

# STONCLAD UT-AF GUIDE SPEC

**SECTION 096723 - RESINOUS FLOORING**

1. **GENERAL**
	* + 1. RELATED DOCUMENTS
				1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			2. SUMMARY
				1. This Section includes one liquid rich self-priming, resinous flooring system, based on urethane-urea binder technology with high durability aggregates for non slip, wear and impact resistance.

Application Method: Metal hand troweled.

If allowance or unit price applies to Work of this Section, insert brief paragraph here to alert Contractor and reference appropriate Division 01 Section for specific details. If concrete substrates exhibit unacceptable moisture-vapor-emission rates, allowance or unit price can be used to plan for or control the costs of remedial procedures. See "Moisture and Flooring Failures" Article in the Evaluations.

* + - 1. SUBMITTALS
				1. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.

Insert requirements for Shop Drawings if special color patterns are required.

Delete paragraph above if colors and other characteristics are preselected and specified or scheduled. Retain paragraph below with or without above.

* + - * 1. Samples for Verification: For each resinous flooring system required, 5 inches (150 mm) square, applied to a rigid backing.

Delete paragraph below if not required.

* + - * 1. Product Schedule: Use resinous flooring designations indicated in Part 2 and area designations indicated on Drawings in product schedule.

Retain first paragraph below if Installer certification is required in "Quality Assurance" Article.

* + - * 1. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
				2. Maintenance Data: For resinous flooring to include in maintenance manuals.
			1. QUALITY ASSURANCE
				1. No request for substitution shall be considered that would change the generic type of floor system specified (i.e. Urethane mortar-based system). Equivalent materials of other manufactures may be substituted only on approval of Architect or Engineer. Request for substitution will only be considered only if submitted 10 days prior to bid date. Request will be subject to specification requirements described in this section.
				2. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.

Retain subparagraph above or below if available for products selected; see "Installer Qualifications" Article in the Evaluations. Retain below with requirements for Installer certificates in "Submittals" Article.

Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

Contractor shall have completed at least 10 projects of similar size and complexity.

* + - * 1. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, through one source from a single manufacturer, with not less than ten years of successful experience in manufacturing and installing principal materials described in this section. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
				2. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on installing the system to be used on the project.

Field Technical Services Representatives shall be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.

Revise paragraph below to suit Project or delete if unnecessary.

Delete paragraph and subparagraphs below if not required. If retaining, indicate location, size, and other details of mockups on Drawings or by inserts. Revise wording if only one mockup is required.

* + - * 1. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

Apply full-thickness mockups on 48-inch- (1200-mm-) square floor area selected by Architect.

Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

Sign off from Architect and Owner/Owners agent on texture for slip resistance must be complete before installation of flooring system.

* + - * 1. Pre-installation Conference:

General contractor shall arrange a meeting not less than thirty days prior to starting work.

Attendance:

General Contractor

Architect/Owner's Representative.

Manufacturer/Installer's Representative.

If required by authorities having jurisdiction or Owner, insert fire-test-response-characteristic requirements to suit Project. See "Fire-Test-Response Characteristics" Article in the Evaluations.

* + - 1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
				2. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects. Store material per product data sheet.
				3. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.
			2. PROJECT CONDITIONS
				1. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

Maintain material and substrate temperature between 60 and 85 deg F (16 and 30 deg C) during resinous flooring application and for not less than 24 hours after application.

Revise first paragraph below if specific foot-candle level is required.

* + - * 1. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
				2. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.
				3. Concrete substrate shall be properly cured. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring

1.7 WARRANTY

* + - * 1. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of (1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

If a special warranty is required, insert "Warranty" Article. Requiring a single-source warranty for application and materials from the manufacturer may ensure quality but will eliminate some manufacturers. Alternatively, a special warranty signed by the Installer and manufacturer can be required.

1. **PRODUCTS**

Copy Article below and re-edit it for each resinous flooring system required. Insert number to complete drawing designation for each system required. Use these designations on Drawings to show where each system is required.

* + - 1. RESINOUS FLOORING

See Editing Instruction No. 1 in the Evaluations for cautions about naming manufacturers and products.

* + - * 1. Available Products: Subject to compliance with requirements, product that may be incorporated into the work include,

Unsealed or “self-sealing” urethane mortar systems, multiple layers of liquids and broadcasts will not be accepted, and will result in a disqualification from bid.

