



**SPECIAL PROVISIONS
FOR
DECORATIVE CONCRETE PAVEMENT**

**Dubuque County
STP-A-2100(689)--86-31**

**Effective Date
April 17, 2018**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

156104.01 GENERAL.

This specification includes furnishing of all material and equipment necessary to complete installation of decorative concrete pavement in areas specified in the contract documents.

156104.02 MATERIALS AND CONSTRUCTION.

- A.** Decorative Concrete Pavement shall conform to the requirements of ACI Standard Specifications for Cast-In-Place Decorative Concrete, ACI 303.1, published by the American Concrete Institute.
- B.** Decorative Concrete Pavement shall be structural concrete, C4 mix, 5% to 7% air entrained or as specified in the contract documents.
- C.** Various types of Decorative Concrete Pavement including, but not limited to 4inch, 6inch, 8inch and 9inch depth shall be installed according to the lines, grades, dimensions, colors and decorative treatments as indicated in the contract documents.
- D.** Decorative Concrete Pavement shall have joints (sawcut score or hand tooled) as indicated in the contract documents.
- E.** Decorative Concrete Pavement shall have either a light broom finish or a stamp texture finish as indicated in the contract documents.
- F.** Concrete utilized for areas designated for Decorative Concrete Pavement shall be integrally colored. The intended color of the Decorative Concrete Pavement shall be as indicated in the contract documents. Contractor shall submit to the Engineer color samples to review. The proposed integral color admixture and/or dry shake color surface hardener shall be either approved and/or rejected by the Engineer based upon the products ability to replicate the intended color shown in the contract documents.

The following manufacturer(s) shall be considered approved integral color admixture suppliers for the Decorative Concrete Pavement and/or approved equal:

- LM Scofield Company
- Davis Colors
- Increte Systems
- Bomanite
- Arizona Oxides
- Dynamic Color Solutions
- Butterfield Color

At least 1 month prior to placing any Decorative Concrete Pavement, contractor shall make for approval two actual horizontal field mockup panels for each proposed color(s), at least 10 feet by 10 feet using the specified or approved materials and construction techniques. A minimum of 3 cubic yards shall be mixed when the field mockups are made. Approval of the field mockup is required for final color selection. Throughout the job, periodically sample the cement and aggregate being used for comparison of color and gradation with the materials used in the test panel.

- G.** Color admixture shall be added in strict accordance with manufacturer's recommendations. The responsibility for batching and mixing the color admixture shall be that of the Ready Mix Supplier. Color admixture will not be added to the ready mix concrete at the construction site. Concrete mix design products such as cement, sand, aggregate and admixtures used in Decorative Concrete Pavement shall be from the same source, type and brand used through the duration of the project. Should the Ready Mix Supplier choose to use a powder color admixture, the supplier shall empty color material contents directly into mixer or shall ensure that the biodegradable bags are thoroughly mixed and disintegrate during the batching process.
- H.** Once the field mockups for color, texture and finish are approved, the corresponding final concrete mix design must remain consistent through the duration of the project to ensure uniform color, texture and finish of the Decorative Concrete Pavement. The adding of water to the ready mix concrete at the construction site will not be permitted.
- I.** Decorative Concrete Pavement specified to incorporate a dry shake color surface hardener as indicated in the contract documents, the Contractor shall apply dry shake color surface hardener in strict accordance with manufacturer's recommendations to all Decorative Concrete Pavement surfaces.

The following manufacturer(s) shall be considered approved color hardener admixture supplier for the Decorative Concrete Pavement and/or approved equal:

- LM Scofield Company - Lithochrome Color Hardener
- Davis Colors - Color Hardener
- Increte Systems - Color Hardener
- Bomanite - Color Hardener
- Arizona Oxides - Color Hardener
- Dynamic Color Solutions - Color Hardener
- Butterfield Color - Color Hardener

- J.** Final color selection shall be approved upon review of field mockups for color, texture and finish. Should the field mockup(s) be rejected, the Contractor bears all costs associated with restocking color admixture beyond the quantities required to pour the mockups.

