epoxy Deck Coating System installation.}*

1. New concrete shall be in place a minimum 28 days before proceeding.

2. Any cementitious repair mortars must have a full 7-day cure prior to coating unless otherwise approved in writing by architect.

3. Examination:

1. Prior to commencement of Urethane/Epoxy Deck Coating System application examine substrates, with Applicator present, for compliance with requirements and for other conditions affecting performance of Urethane/Epoxy Deck Coating System.
2. For the record, prepare written report, endorsed by Applicator, listing conditions detrimental to performance.
3. Verify compatibility with and suitability of substrates.
4. Contractor must report, in writing, surfaces left in improper condition by other trades. Application of coating indicates acceptance of surfaces and conditions.

PART 2.0 PRODUCTS

2.01 URETHANE/EPOXY DECK COATING SYSTEM

A. Primer

1. **Epoxy Primer:** Provide 100% solids, two-component, penetrating epoxy primer manufactured by Urethane/Epoxy Deck Coating System manufacturer.

 a. Mixed Viscosity of 300 to 400 cps

 b. Tack Free Time of 3 to 4 hours @ 75 deg F. and 50% RH

 c. VOC: <5 g/L

d. Basis of Design Product:

1) **Euclid Chemical Company (The);** [**DURAL EPOXY PRIMER**](https://www.euclidchemical.com/products/construction-products/coatings/coatings-primers/dural-epoxy-primer/) **www.euclidchemical.com**

B. Waterproof Membrane

1. **Urethane Membrane**: Provide (2) component, elastomeric urethane manufactured by Urethane/Epoxy Deck Coating System manufacturer.

a. Tensile Strength 1,200 psi (8.3 MPa) @ 7 days per ASTM D412

b. Tensile Elongation: 350% per ASTM D412

c. Tear Resistance: 100 pli per ASTM D1004

e. Solids Content, by volume minimum 98%

f. VOC Content: 128 g/L

g. Abrasion Resistance, ASTM D968

 Falling sand method: 40 L/mil

h. Basis of Design Product:

**1) Euclid Chemical Company (The);** [**FLEXDECK MEMBRANE**](https://www.euclidchemical.com/products/construction-products/coatings/coatings-traffic-deck/urethane/flexdeck-system/)[**www.euclidchemical.com**](http://www.euclidchemical.com)

C. Wearing Course

1. **Epoxy Wearing Course:** Provide (2) component, 100% solids, epoxy resin designed to be applied in flexible deck coating system.

 a. VOC Content 5 g/L max.

 b. Solids Content, by volume: 100%

c. Tensile Strength, >2,000 psi (13.8 MPa) @ 7 days per ASTM D638

d. Tensile Elongation: 30% per ASTMD 638

e. Basis of Design Product:

**1. Euclid Chemical Company (The);** [**FLEXDECK WEAR COAT**](https://www.euclidchemical.com/products/construction-products/coatings/coatings-traffic-deck/urethane/flexdeck-system/) **www.euclidchemical.com**

*{Note to Specifier: The Heavy Traffic System uses a choice of two topcoats: FLEXDECK URETHANE TIECOAT a one-part aliphatic urethane, or FLEXDECK EPOXY TOPCOAT a two-part epoxy. Contact Euclid Chemical (800-321-7628;* [*www.euclidchemical.com*](http://www.euclidchemical.com)*) for more information regarding the features and benefits of each as a finish coat for your Flexdeck system.}*

D. Top Coat

*{Note to Specifier: Insert the following sub paragraph if the FLEXDECK URETHANE TIECOAT is to be specified as the top-coat for the Flexdeck Medium Traffic or Heavy Traffic Systems.}*

[1. **Urethane Top Coat**: (1) component, aliphatic urethane manufactured by Urethane/Epoxy Deck Coating System manufacturer.

a. VOC Content: 260 g/L maximum

b. Solids Content, by volume: 78% minimum

c. Tensile Strength 2,500 psi (17.2 MPa) at 7 days per ASTM D412

d. Tensile Elongation: 100% per ASTM D412

e. Abrasion Resistance: 0.010 loss CS 17 wheel, 1000 g.

f. Product:

1) **Euclid Chemical Company (The);** [**FLEXDECK URETHANE**](https://www.euclidchemical.com/products/construction-products/coatings/coatings-traffic-deck/urethane/flexdeck-system/) **TIECOAT** [**www.euclidchemical.com**](http://www.euclidchemical.com)

