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**REVISION OF SECTIONS 601 AND 708
STRUCTURAL CONCRETE STAIN**

Revise Sections 601 and 708 of the Standard Specifications for this project as follows:

Subsection 601.01 shall include the following:

This work consists of: (1) Class 2 surface finish of concrete to receive Concrete Stain; (2) furnishing and applying an opaque structural concrete stain to all concrete surfaces designated in the Contract documents; and (3) furnishing and applying up to 5 gallons of pre-mixed touch-up paint in aerosol spray cans.

The color of the structural concrete stain shall be as noted on the plans and shall be approved by the Engineer from test panels provided by the Contractor.

The structural concrete stain shall be one of the following products:

- (1) RAINSTOPPER RS400 - Semi Transparent Stain

Textured Coatings of America
Distributed by: Pro-Coat Systems, Inc.
5775 Stapleton Drive North
Denver, CO 80216
303-322-9009

- (2) "Acrylic" Structural Concrete Stain

Anchor Paint Co. of Denver, Inc.
641 South Jason
Denver, CO 80223-2305
303-744-2361

- (3) Bridge and Highway Concrete Sealer, B97-Series

The Sherwin-Williams Company
543A Santa Fe Drive
Denver, Colorado 80204
303-893-1303

Subsection 601.03 shall include the following:

Structural concrete stain as specified in subsection 708.08.

Subsection 601.09(f) shall include the following:

All concrete forms shall be treated with a water based concrete form release agent before placing reinforcement for surfaces to which structural concrete stain is to be applied.

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In subsection 601.14(a) delete the third paragraph and replace with the following:

Structural concrete stain shall be the final finish for all concrete surfaces designated on the plans and in these specifications.

Delete subsection 601.14(b)4 and replace with the following:

Unless otherwise shown on the plans, the structural concrete stain shall be applied to all exposed concrete elements of the structure above the ground line and shall extend 1 foot below the finished ground line. Bridge bearing devices, curb and barrier cover plates, fence, and steel bridge rail shall be masked or otherwise protected to prevent structural concrete coating from coming into contact with them.

The color of the structural concrete stain shall have the written approval of the Engineer before final batching and application on the project. The final color of the structural concrete stain shall be determined as follows:

- (1) Two 2 foot by 2 foot samples of the colors required by the Contract, shall be submitted to the Engineer for approval. The stain samples shall be applied to a surface similar in texture to the concrete surface on which the stain will be applied on the project. The stain samples shall be applied by the same methods to be used in field application.
- (2) At least three weeks before beginning of the application of the structural concrete stain, 100 square foot test panels shall be prepared for the final color approved by the Engineer. The test panels shall be produced on the actual concrete surface on which the final product will be placed, at a location designated by the Engineer. The stain shall be applied to the test panels by the same methods to be used in the final field application. The Engineer shall be allowed one week after application to the test panels for review and approval.

Concrete finishing and curing shall be completed per the specification before the application of the stain. The concrete finish to which the structural concrete stain is to be applied shall be a Class 2 Finish, except as modified below:

- (1) Following curing of the concrete per Subsection 601.13, all projections and bulges shall be removed, and the surface sandblasted. Sandblasting shall profile the concrete surface, remove all form release agents, and all other deleterious materials that would inhibit the bond of the structural concrete stain. The profile of the sandblasted concrete surface shall be equivalent to Concrete Surface Profile Three (CSP 3) as defined in Technical Guideline No. 03732, "Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays" by the International Concrete Repair Institute. The Contractor shall provide a CSP 3 chip for use on the project.

A mortar mix, proportioned by volume, consisting of one part portland cement, two to

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three parts sand (conforming to the requirements of ASTM C 144), and an approved bonding agent shall be used to patch all holes produced by form ties, honeycombing, voids 1/2 inch or larger in any dimension, broken corners and edges, and other defects. The mortar mix shall include an approved bonding agent. The quantity, and application procedure of the bonding agent shall be per the recommendations of the manufacturer of the bonding agent. Areas to be patched shall be moistened with water before the mortar is applied, and the patched area shall be float finished and left flush with the concrete surface without checking or cracking of patches. Patching shall be done when the ambient temperature is at least 40 °F. Holes deeper than 3/4 inch shall be filled in layers that does not exceed 1/2 inch in thickness.

- (2) Within 24 hours before applying structural concrete stain, the concrete surface to be coated shall be cleaned by water blasting at a minimum pressure of 3,000 psi and at a rate of 4 to 14 gallons/minute, to remove dust, dirt, and other materials that would inhibit bonding of the coating. If the surface is contaminated before application of the coating, it shall be recleaned as required before application of the stain.

New concrete shall be at least 28 days old or as approved in writing by the coating manufacturer before the stain is applied.

Two applications of stain shall be applied. Each application shall be applied at a rate of 200 to 250 square feet per gallon (approximately 3 mils dry film thickness). The second application shall not be applied until at least 12 hours after the first application. If the surface is contaminated between applications, it shall be recleaned as stated above before the next application. The stain shall be mixed mechanically and applied by spraying. Workmanship shall be such that the final stained surface is colored uniformly and presents a pleasing appearance. All areas determined by the Engineer to be insufficiently stained shall be restained.

The stain shall be applied only when the ambient temperature is between 40 °F and 90 °F and is anticipated to remain above 40 °F for a minimum of 24 hours. The surface to be stained shall be dry and free of frost.

Subsection 601.19 shall include the following:

Structural concrete stain will not be remeasured but will be the quantity shown on the plans. Measurements will be made when field changes are ordered, or for an error of plus or minus 5 percent of the plan quantity.

Subsection 601.20 shall include the following:

Payment will be made under:

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Pay Item

Structural Concrete Stain

Pay Unit

Square Yard

Payment for structural concrete stain shall be full compensation for all work necessary to complete the item and shall include water based form release agent, sample preparation, test panels, high pressure water blasting, including detergents, abrasive blasting, structural concrete stain and application.

Delete subsection 708.08 and replace with the following:

Structural Concrete Stain. The stain shall be a one-component, non-vapor barrier, solvent based acrylic resin. No sand or other texturing agents will be permitted.

MINIMUM PHYSICAL PROPERTIES

Solids by Weight: 51 percent, plus or minus 2 percent
Solids by Volume: 34 percent, plus or minus 2 percent

A material safety data sheet (MSDS) prepared per Federal Standard 313 and a complete set of manufacturer’s mixing and application instructions shall be submitted to the Engineer before the Contractor begins applying the stain.

INSTRUCTIONS FOR DESIGNERS (delete instructions and symbols for final draft):

Use this project special on projects that require concrete stain application. Typically, this special is needed to match existing stain and finish when portions of present structure are repaired or replaced but can be used on new structures as well.

PERMANENT CHANGES TO PROJECT DATED SPECIAL PROVISIONS

REVISION OF SECTION 601 AND 708 STRUCTURAL CONCRETE STAIN

DATE AUTHOR DESCRIPTION OF CHANGE

1/14/19 BPM Cons. Initial Website Issue

04.11.2023 M. Kayen Revisions to make spec online ADA-compliant. 5.22.23 Additional ADA.