K. Decorative Concrete Pavement designated as a stamp textured finish as indicated in the construction documents, the following manufacturers shall be considered an approved supplier for the Decorative Concrete Pavement imprint texture mats, stamps, tools and skins:

- LM Scofield
- Lithotex Pavecrafters
- Bomanite
- Increte Systems Texture-Crete
- Butterfield Color

The Decorative Concrete Pavement texture mats, stamps, tools and skins shall be ADA compliant and have a maximum imprint relief of 1/4 inch,. The Contractor shall submit the proposed texture mats and stamps for approval by the Engineer during the field mockup process using the proposed materials and techniques. The proposed texture mats and stamps shall be either approved and /or rejected by the Engineer based upon the products ability to produce the texture, quality, random pattern and appearance desired by the Engineer.

L. All Decorative Concrete Pavement flatwork control joints shall be incorporated (sawcut or hand tooled) as indicated in the construction documents, or as specifically directed by the Engineer, as control joints are deemed necessary. The cost to incorporate control joints (sawcut or hand tooled) shall be considered incidental to the Decorative Concrete Pavement work.

M. All Decorative Concrete Pavement flatwork expansion joints shall be constructed as indicated in the construction documents or directed by the Engineer, as expansion joints are deemed necessary. Expansion joint reinforcing shall use conventional slip dowel construction, such as speed dowels or approved equal product.

N. All Decorative Concrete Pavement flatwork expansion joints shall be sealed with a color matching joint sealant or approved material by the Engineer. The following shall be considered approved joint sealant manufacturers and / or approved equal product:

- Sonneborn Building Products
- ChemRex, Inc
- TK Products

O. Contractor shall not begin any concrete placing operations involving decorative concrete unless the atmospheric temperature is 43° F minimum and rising. At any time during the first 72 hours of the concrete curing process, should the temperature drop below 43° F, Contractor shall be required to protect the concrete. Insulating blankets must be supported by a tent frame constructed to prevent the blankets from contacting the colored concrete surface. A minimum separation of one foot must be maintained between the blankets and the pavement. Mechanical heaters will not be permitted.

P. Contractor shall take all necessary precautions to protect completed adjacent concrete surfaces from damage, splatter, staining or other contaminants by subsequent construction.

Q. Decorative Concrete Pavement shall be cured in strict accordance with manufacturer recommendations or approved by the Engineer. Contractor shall apply an initial cure seal product in accordance with the manufacturer's specifications, which is compatible with the Decorative Concrete Pavement, compatible with the final concrete sealer product and approved by the Engineer. Conventional wet curing or white-pigmented curing compound shall not be used on colored concrete pavement. Burlap and wet coverings, plastic sheeting, or Kraft paper will not be allowed on these surfaces. Walking on surfaces that have been cured will not be allowed until they are thoroughly dry (at least 12 hours after application).

- R.** Decorative Concrete Pavement specified to incorporate an acid stain application and finish as indicated in the construction documents, the contractor shall apply the acid stain treatment in strict accordance with manufacturer's recommendations to all Decorative Concrete Pavement surfaces. Contractor shall take all necessary precautions to protect completed adjacent concrete surfaces from damage, splatter, staining or other contaminants during the acid stain application. Decorative Concrete surfaces specified to incorporate an acid stain application shall not receive a cure seal application.
- S.** Decorative Concrete Pavement shall be sealed in strict accordance with manufacturer recommendations or approved by the Engineer. Contractor shall apply a final sealant product in accordance with the manufacture's specifications, which is compatible with the Decorative Concrete Pavement, compatible with the initial cure seal product and approved by the Engineer. The following manufacturer(s) are an approved concrete sealer supplier for the Architectural Concrete Pavement and /or approved equal:
- TK Bright Cure & Seal
 - Bard Pro

Finish sealer shall be applied in two light, even coats and shall be back-rolled with a fine nap roller to ensure a thin uniform coverage. Sealer product shall be thoroughly mixed with a power-drill mixer before and during the entire sealer application process to maintain full suspension and even distribution of product. Sealer product shall cure dry 24 hours before application of the second finish coat.