1. Color: **<<Light Gray>><<Tan>>]**

*{Note to Specifier: Insert the following sub paragraph if the FLEXDECK EPOXY TOPCOAT is chosen as the top-coat for the Flexdeck Heavy Traffic system.}*

1. **Epoxy Top Coat:** Provide (2) component, 100% solids, epoxy resin designed to be applied in flexible deck coating system.

 a. VOC Content 5 g/L max.

 b. Solids Content, by volume: 100%

c. Tensile Strength, >2,000 psi (13.8 MPa) @ 7 days per ASTM D638

d. Tensile Elongation: 30% per ASTMD 638

e. Basis of Design Product:

**1. Euclid Chemical Company (The);** [**FLEXDECK EPOXY TOPCOAT**](https://www.euclidchemical.com/products/construction-products/coatings/coatings-traffic-deck/urethane/flexdeck-system/) **www.euclidchemical.com**

*{Note to Specifier: Insert desired aggregate below}*

D. Broadcast Aggregates to be used in Urethane/Epoxy Deck Coating System, systems, shall be **[#4 Flint Rock by Flintrock Products – Commerce, OK (flintrockproducts.com)] [16-30 mesh dry silica aggregate]** approved in writing by manufacturer of Urethane/Epoxy Deck Coating System.

1. 1. The aggregate used in all layers of the system shall be clean and free from moisture.

 2. The aggregate shall be angular and shall consist of natural silica sand, basalt, or other non-friable aggregate. It shall be durable and sound and have a proven record of performance in applications of this type.

 3. The aggregate shall be 100 percent fractured, thoroughly washed and kiln dried to a maximum moisture content of 0.2 percent by weight, measured in accordance with ASTM C566**.**

4. The aggregate shall be packaged such that they arrive at the jobsite and are maintained in a moisture-free condition for application in the overlay system.

PART 3.0 EXECUTION

3.01 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements and for other conditions affecting performance of urethane deck coatings.

1. Verify compatibility with and suitability of substrates.

2. Begin coating application only after minimum concrete curing and drying period recommended by urethane deck coating manufacturer has passed, after unsatisfactory conditions have been corrected, and after surfaces are dry.

3. After surface preparation, and just prior to the application, of the urethane deck coating system, verify that the substrate is visibly dry and free of moisture.

a. Test for moisture vapor transmission by plastic sheet method according to ASTM D4263, modified to two hours. Do not apply coating if presence of moisture is indicated.

4. Application of coating indicates acceptance of surfaces and conditions.

*{Note to Specifier: Repair moving or working cracks that are 1/32” to 1/16” (0.79 to 1.59 mm) wide by applying a 4” (102 mm) wide coating of DURAL EPOXY PRIMER, and then overcoat with FLEXDECK MEMBRANE embedded with fiberglass cloth. For cracks wider than 1/16” (1.59 mm), contact your local Euclid Chemical representative.}*

3.02 PATCHING, CRACK REPAIRS AND DETAILS

A. Prior to the application of urethane deck coating repair concrete as called for in specification Section **<<insert section number>>.**

B. Prepare, treat, rout, and fill cracks in substrates according to ASTM C1127 and manufacturer's written recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D 4258.

1. All cracks less than 1/16 inch (1.5 mm) in width shall be treated by applying 4 inch (102 mm) wide coat of specified Epoxy Primer and Waterproof Membrane per manufacturer’s written recommendations and ASTM C 1127.

2. All cracks greater than 1/16 inch in width shall be routed to minimum ¼ inch wide by ¼ inch deep and sealed, per ASTMC1127, with flexible urethane joint sealant recommended by Urethane/Epoxy Deck Coating System Manufacturer.

a. Comply with recommendations in ASTM C 1193 for joint-sealant installation.

b. Cracks should then be treated with 4 inch wide Epoxy Primer and Waterproof Membrane embedded with 4 inch wide fiberglass cloth per manufacturer’s recommended details.

3.03 SURFACE PREPARATION

A. Clean and mechanically prepare substrates according to manufacturer’s written recommendations to produce clean, sound, dust-free, dry, absorptive substrate free of grease, oils, curing compounds, surface laitance, soil and other contaminants which may interfere with bond of Urethane/Epoxy Deck Coating System. . Remove all concrete fins, ridges, and other projections. Surface profile should be equal to CSP 3 to 6 in accordance with ICRI Guideline 310.2.

