



**SECTION 096723
TROWELED MORTAR RESINOUS FLOORING**

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Section in Division 1 of these Specifications.

1.2 SUBSTITUTIONS

- A. All substitutions must include a line by line comparison of all test data with supporting documentation.
- B. Provide references for five similar projects that are at least five years old.
- C. Approval must be in writing by Architect and Owner 15 days prior to bid date.
- D. Contractor must keep daily reports containing all work detail and material usage certified by material manufacturer.

1.3 DESCRIPTION/SUMMARY

- A. **Work Included**
The work includes, but is not limited to, providing all materials, labor, equipment and transportation to provide an epoxy resinous flooring system complete as indicated and as specified herein.
Surface preparation
Primer, troweled mortar matrix, grout coat, cove base (if called for in finish schedule), finish coat.

- B. **Related Work Specified Elsewhere**
Note: Coordinate work of this section with work of other sections to properly execute the work and maintain satisfactory progress of work of other sections including:

CAST-IN-PLACE CONCRETE, Division 3
ROUGH CARPENTRY, Division 6
THERMAL & MOISTURE PROTECTION, Division 7
PLUMBING, Division 15

1.4 REFERENCES

References made herein to published specifications; standards, methods of testing and recommended methods of trade, industry and governmental organizations shall apply to the year of original adoption or the year of the latest revision or approvals.

Refer to Division 1, Section: REFERENCE STANDARDS.

- 1.5 SUBMITTALS
Submit samples, manufacturers literature and installation instructions per Division 1, Section: SUBMITTAL PROCEDURES
- 1.6 QUALITY ASSURANCE
- A. Applicator shall have minimum of five years experience in application of the specified type of flooring.
- B. Provide certification from the manufacturer that the applicator is approved for installation of the flooring.
- 1.7 WARRANTY
Provide one (1) year guarantee for material and installation.
- 1.8 PRODUCT HANDLING AND DELIVERY
Deliver all material in manufacturers sealed containers and store under cover in a well-ventilated area.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Manufacturer: **Sunbelt Flooring, Inc.**,
Phone: (909) 606-7623 Fax: (909) 606-7685
Website: www.sunbeltflooring.com
- B. System: **The Sunbelt Flooring System** as installed by **Sunbelt Flooring, Inc.**, including: Preparation and installation on the **Sunbelt 1100® Troweled Mortar Chemical Resistant Industrial Floor** The General Contractor shall coordinate scheduling with adequate advance notice prior to floor installation as agreed upon with **Sunbelt Flooring, Inc.**
- C. Products: Primer as recommended for conditions. Chemical Resistant Industrial Flooring No. 1100 (Color to be selected by Architect from the **Sunbelt Flooring, Inc.**, sample boards as submitted) and installed only by **Sunbelt Flooring, Inc.** System shall be Sunbelt Quartz, Sunbelt Flake or Pigmented Resin.

2.2 TEST METHOD REFERENCES - SUNBELT 1100® FLOORING SYSTEM

ASTM C 307, "Standard test method for tensile strength of chemical-resistant mortar, grouts, and monolithic surfacings"

ASTM C 413 "Standard test method for absorption of chemical resistant mortars, grouts, monolithic surfacings, and polymer concretes"

ASTM C 531 "Standard test method for linear shrinkage and coefficient of thermal expansion of chemical resistant mortars, grouts, monolithic surfacings, and polymer concretes.

ASTM C 579 “Standard test method for compressive strength of chemical resistant mortars, grouts, monolithic surfacings, and polymer concretes”

ASTM C 580 “Standard test method for flexural strength and modulus of elasticity of chemical resistant mortars, grouts, monolithic surfacings, and polymer concretes”

ASTM C 1028 “Standard test method for determining the static coefficient of friction of ceramic tile and other like surfaces by the horizontal dynamometer pull-meter method.”

ASTM D 635, “Standard test method for rate of burning and/or extent and time of burning of plastics in a horizontal position.”

ASTM D 790, “Standard test methods for flexural properties of unreinforced and reinforced plastics and electrical insulating materials.”

ASTM D 2240 “Standard test method for rubbery property – durometer hardness”

ASTM D 2794 “Standard test method for resistance of organic coatings to the effects of rapid deformation (Impact)”

ASTM D 4060, “Standard test method for abrasion resistance of organic coatings by the tabor abraser”

ASTM D 7234, “Standard test method for pull-off adhesive strength of coatings on concrete using portable pull-off adhesion testers.”

2.3 TEST RESULTS – SUNBELT 1100 TROWELED MORTAR RESINOUS SYSTEM

<u>PROPERTY</u>	<u>TEST METHOD</u>	<u>RESULTS</u>
Tensile Strength	ASTM C 307	28 days – 2745 psi
Absorption	ASTM C 413	7 days - 0.08%
Coefficient of Thermal Expansion	ASTM C 531	3.0 x 10 ⁻⁵ in/in/°F
Compressive Strength	ASTM C 579	7 days – 10,718 psi
Modulus of Elasticity	ASTM C 580	7 days – 2.2 x 10 ⁶ psi
Static Coefficient of Friction	ASTM C 1028	Dry – 1.02 Wet – 0.92
Flammability	ASTM D 635	Self-Extinguishing *Flame did not reach 25 mm mark
Flexural Strength	ASTM D 790	4,658 psi
Hardness	ASTM D 2240	87

Impact Resistance	ASTM D 2794	No cracking @ 160 inch-pounds
Abrasion Resistance	ASTM D 4060	Wear index 38 @ 500 cycles Weight Loss 0.019 grams @ 500 cycles
Bond Strength	ASTM D 7234	> 387 psi (break in concrete)
Heat Resistance	No deformation, degradation or peeling. Cycle - Continuous exposure @140°F for 18 hours then placed in laboratory temperature for 6 hours.	

