

SECTION 09700 : SEAMLESS FLOORING SPECIFICATION

DCXL4

Surface Requirements: N/A; Special Requirements: N/A

PART 1 : GENERAL

1.01 DESCRIPTION

- A. **WORK INCLUDED:** All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations of the work in this Section, complete as shown on the Drawings and as specified herein. Work includes, but is not limited to, the following:
1. Examine all other Sections for work related to those other Sections and required to be included as work under this Section.
 2. Submittals.
 3. Resinous flooring.
- B. **RELATED DOCUMENTS:** Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to Work of this Section as if printed herein.
- C. **RELATED WORK SPECIFIED IN OTHER SECTIONS:** The following items are covered by the indicated other Sections of this Project Manual. Coordinate as required with all other trades to ensure proper and adequate provision for the installation of items described in this Section.
- | | |
|----------------------------|---------------|
| 1. Cast-In-Place Concrete: | Section 03300 |
| 2. Finish Carpentry: | Section 06200 |
| 3. Sealants and Caulking: | Section 07920 |

1.02 QUALITY ASSURANCE

- A. **ACCEPTABLE MANUFACTURER:** As specified herein under "Products."
- B. **INSTALLER'S QUALIFICATIONS:** Installation shall be by qualified Tufco personnel.
- C. Furnish and install the resinous flooring using materials and methods to ensure that the completed work will remain bonded to the substrate in this building and will have the chemical resistance and physical properties as published by the Manufacturer for the specified products.
- D. **REFERENCES AND STANDARDS (Latest Edition):**
1. American Society of Testing and Materials (ASTM)
 2. American Concrete Institute (ACI)

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1.03 SUBMITTALS

- A. *Comply with pertinent provisions of Section 01300.*
- B. *PRODUCT DATA; Submit:*
 - 1. *Complete list of all materials, with descriptive data and installation instructions.*
 - 2. *Selection of color and finish will be made by the Architect from samples of Manufacturer's palette.*
 - 3. *Manufacturer's recommended care and maintenance instructions.*

1.04 DELIVERY, STORAGE AND HANDLING

- A. *COMPLY WITH PERTINENT PROVISIONS OF SECTION 01600: Material shall be stored in a dry, protected area in such a manner as to prevent damage. Damaged or deteriorated materials shall be removed from the premises.*
- B. *Ensure timely delivery so products will be available at project site when required for installation so as not to delay job progress.*

1.05 PROJECT CONDITIONS

- A. *New concrete substrates should be properly cured to develop specified compressive strength, and other properties. A safe period of cure is usually determined to be 21 to 28 days under normal temperature and humidity conditions.*
- B. *The concrete shall have a light steel trowel finish.*
- C. *Floor flatness tolerance as determined by ASTM E 1155, "Standard Method for Determining Floor Flatness and Levelness Using the F-Number System," should have a minimum F_F of 30, 3/16 inch as determined by the 10-foot straightedge method (ACI 118 gives information on both systems). Values outside these tolerances may necessitate the use of fill material in addition to the amount of material specified herein.*
- D. *Expansion joints shall be of non-asphalt type.*
- E. *Concrete shall be finished to grade of desired finished floor.*
- F. *Utilities, including electric, water and temporary or finished lighting shall be supplied by the General Contractor.*

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- G. *Job area shall be free of other trades during, and for a period of time specified in Part 3.03.F, after floor installation.*
- H. *Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.*

1.06 WARRANTY

Tufco warrants its products to be free from defects in material and workmanship. The Tufco floor is unconditionally warranted for its normal and intended use, and will be replaced or repaired in accordance with specific warrants given with each specific contract.

PART 2 : PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

MRXL, TFXL or DCXL Series as manufactured by: *Tufco International, Inc.
P.O. Box 456
Gentry, Arkansas 72734
(479) 736-2201*

2.02 PERFORMANCE CRITERIA

- A. *RESIN: The resin primer, binder and glaze shall be thermosetting resins formulated for the specific flooring application taken from the following list of resins:*

<i>Tufco Resin 2080</i>	<i>Tufco Resin 1099</i>	<i>Tufco 7080</i>
<i>Tufco Resin 1098</i>	<i>Tufco Resin 7010</i>	<i>Tufco Tuf-Seal LS</i>
<i>Tufco Resin 1093</i>	<i>Tufco Resin 7040</i>	<i>Tufco Tuf-Thane</i>
<i>Tufco Resin 1095</i>	<i>Tufco Resin 7090</i>	

Refer to specific floor to be installed, and Product Bulletins of specified resins for performance criteria.

- B. *AGGREGATE: The aggregate fillers shall be clean, kiln dried silica sand and aluminum oxide as follows:*

<i>Tufco No. 8 Silica Sand</i>	<i>U.S. Standard Sieve passing 8 to 16</i>
<i>Tufco No. 20 Silica Sand</i>	<i>U.S. Standard Sieve passing 20 to 40</i>
<i>Tufco No. 24 Silica Sand</i>	<i>U.S. Standard Sieve passing 20 to 40</i>
<i>Tufco Colored Aggregate</i>	<i>U.S. Standard Sieve passing 20 to 40</i>
<i>Tufco Aluminum Oxide</i>	<i>U.S. Standard Sieve passing; varies</i>

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Paint Chip *with varying surface requirements*
1/4 inch

C. **FINISHED FLOOR PHYSICAL PROPERTIES**

Compressive Strength, ASTM C-579 13,300 psi Minimum

Flexual Strength, ASTM C-5806 200 psi

2.03 JOINT SEALANT MATERIALS

Joint sealant shall be the type produced by the resinous flooring manufacturer for type of service and joint condition indicated.

