SP- 157109
(New)

SPECIAL PROVISIONS
FOR
COLORED FORMLINER FINISHED STRUCTURAL CONCRETE

Dubuque County
TAP-R-2160(616)--8T-31

Effective Date
March 19, 2019

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.

157109.01 GENERAL.

1.1 Description

This work includes the construction of integrally colored, formlined concrete structures. The work shall include all labor, materials, equipment, and transportation required to install the colored formlined structural concrete. For the coloring and formliner products used all limitations and recommendations specified by the manufacturer shall be used and adhered to unless more stringent requirements are set forth herein.

1.2 References

American Society for Testing Materials (ASTM) C979 “Standard Specification for Pigments for Integrally Colored Concrete.”

1.3 Submittals

A. Product Data: Submit manufacturer’s complete technical data sheets for the following:
- Color additives.
- Curing products.
- Form facing materials.

B. Design Mixes: For each type of integrally colored concrete.

C. Samples for Initial Color Selection: Manufacturer’s color charts showing full range of colors available.

D. Qualification Data: For firms indicated in “Quality Assurance” Article, including list of completed projects.

E. Contractor shall submit a Quality Control Plan.

1.4 Quality Assurance

A. Manufacturer Qualifications: Manufacturer with 3 years of experience in production of specified products.

B. Installer Qualifications: An installer with 2 years' experience with work of similar scope and equality. Provide two examples of successfully completed projects of a similar nature and complexity to the proposed project to demonstrate ability.

C. Obtain each specified material from same source and maintain high degree of consistency in quality throughout Project.

D. Notification of manufacturer's authorized representative shall be given at least 1 week before start of Work.

E. Contractor shall submit a Quality Control Plan prior to commencing construction of Colored Formlined Structural Concrete for approval by the Engineer that shall be used to monitor the use of consistent materials, methods and construction techniques through the duration of the project to ensure uniform color, texture and finish.

1.5 Delivery, Storage and Handling

All colored concrete and formliner materials shall comply with manufacturer's instructions. Deliver products in original, unopened packaging. Store in dry conditions.

1.6 Project Conditions

Schedule delivery of concrete to provide consistent mix times from batching until discharge. Mix times shall meet manufacturer's written recommendations.

157109.02 MATERIALS.

2.1 Formliner Materials

A. The formliner shall be reusable, high strength urethane created from real stone that attaches easily to the forming system and capable of withstanding anticipated concrete pour pressures without leakage or causing physical defects.

B. The formliner pattern shall resemble cut limestone with 12 inch high courses.

C. The formliner shall have a 1 1/2 inch minimum to 2 inch maximum relief depth and total thickness of 3 inch maximum.

D. If required by the manufacturer, formliner backing shall be provided and shall be included in the 3 inch (maximum) formliner total thickness.

E. Products: Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following:

1. Milestones, Incorporated, Hudson, WI (715) 381-9660. Pattern: MS-1001.
2. Karlson Forming Specialties, Incorporated, Amery, WI (715) 268-2511. Pattern: 12 Inch Running Bond.
3. Custom Rock Formliner, St. Paul, MN (651) 699-1345. Pattern: 1106-R2 Random Cut Stone (12 Inch Coursing) [Keyed].
4. Other Approved Equal Manufacturers

2.2 Integral Concrete Color Materials

A. Integral Color additive shall consist of concentrated pigments specially processed for mixing into concrete and complying with ASTM C979. Pigments shall be lightfast, wettable, weather resistant, alkali resistant and free of deleterious fillers and extenders. The pigments shall be composed of inorganic natural and/or synthetic iron oxides to obtain the specified color. The amount of incorporated cement pigment is not to exceed 7% by weight of Portland cement in the concrete mix.

B. The contractor shall verify with the pigment manufacturer the compatibility of cement pigment with concrete admixtures, form release compounds and cleaning and curing methods.

C. The final appearance of the integrally colored structural concrete shall mimic the color of natural limestone similar to that used on the Basilica of St. Francis Xavier at 104 Third Street SW, Dyersville, IA 52040. Provide samples for color selection and approval by the City of Dyersville.

