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FORMLINER

Concrete Wall System Specifications

SECTION SIMULATED STONE MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Construction of textured and colored formed concrete surfaces using simulated stone masonry molds and color stain system designed to duplicate closely the appearance of natural stone.

1.02 RELATED SECTIONS

A. Section 03300 - Cast-in-place Concrete: Cast-in-place concrete, concrete reinforcements, accessories, curing, and form work. Quality standards specified in Section 03300 shall apply to concrete used for this Section.

1.03 REFERENCES - ADD COMPLETE TITLE, NUMBER, ISSUING ORGANIZATION, AND DATE OF ISSUE HERE, AND PUT IN ABBREVIATED FORM IN 2.02 E.

1.04 DESIGN REQUIREMENTS

A. Design and pattern of the concrete surface shall follow the manufacturer's standard drawing. If an actual stone surface or stone wall to be matched is available, the completed colored and formed concrete surface shall match the natural material as closely as possible. Patterning of simulated stone masonry shall appear natural and non-repeating. Seam lines or match lines caused from two of more molds coming together will not be apparent when viewing final wall. Final coloration of cast stone concrete surface shall accurately simulate the appearance of real stone including the multiple colors, shades, flecking, and veining that is apparent in real stone. It shall also demonstrate the colors that may be apparent from aging, such as staining from oxidation, rusting and/or organic staining from soil and /or vegetation. Note that in part 1, SUBMITTAL and part 3, EXECUTION, a sample and mockup are required. Upon approval by Architect/Engineer and Owner, mockup shall serve as quality standard for the project.

1.05 SUBMITTAL

A. Sample Panel: Within 30 days of receiving the general contract, General Contractor is required to submit a 24" x 24" sample of the simulated stone

masonry finish. Sample is to demonstrate the finish described in section 1.04, DESIGN REQUIREMENTS: Approval of sample panel is required by Architect/ Engineer and Owner.

B. Shop Drawings: Plan, elevation, and details to show overall pattern, joint locations, form tie locations, and end, edge and other special conditions.

C. Samples: Form ties, sample and description, showing method of separation when forms are removed.

1.06 QUALITY ASSURANCE

A. Manufacturer of simulated stone masonry molds and custom coloring system: Five years experience making stone masonry molds and color stains to create formed concrete surfaces to match natural stone shapes, surface textures, and colors.

B. Pre-Installation Meeting: Schedule a conference with manufacturer representative to assure understanding of simulated stone masonry, molds use, color application, requirements for construction of mockup, and to coordinate the work.

1.07 PROJECT CONDITIONS

A. Environmental requirements: Apply color stain when ambient temperatures is between 50 and 100 degrees F. Consult manufacturer if conditions differ from this requirement.

1.08 SEQUENCING

A. Schedule color stain application with earthwork and back-filling of any wall areas making sure that all simulated stone texture is colored to the minimum distance below grade . Delay adjacent plantings until color application is completed. Coordinate work to permit coloring applications without interference from other trades.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The specified system is based on the Custom Rock® Concrete Wall System, Custom Rock, St. Paul, Minnesota 55116, phone (651)699-1345, or equal as approved by the Department.

2.02 MATERIALS

A. Simulated masonry molds: Reusable and made of high-strength urethane, easily attachable to forms. Molds shall not compress more than 1/4 in. when

concrete is poured at rate of 10 vertical feet per hour. Molds shall be removable without causing deterioration of surface or underlying concrete. The wall mold pattern shall be #_____ by Custom Rock, St. Paul, MN (651) 699-1345 (NOTE TO SPECIFIER: specify stone pattern number and any special pattern requirements.)

B. Release Agent: Compatible with simulated stone masonry molds and with color stain system to be applied to surface. Consult manufacturer.