* + - * 1. Acceptable Manufactures,

Stonhard Basis of design.

Retain above for nonproprietary or below for semi-proprietary specification. Refer to Division 01 Section "Product Requirements."

* + - * 1. Products: Subject to compliance with requirements:

Stonhard, Inc.; Stonclad UT-AF. With Stonkote HT4.

* + - * 1. System Characteristics:

Color and Pattern: Select from Mfg. Standards

Wearing Surface: Heavy texture

Overall System Thickness: Multiple layers at 3/8” per layer, in alternating colours as wear indicator, typical recommended overall system thickness 1 1/8”

Revise subparagraph below to suit Project or delete if unnecessary.

* + - * 1. System Components: Manufacturer's standard components that are compatible with each other and as follows:

Mortar:

Material design basis: Stonclad UT

Resin: Urethane-Urea.

Self-priming

Suitable for application onto “green concrete” once it has achieved sufficient strength to handle mechanical preparation (usually after 5 days).

Delete first subparagraph below if unnecessary.

Formulation Description: (4) four-component, 100 percent solids.

Application Method: Screed, Trowel.

Thickness of Coats: 3/8”.

Number of Coats: Recommended 3 (adjust to suite site conditions) to achieve an overall thickness of 1 1/8”.

Broadcast Aluminum Oxide texture into wet mortar base.

Aggregates: Pigmented Blended aggregate.

Aggregates:

Hardness MOHS 9

Aluminum Oxide

Irregular & sized to suite application

Minimum application rate 0.5lbs/sq ft.

Topcoat:

Material design basis: Stonkote HT4

Resin: 100% Solids highly chemically resistant Epoxy

Formulation Description: (2) two-component, 100 percent solids.

Type: Pigmented.

Finish: Standard.

Number of Coats: One.

Note: Components listed above are the basis of design intent; all bids will be compared to this standard including resin chemistry, color, wearing surface, thickness, and installation procedures, including number of coats. Contractor shall be required to comply with all the requirements of the Specifications and all of the components required by the Specifications, whether or not such products are specifically listed above.

Delete paragraph and subparagraphs below for proprietary or semi-proprietary specification where product designations establish criteria for physical properties. If retaining and specific criteria are required for each component coat of the system, revise to suit Project.

* + - * 1. System Physical Properties: Provide resinous flooring system with the following minimum physical property requirements when tested according to test methods indicated:

Subparagraphs below are examples only and are based on test methods required in ASTM C 722 and manufacturers' literature. Manufacturers' testing procedures differ; revise test methods indicated and insert additional requirements to suit Project.

Compressive Strength: 7,700 psi after 7 days per ASTM C 579.

Tensile Strength: 1,000 psi per ASTM C 307.

Flexural Strength: 2,400 psi per ASTM C 580.

Water Absorption: < 1% per ASTM C 413.

Impact Resistance: > 160 in. lbs. per ASTM D 2794.

Flammability: Class 1 per ASTM E-648.

Hardness: 80 to 84, Shore D per ASTM D 2240.

Flexural Modulus of Elasticity: 2.6x106 psi per ASTM C-580

Thermal Coefficient of Linear Expansion: 1.1x10-5 in./in.˚F per ASTM C-531

Abrasion Resistance: ASTM D-4060 CS17, 10,000 cycle, 0.49g

Immersion Testing ASTM D6943 Method A); Must be capable of full immersion in materials representative of site conditions for a minimum period of 200 days without significant deterioration

* + - 1. ACCESSORY MATERIALS
				1. Primer: Type recommended by manufacturer for substrate and body coats indicated. Formulation Description: Stonclad UT urethane mortar is self-priming. Specific primers may be required depending on site conditions, especially in the case of refurbishment of existing substrates.
				2. Patching and Leveling: Use a four-component fast setting Urethane grout. Moisture resistant polyurethane-based grout designed for permanent repairs under flooring system. Stonhard, Stonset TG6.
1. **EXECUTION**
	* + 1. PREPARATION

Revise paragraph below to suit resinous flooring system selected. Some systems are moisture tolerant; consult manufacturers for guidance.

* + - * 1. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean and dry substrate for resinous flooring application.

Retain first paragraph and subparagraphs below for concrete substrates. Insert requirements for other substrates to suit Project.

* + - * 1. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.