2.4 SUNBELT 1100 - CHEMICAL RESISTANCE CHART

ACIDS	RATING	MISC.	RATING
Acetic 10%	3D	Brake Fluid	3
Chromic 10%	2D	Skydrol	3
Citric 10%	3D	Formaldehyde 37%	3
Formic 25%	1	Ethylene Glycol	4
Hydrochloric 10%	2D	Propylene Glycol	3
Lactic 85%	2D	Vegetable Oil	4
Nitric 10%	3D	Gasoline	2
Phosphoric 10%	3	Water	4
85%	NR	Anti Freeze	4
Sulfuric Acid 10%	3D	Bleach Soln	4
50%	3D		
98%	NR		
Hydrofluoric 10%	2D		
SOLVENTS		Key: 4 - Long term exposure (30 days), 3 - Extended Exposure (7 days), 2 - Splash/spill (72 hours), 1 - Incidental contact (8 hours), D - Discoloration, NR - Not Rated Applicable for exposures at room temperature when applied at a minimum 30 mil thickness. This guide is intended as an aid in determining the potential usefulness of DURALTEX as a protective coating against chemical exposure. Each application or combination of chemicals should be evaluated according to its specific circumstances and conditions.	
Ethyl Alcohol 95%	1		
Ethyl Acetate	NR		
Methanol	1		
Methyl Ethyl Ketone	NR		
Mineral Spirits	4		
Methylene Chloride	NR		
Toluene	1		
Xylene	1		
Trichloroethane	2		
ALKALIES/SALTS			
Ammonia 29%	4		
Potassium Hydroxide 50%	4		
Sodium Hydroxide 50%	4		
Detergent Solution	4		
Ammonium Sulfate 50%	4		
Sodium Chloride 50%	4		
Ferric Chloride 50%	3D		
Sodium Hypochlorite 10%	3D		
Hydrogen Peroxide 35%	3D		

PART 3 – EXECUTION

3.1 PREPARATION OF EXISTING CONCRETE

Cleaning of interior concrete slabs: Vacuum shot blast (“Blastrac”) all designated existing interior concrete floor slabs that are to receive new flooring materials or leveling underlayment coating. Vacuum shot blasting shall be with steel pellets 330-5 to 390-5 for optimum surface profile in order for all sealers or adhesives to penetrate and bond. Coordinate all vacuum shotblasting with respective floor covering contractor. Dustless diamond cup grinding may be used in some instances in lieu of shot blasting.

3.2 PREPARATION AND INSPECTION

- A. Insure structural substrate to receive flooring is designed to prevent random cracking and/or deflection. Provide adequate control and expansion joints. Finish shall be “light steel trowel finish.” Flooring is designed to follow contour of the concrete. Any desired slope should be incorporated into the concrete specification.
- B. Concrete to receive flooring shall be wet cured for a minimum of 28 days. Do not permit use of chemical surface curing agents that may interfere with adhesion.
- C. Ensure substrate is sound, dry, and free of dust, dirt, paint, grease, oil or other foreign substances.
- D. All substrates must have an effective vapor barrier to prevent potential problems resulting from hydrostatic or capillary moisture pressure. If moisture emissions exceed three (3) lbs. per 1,000 sq/ft, per 24 hours, or an RH more than 78%, a vapor emission system approved by the manufacturer will need to be installed prior to installation of resinous flooring.
- E. Variations in substrate level should not exceed 1/8” in ten feet. Ensure deviations or deteriorated concrete is corrected prior to start of this work.
- F. Advise other trades of finished, fixtures and fittings not to be installed until flooring is cured, such as: Painting, floor supported equipment, caulking, plumbing fixtures, etc.
- G. Dirt, dust, plaster, oil, grease, tar, paint or any substrate that might impair adhesion must be thoroughly removed with suitable cleaners.
- H. All cracks, holes broken and crumbling areas must first be cut out, cleaned and repaired with sand filled Sunbelt 1100®.
- I. Moving of settling cracks shall be cut or routed out and filled with aerosil and epoxy paste, then reinforced with fiberglass tape.
- J. Building shall be encased with roof, walls, windows and doors prior to floor installation. Exceptions shall be agreed upon, in writing, by flooring installer.

INSTALLATION

- A. Comply with manufacturer's instructions and recommendations. Mix Sunbelt Flooring No. 1100 industrial flooring liquids with manufacturers approved equipment.
- B. Apply epoxy primer to substrate.
- C. Mix aggregate & resin to selected blend.
- D. Trowel apply mixture to primed substrate.
- E. Trowel apply mixed aggregate & resin to form 3/8" minimum radius cove base.
- F. Trowel apply resin rich grout coat & selected aggregate.
- G. Apply finish coat.
- H. If a skid resistant surface is required by Architect or indicated on drawings, non-skid aggregates shall be broadcast onto surface of finish coat, then back rolled for sealing.
- I. Allow to cure thoroughly before opening floor to normal use. Use of heating equipment or infrared lamps is suggested if the seal coat cannot be given more than twelve hours of curing time before normal use.
- J. Protection: Supply barricades and precautions to allow traffic after and during start of installation, and for the cure period of the final coat.

End of Section 09673