- T.** Decorative Concrete Pavement designated as a stamp textured surface finish, the contractor shall incorporate with the final sealant product, an anti-skid resistance additive product (unless incorporated in the sealer product), which is compatible with the final sealant product and approved by the Engineer. The following manufacturer(s) are an approved anti-skid resistance additive product for the Decorative Concrete Pavement and /or approved equal:
- Vexcon Chemicals, CertiVex Grip
 - Sherwin Williams, SharkGrip
- U.** Contractor shall submit a Quality Control Plan prior to commencing construction of Decorative Concrete Pavement for approval of the Engineer and shall be used to monitor the use of consistent materials, methods and construction techniques through the duration of the project so ensure uniform color, texture and finish of the Decorative Concrete Pavement.
- V.** For all Decorative Concrete Pavement specified as integral color with a light broom finish the general contractor or subcontractor(s) shall have prior experience and qualifications in the construction of Decorative Concrete Pavement. Contractor(s) or subcontractor(s) shall have a minimum of 2 years of experience with a project superintendent and personnel experienced in the specified procedures and trained in the construction of Decorative Concrete Pavement.
- W.** For all Decorative Concrete Pavement specified as integral color with a stamp textured finish, general contractor or subcontractor(s) shall have prior experience and qualifications in the construction of Decorative Concrete Pavement. Contractor(s) or subcontractor(s) shall have a minimum of 2 years of experience with a project superintendent and personnel experienced in the procedures and application of stamp textured finishes and trained in the construction of Decorative Concrete Pavement.
- X.** The contractor shall be required to supply concrete cylinder testing upon request. The engineer will perform slump and air entrainment testing at no charge to the contractor. Pavement cores will not be required unless defective thickness is suspected. If pavement cores are required they will be obtained and the pavement repaired at the Contractor's expense.

- Y. Contractor shall adhere to the following construction techniques, initial cure and final sealing process for all Decorative Concrete Pavement or approved equal process authorized by the Engineer.
- Z. Contractor shall use consistent materials, methods and construction techniques through the duration of the project so ensure uniform color, texture and finish of the Decorative Concrete Pavement.
- AA. Contractor shall sufficiently saturate the subgrade prior to placement of concrete.
- BB. Contractor shall apply dry shake color hardener to all Decorative Concrete Pavement surfaces in accordance with manufacturer's coverage rate requirements and /or a minimum of two application coverages, whichever is greater. Dry shake color hardener shall be thoroughly worked into the fresh concrete by using either a fiber or wood float. Steel trowel finishing will not be permitted on exterior air entrained concrete.
- CC. Contractor shall finish the concrete surface using a magnesium float to remove any trowel marks or irregularities. Steel trowel finishing will not be permitted on exterior air entrained concrete.
- DD. Prior to texturing or stamping concrete surface, Contractor shall use a clear liquid release agent (or tinted liquid release agent for antiquing application), which is compatible with the Decorative Concrete Pavement, compatible with the concrete texture mats, and approved by the Engineer.
- EE. Upon removal of the imprint texture mats, stamps, tools or skins, Contractor shall repair any irregularities to the textured surface.
- FF. After texturing or stamping concrete surface, contractor shall apply an initial cure seal product, which is compatible with the Decorative Concrete Pavement, compatible with the final concrete sealer product and approved by the Engineer.
- GG. After a minimum 28-day concrete maturity, contractor shall power wash all concrete surfaces.
- HH. After concrete has been adequately cleaned, contractor shall apply a final concrete sealer product in accordance with manufacturer's application and coverage rate requirements and approved by the Engineer. The final sealer product shall have an anti-skid resistance additive product, approved by the Engineer.
- II. The above materials, methods and construction techniques, initial cure and final sealing process is intended to replicate the texture, finish and color as desired by the Engineer. Should the contractor have an alternate process or method, which will replicate the texture, finish and color as desired by the Engineer, the contractor shall submit the alternate process or methods for approval by the Engineer during the job sample panel mock-up using the proposed materials and techniques.

156104.03 METHOD OF MEASUREMENT AND BASIS OF PAYMENT.

Contract unit prices shall include all costs for each item of work. The Engineer shall measure the units of each item installed. Installed areas incorporated into pavement or sidewalk shall be included for measurement and payment, areas not incorporated into the final system shall not be included for payment. The area measured for payment for sidewalk and pavement shall be from concrete joint to concrete joint.