Mechanically prepare substrates as follows:

Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup. To achieve a minimum ICRI Profile of CSP-3-5.

Delete subparagraph above or first subparagraph below. See Evaluations.

Comply with ASTM C 811 requirements, unless manufacturer's written instructions are more stringent.

Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written recommendations.

Consider including allowance or unit price for remedial procedures if concrete substrates exhibit unacceptable moisture-vapor-emission rates. See "Moisture and Flooring Failures" Article in the Evaluations.

Chosen system must be suitable for application onto “green concrete” once it has achieved sufficient strength

Verify that concrete substrates are dry.

Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 85 percent.

Test above provides a more accurate indication as to whether or not a concrete slab has dried sufficiently to allow finish flooring application than the tests below.

For applying impermeable resinous flooring systems, 3 lb of water/1000 sq. ft. (1.36 kg of water/92.9 sq. m) of slab in 24 hours is generally considered a safe moisture-vapor-emission rate. Consult manufacturers for appropriate rates for permeable systems that will allow moisture vapor to continue through them once cured.

Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 6 lb of water/1000 sq. ft. of slab in 24 hours.

Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.

If desired, insert, in paragraph below, requirements for using patching and fill material to slope existing substrates to drains.

* + - * 1. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

Some manufacturers use patching and fill material to fill control joints and other nonmoving cracks. Revise paragraph above or below to suit systems selected.

* + - * 1. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations. Allowances should be included for a suitable Elastomer for control joint fill material, and Stonhard CT5 concrete crack treatment.
			1. APPLICATION
				1. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.

Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.

Apply joint sealant to comply with manufacturer's written recommendations. Due to the nature of this type of application, a semi rigid Polyurea Joint system is recommended, joints should be bought through the entire system.

Delete paragraph below if only self-priming systems are required.

* + - * 1. Apply primer where required by resinous system, over prepared substrate at manufacturer's recommended spreading rate.
				2. Mortar: Mix mortar material according to manufacturer's recommended procedures. Uniformly spread mortar over substrate at manufacturer’s recommended height using specially designed trowel and or Screed box. Broadcast desired texture directly into mortar base. Field verify texture needed
				3. Apply mortar in multiple layers once first layer is sufficiently hardened (typically 6-8 hours) in contrasting colors for wear indication.
				4. Apply topcoat in number of coats indicated for flooring system and at spreading rates recommended in writing by manufacturer.
			1. TERMINATIONS
				1. Chase edges to “lock” the flooring system into the concrete substrate along lines of termination.
				2. Penetration Treatment: Lap and seal the flooring system onto the perimeter of the penetrating item by bridging over compatible elastomer at the interface to compensate for possible movement.
				3. Trenches: Continue flooring system into trenches to maintain monolithic protection. Treat cold joints to assure bridging of potential cracks.
				4. Treat floor drains by chasing the flooring system to lock in place at point of termination.
			2. JOINTS AND CRACKS
				1. Treat control joints to bridge potential cracks and to maintain monolithic protection.
				2. Treat cold joints and construction joints to bridge potential cracks and to maintain monolithic protection on horizontal and vertical surfaces as well as horizontal and vertical interfaces.
				3. Discontinue floor coating system at vertical and horizontal contraction and expansion joints by installing backer rod and compatible sealant after coating installation is completed. Provide sealant type recommended by manufacturer for traffic conditions and chemical exposures to be encountered.
			3. FIELD QUALITY CONTROL

With Owner's consent, retain paragraph below to ensure compliance with thickness requirements. Core sampling will require repairing damage caused by testing.

Delete paragraph and subparagraphs below if size or nature of Project does not warrant material sampling. If retaining, revise to suit Project.

* + - * 1. Material Sampling: Owner may at any time and any numbers of times during resinous flooring application require material samples for testing for compliance with requirements.

Owner will engage an independent testing agency to take samples of materials being used. Material samples will be taken, identified, sealed, and certified in presence of Contractor.

Testing agency will test samples for compliance with requirements, using applicable referenced testing procedures or, if not referenced, using testing procedures listed in manufacturer's product data.

If test results show applied materials do not comply with specified requirements, pay for testing, remove noncomplying materials, prepare surfaces coated with unacceptable materials, and reapply flooring materials to comply with requirements.

* + - 1. CLEANING, PROTECTING, AND CURING
				1. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 18 hours.
				2. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.
				3. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

END OF SECTION 096723

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