C. Form ties: Shall be made of either metal or fiberglass. Using metal ties, which result in a portion of the tie permanently embedded in the concrete, shall be designed to separate at least one inch back from finished surface, leaving only a neat hole that can be plugged with patching material. Contractor shall submit the type of form ties to the engineer, project designer, or Owner for approval prior to use in this work,

D. Mortar Joints: Joints shall be colored to simulate real mortar.

E. Color stain: Special stain mix as provided by manufacturer, shall achieve color variations present in the natural stone being simulated for this project, as required by Architect/Engineer and Owner as referenced in section 1.04 DESIGN REQUIREMENTS. Stain shall create a surface finish that is breathable (allowing water vapor transmission), and that resists deterioration from water, acid, alkali, fungi, sunlight or weathering. Stain mix shall be a water-borne, low V.O.C. material, less than 180 grams/liter.

PART 3 EXECUTION

3.01 ACCEPTABLE INSTALLERS

A. Formed concrete construction: five years experience pouring vertically formed architectural concrete. Installer shall be trained in manufacturer's special techniques in order to achieve realistic surfaces.

B. Color stain system application: Manufacturer or manufacturer's authorized representative.

3.02 CONSTRUCTION

A. Mockup: Build on site sixty days before work starts, using same materials, methods and work force that will be used for the project. Architect/Engineer and Owner will determine specific requirements and location, and whether mockup shall be incorporated into the project.

1. Size: 50 sq. ft., or larger, if needed to adequately illustrate the pattern and texture selected.

2. Include an area to demonstrate wall mold butt joint and if appropriate, continuation of pattern through expansion joint.

3. If design includes stone texture across top of wall, include in mockup.
4. After concrete work on mockup is completed and cured for a minimum of 28 days, and after surface is determined to be acceptable for coloring, apply color stain system.
5. After coloring is determined to be acceptable by the Architect/Engineer and Owner, construction of project may proceed, using mockup as quality standard.

3.03 SPECIAL TECHNIQUES - FORMING TEXTURED CONCRETE

- A. Simulated Stone Masonry Molds preparation: Clean and make free of buildup prior to each pour. Inspect for blemishes or tears. Repair if needed following manufacturer's recommendations.
- B. Simulated Stone Masonry Molds attachments: Place stone molds with less than 1/4 inch separation between them. Attach molds to form securely following manufacturer's recommendations.
- C. Form release agent: Apply following manufacturers' recommendations.
- D. Form stripping and related construction shall avoid creating defects in finished surface.
- E. Where stone texture is to continue across top of wall, a finish to achieve a continuity of the formed pattern must be done by hand when concrete is being poured. Hand-carve and emboss the wet, pliable concrete, aligning rustication joints with those in the formed pattern. Great care must be taken to achieve intended relief and texture as per Architect/Engineer/Owners direction.
- F. If the pattern selected has molds connecting through the middle of the stones, carefully remove the seem line created by abutting molds. Match the texture and shape of the surrounding stone, avoiding visible seams or mold marks.
- G. Place form ties at thinnest points of molds (high points of finished wall). Neatly patch the remaining hole after disengaging the protruding portion of the tie so that it will not be visible after coloring the concrete surface.
- H. Where an expansion joint must occur at a point other than at mortar or rustication joints, such as at the face of concrete texture, which is to have the appearance of stone, consult manufacturer for proper treatment of expansion material.

3.04 SPECIAL TECHNIQUES - APPLYING COLOR STAIN SYSTEM.

- A. All Simulated Stone surfaces that are to be stained shall be at least 30 days old.

B. Clean surface prior to application of stain materials to assure that surface is free of latency, dirt, dust, grease, efflorescence, paint, or other foreign material, following manufacturer's instructions for surface preparation. Do not sandblast. Preferred method to remove latency is pressure washing with water, minimum 3000 psi (a rate of three to four gallons per minute), using fan nozzle perpendicular to and at a distance of one or two feet from surface. Completed surface shall be free of blemishes, discoloration, surface voids, and unnatural form marks.

3.05 PROTECTION

A. Where exposed soil or pavement is adjacent which may spatter dirt or soil from rainfall, or where surface may be subject to over spray from other processes, provide temporary cover of completed work.