D. Products: Subject to compliance with requirements, available products that may be incorporated in the work include, but are not limited to, the following:
- **1.** Increte Systems, Odessa, FL (813) 886-8811
- **2.** Davis Colors, Los Angeles, CA (844) 341-4780
- **3.** Solomon Colors, Incorporated, Springfield, IL (217) 522-3112
- **4.** Other Approved Equal Manufacturers

157109.03 CONSTRUCTION.

3.1 Integral Concrete Color

A. Color Additives: Mix at the batch plant in accordance with manufacturer's instructions. The responsibility for batching and mixing the color admixture shall be that of the ready mix supplier. Mix until color additives are uniformly dispersed throughout mixture and disintegrating bags, if used, have disintegrated.

B. Thoroughly clean mixer drum to assure absence of contaminates which may affect consistency of color.

C. Do not place integrally colored concrete where standing water is present.

D. Concrete mix water will not be permitted to be added to the ready mix concrete at the construction site. If greater slump is required, use water-reducing or super-plasticizing admixture; do not add water.

3.2 Formliners

A. Clean formliner prior to each pour and ensure that it is free of any build-up. Visually inspect each liner for blemishes or tears, and repair or replace if necessary per manufacturer’s recommendations.

B. Formliner coursing shall be level. Place formliners in a fashion to minimize repeat appearance.

C. Place liners adjacent so that seams are not visible upon completion. Securely attach formliners to forms per manufacturer’s recommendation.

D. Formlined corners shall retain individual replicated stone shapes around the corners. Ensure that the surface is free of laitance. Sandblasting will not be permitted.

E. During loading of forms, care shall be taken to ensure adequate vibration of concrete to maintain all intended features of the formliner in the final surface and to prevent voids.

F. Necessary construction joints shall be placed to match with the “mortar” joints created by the formliner pattern and shall not conflict with the formliner pattern. Construction joints should be minimized to the extent practical.

3.3 Formwork

A. Design, erect, shore, brace, and maintain formwork, according to Article 2403.03 of the Standard Specifications, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Formwork shall ensure that Structural Concrete be installed according to dimensions and elevations specified in the plans.

C. Apply form release per manufacturer’s recommendations and confirm compatibility of form release with integral colored concrete and formliners. Release agents shall be non-staining.

D. Form ties shall be made of non-corrosive materials when the portion permanently embedded in the concrete is less than 1 1/2 inches from the finished surface.

3.4 Repair

A. Fill holes and defects in concrete surface within 48 hours of form removal.

B. Make patches with stiff mortar made with materials from same sources as concrete. Adjust mortar mix proportions so dry patch matches dry adjacent concrete. Add white cement to mortar mix if necessary to lighten it.

3.5 Contractor shall take all necessary precautions to protect completed adjacent concrete surfaces from damage, splatter, staining or other contaminants by subsequent construction. The Contracting Authority and Engineer reserve the right to require replacement of compromised materials and surfaces.

157109.04 METHOD OF MEASUREMENT.

Method of Measurement for Colored Formliner Finished Structural Concrete shall be the quantity indicated in the contract documents as computed in square feet determined from the total area of the front face of the abutment and wing in place. The height is measured from the bottom of the abutment/wing to the top of the abutment/wing including the unformlined cap and including any unformlined areas below grade on the wings.

157109.05 BASIS OF PAYMENT.

Basis of Payment for Colored Formliner Finished Structural Concrete is contract unit price per square foot of formlined surface area. This shall be full compensation for all materials, equipment, tools, and labor to construct the Colored Formliner Finished Structural Concrete as specified in the contract documents. The cost includes the total thickness of the formliner system as defined above and shown in the contract documents. The quantity of integral concrete colored pigment for the entire abutment concrete quantity will not be measured separately and is incidental to this bid item. The contractor shall be responsible to furnish Certified Plant Inspection, the cost of which is included per square foot of Colored Formliner Finished Structural Concrete.