*{Note to specifier: The strength of the prepared concrete surface can be tested. Insert the following sub paragraph if quantitative results are required.}*

**1. [Following surface preparation the cleaned concrete shall be tested for compliance with the following:]**

1. **[Minimum surface tensile strength of 250 psi when tested with a “Elcometer” or similar pull tester per ASTM C 1583]**

2. Begin Urethane/Epoxy Deck Coating System application only after minimum concrete curing and drying period recommended by Urethane/Epoxy Deck Coating System manufacturer has passed, after unsatisfactory conditions have been corrected, and after surfaces are dry

B. Prepare vertical and horizontal surfaces at terminations and penetrations through Urethane/Epoxy Deck Coating System and at expansion joints, drains, and sleeves according to manufacturer’s written recommendations

C. Mask adjoining surfaces not receiving Urethane/Epoxy Deck Coating System, drains, and other substrate penetrations to prevent spillage, leaking, and migration of coatings.

3.04 URETHANE/EPOXY DECK COATING SYSTEM APPLICATION:

A. Mechanical Mixing- Coating and primers shall be thoroughly utilizing a mechanical drill with a manufacturer approved mixing blade. Premix individual components separately per manufacturer’s recommendations then combine materials and mix per manufacturers recommendations. Bottom and sides of container may be scraped during mixing but shall not be scraped once mixing has ceased. Do not aerate material.

B. Epoxy Primer Application: Apply uniform application of specified Epoxy Primer to properly prepared surface utilizing short nap roller, brush, or airless spray. Apply at manufacturer’s recommended coverage rate of 200 to 250 square feet per gallon (7 mils wet).

C. Waterproof Membrane Application: When epoxy primer is tack free, but no more than 24 hours after application of epoxy primer, apply uniform application of properly mixed Urethane/Epoxy Deck Coating System Membrane to surface utilizing a serrated squeegee, notched trowel, a magic trowel, or a short nap roller. Apply at a rate of 40 to 60 square feet per gallon (32 mils wet) per manufacturer’s written recommendations. A spike roller shall be utilized to remove entrapped air prior to initial set of the Urethane/Epoxy Deck Coating System Membrane.

D. Epoxy Wearing Course First Coat Application: Once the Urethane Membrane is tack free, but no more than 24 hours after membrane application, apply Epoxy Wearing Course at the rate of 60 to 80 sq. ft. per gallon (23 mils wet) per manufacturer’s instructions.

1. While Epoxy Wearing Course is still wet, the specified aggregate shall be broadcast until no wet spots are visible (approximately 7 to 9 pounds per sq. yd.) Aggregate shall be sprinkled or dropped vertically in such a manner so as not displace or ripple the wet resin film. When Epoxy Wearing Course has cured sufficiently to sustain working traffic, any excess aggregate remaining shall be removed by sweeping.

E. Epoxy Wearing Course Second Coat Application: Apply second coat of Epoxy Wearing Course at rate of 40 to 60 sq. ft. per gallon per manufacturer’s instructions.

1. While Epoxy Wearing Course is still wet, the specified aggregate shall be broadcast until no wet spots are visible (approximately 9 to 12 pounds per sq. yd.) Aggregate shall be sprinkled or dropped vertically in such a manner so as not displace or ripple the wet resin film. When Epoxy Wearing Course has cured sufficiently to sustain working traffic, any excess aggregate remaining shall be removed by sweeping.

*{Note to Specifier: The Heavy Traffic System uses a choice of two topcoats: FLEXDECK URETHANE TIECOAT a one part aliphatic urethane, or FLEXDECK EPOXY TOPCOAT a two part epoxy. Contact Euclid Chemical (800-321-7628;* [*www.euclidchemical.com*](http://www.euclidchemical.com)*) for more information regarding the features and benefits of each as a finish coat for your Flexdeck system.}*

F. Top Coat Application: Apply one coat of **<<Urethane>><<Epoxy>>** Top Coat at rate of 60 to 100 sq. ft. per gallon per manufacturers written instructions.

1. Do not broadcast aggregate into this coat.

*{Note to Specifier: Depending on the specific project, correct implementation of other application details, such as terminations, drain detail, etc. may be required. For further information contact Euclid Chemical Technical Support at (800) 321-7628.}*

3.\_\_ CURING AND PROTECTING

A. Prevent contamination and damage during application and curing stages.

B. Protect Urethane/Epoxy Deck Coating System from damage and wear during remainder of construction period.

END SECTION