2.04 OTHER MATERIALS

All other materials not specifically described, but required for a complete installation, shall be only those recommended by the Manufacturer of the seamless flooring system.

PART 3 : EXECUTION

3.01 SURFACE CONDITIONS

- A. *Prior to all work of this Section, carefully inspect previously installed work of other trades and verify that all such work is complete to the point where this installation may commence. Particular attention should be given to items in Part 1.04 of this Specification.*
- B. *The concrete shall be allowed to cure for an acceptable period prior to application of resinous flooring. Refer to Part 1.05.A of this Specification.*
- C. *Verify that the final installation shall be complete in accordance with the original design and the Manufacturer's recommended method of installation. In the event of discrepancy, immediately notify the Architect.*

3.02 SURFACE PREPARATION

- A. *Concrete floor preparation shall be by mechanical means and shall include the use of scabblers, scarifiers, shot-blast or other acceptable devices for removal of bond-inhibiting materials such as curing compounds or laitance.*
- B. *After all operations in 3.02.A, thoroughly clean surface to remove dust and loose material.*

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3.03 APPLICATION

- A. **GENERAL:** Apply each component of resinous system in compliance with Manufacturer's directions to produce a uniform monolithic wearing surface of thickness indicated, uninterrupted except at divider strips, sawn joints or other types of joints, if any, indicated or required.
- B. **KEYING:** Keying shall be done to assure soundness at all floor terminations.
1. Keying shall be performed at all flooring terminations to a nominal width of 1-1/2 inches and a nominal depth of one inch.
 2. Keying shall be performed at walls, pads and other vertical surfaces to a nominal width of one inch and a nominal depth of one inch.
- C. **DETAILING:** Detailing shall be done at all moving cracks and joints to prevent cracking to the flooring.
Working cracks, expansion joints and control joints shall be detailed in one of the following ways:
1. Keying and installation of non-reinforced flexible joint compound.
 2. Keying and installation of metal reinforcing mesh and the specified flooring resins and aggregates.
- D. The flooring shall be applied in laminated layers at the following material coverage rates to yield a nominal 1/8 to 1/4 inch finished floor, excluding any additional fill and leveling material.

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LAYER	RESIN		AGGREGATE	
	LBS/SF	TYPE	LBS/SF	TYPE
1	0.25	7010A	1.10	No. 20
2	0.15	Base Coat A/B	0.18	Paint Chips
3	0.08	Tuf-Seal A/B		
4	0.025	Tuf-Thane A/B		

- E. The laminated layers of the flooring shall be applied in the following manner:

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DCXL4 -- Nominal Thickness 1/8 to 1/4 inch

1. *LAYER 1, BUILD COAT: A resin layer shall be spread and worked into the concrete surface, cracks, keys and detailed areas for a complete seal. Aggregate shall be distributed evenly over the uncured resin to a dry appearance.*
2. *LAYERS 2, BASE COAT : Use a standard Tufco squeegee to spread the material, have someone wearing spiked shoes back rolling the material in two directions (north/south and east/west). Within ten minutes of base coat application, broadcast the chips at a rate of 100 square feet per 16 pounds to a dry appearance. Toss the chips into the air to allow them to rain onto the surface evenly. Someone wearing spiked shoes can also carry a pail of chips into the coated area to broadcast the chips, if necessary.*
3. *LAYERS 3, FILL COAT : A standard Tufco squeegee is too rigid for this layer; a softer squeegee is recommended. Again, a person wearing spiked shoes should be back rolling this layer as soon as it is spread, rolling it both ways (north/south and east/west). It is recommended that chips be carefully broadcast into the fill coat to create a look of depth or to cover inadequate broadcasting done in the base coat. Apply at a rate of no more than 2 pounds per 100 square feet. Note: This layer is not intended to completely fill the voids between the chips to a smooth or level surface. Be careful not to leave this layer too heavy. If you choose to broadcast chips into this layer, do not back roll afterwards.*
4. *LAYER 4, FINISH COAT : A soft squeegee is recommended for this layer. Spread the material out very thin and have someone with spiked shoes back rolling right away (north/south and east/west). This will eliminate any uneven marks left by the squeegee.*

F. *CURING: Floors shall cure in accordance with Manufacturer's written recommendations before being subjected to traffic of any nature.*

1. *Approximate curing schedule (at 75°F or above).*

TYPE TRAFFIC	EPOXY GLAZED OR TUF-THANE GLAZED	VINYL ESTER GLAZED
<i>FOOT TRAFFIC</i>	<i>6 to 10 hours</i>	<i>5 to 8 hours</i>
<i>LIGHT VEHICLE TRAFFIC</i>	<i>12 hours</i>	<i>5 to 8 hours</i>
<i>CLEAN WATER WASHDOWN</i>	<i>12 hours</i>	<i>5 to 8 hours</i>

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SANITIZING CHEMICALS	<i>Dilute by running water on floor while sanitizing equipment during the first two days of operation.</i>
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2. *For cure schedule below 75°F, consult Tufco's technical staff.*

TUFCO INTERNATIONAL, INC.

**P.O. Box 456
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