CITY OF DETROIT

SPECIAL PROVISION
FOR
SIDEWALK, CONC, COLOR __ INCH, MODIFIED

a. Description. The work consists of constructing integral color concrete sidewalk and chemically stained color concrete of the thickness specified, in accordance with Section 803 of the 2012 Michigan Department of Transportation Standard Specifications for Construction except as herein modified.

b. Materials. Concrete Pavement materials shall meet the requirements of Section 601 of the 2012 Michigan Department of Transportation Standard Specifications for Construction.

Concrete to be MDOT S1.

1. Integral Color Admixture. Color to be Limestone (C-20) and Acacia Green, as shown on Plan and as manufactured by L.M. Scofield Company, ph. (800) 800-9900 or as approved by the Engineer. Prior to mix design, consult Scofield Tech-Data Bulletin A-304, current edition.

2. Curing Compound for Integral Color Concrete: Lithochrome Colorwax as manufactured by L.M. Scofield Company, ph. (800) 800-9900, or as approved by the Engineer. Consult Scofield Tech-Data Bulletin A-514, current edition. Color to match admixture.

3. Chemical Stain. Color to be: Antique Amber (CS-15) and Dark Walnut (CS-14) as manufactured by L.M. Scofield Company, (800) 800-9900 or as approved by the Engineer.

4. Curing Compound. Curing compound shall be Type 1, clear, conforming to ASTM C-309.

5. Joint Sealant to be a 2-component, premium grade, polyurethane based elastomeric sealant in a non-sag consistency. Color to be submitted for Engineer review and approval. Joint sealant to be Sikaflex 2cNS, Sonneborn NP2 or equal as approved by the Engineer.

6. Concrete Sealant. Sealer shall be BASF “Kure-N-Seal 25 LV” or as approved by the Engineer.

7. Releasing Agent. Releasing agent used shall be “Grace Top-Cast Concrete Surface Retarders Code No. 05” identified as “Sandblast” finish or as approved by the Engineer.

c. Construction.

1. Project Conditions. Concrete placement shall be installed within the following environmental requirements:

A. Schedule placement to minimize exposure to wind and hot sun before curing materials are applied.

B. Avoid placing concrete if rain, snow, or frost is forecast within 24 hours. Protect fresh concrete from moisture and freezing.

C. Comply with professional practices described in ACI 305R and ACI 306R.

D. Maintain an ambient temperature of between 50 degrees F and 90 degrees F during application and at least 48 hours after application for releasing agent and/or chemically stained concrete. Do not place concrete when the temperature of the surrounding air is expected to be below 40 degrees F during placing or within 24 hours thereafter. Do not allow the temperature of plastic concrete to drop below 55 degrees F.

E. When the mean daily temperature of the atmosphere is 80 degrees F and above, or during hot and dry weather, do not place concrete with a placing temperature which causes difficulty from loss of slump, flash set or cold joints 75 degrees F where possible and not more than 90 degrees F in any event. Where climatic conditions cause too rapid drying, make arrangements prior to placing concrete for installation of wind breaks, shading, fog spraying, water sprinkling, ponding or wet covering of a light color. Take such protective measures as quickly as concrete hardening and finishing operation allow, and maintain throughout the entire curing period.

2. Installer Qualifications. The installer shall have a minimum of 5 years experience in acid staining and integral color applications and successfully completed not less than 6 projects comparable in scale and complexity. Documented proof that the proposed installer has a 10 year proven record of performance for staining concrete substrates, confirmed by at least 3 local projects that the Engineer can examine.

Submit the following documents to the Engineer for review and approval prior to proceeding with construction of sidewalks:

A. Concrete design mix

B. Concrete design mix with integral color

C. Curing method and material

D. Joint filler / sealant.

3. Project Mock-Up. Construct a mock-up sample of the concrete walk for each color and/or finish. A 5 ft. x 5 ft. square minimum sample, of each type of concrete walk surface shall be constructed to indicate all the various jointing types, score lines, texture and finishes, curing compound, sealant and color required in actual construction. Make mock-up samples as required until acceptance by the Engineer. The cost for construction of the mock-up samples shall be included in the unit prices for the respective concrete walk pay items and no additional compensation shall be provided for additional samples. The integral color admixture, finish type, jointing construction, curing agents, sealant, and other related components may be changed at the request of the Engineer. Changes to any of these components shall be provided by the contractor at NO additional cost and shall be included in the unit prices for the respective sidewalk and concrete pavement. Consider the selected mock-up as a standard of workmanship to be matched throughout the Project. The sample may NOT be constructed as part of the Project. Remove samples which fail to meet the Engineer's approval. The approved samples shall remain in place during the complete

duration of construction and shall be removed and disposed of by the contractor at the completion of the project. ***Note: Due to the nature of the specified concrete colors and finish, the samples must be constructed within 30 days of the award of the contract and shall be scheduled to allow "5 work days" for Engineer review, approval, and construction of additional samples as needed prior to the scheduled time to commence construction of the concrete per the approved project schedule.***

Construct integral color concrete sidewalk to a minimum 4-inch thickness at locations indicated on the plans.

Construct all sidewalks with a maximum cross slope of 2.00 % (1/4 inch per foot) sloping down towards the street inclusive of all tolerances but not less than 1.00 % minimum.

Restore area disturbed beyond actual sidewalk repair limits to its original conditions. No separate payment will be made for such restoration but is considered part of work item.

Concrete pavement joints shall be constructed and located as shown on plans.

Provide the necessary materials and take the steps required to protect subsequent pours of concrete and treatment applications from staining, discoloring, contaminating and/or causing any type of blemishes. Finished concrete pavement shall meet or exceed the quality, finish, color, and workmanship exhibited in the approved mock-up or be subject to rejection and replacement at the contractor's expense.

Pavement finish will be as indicated on plans. Verify and coordinate concrete finishes with Engineer prior to proceeding with work. Sidewalk concrete finish for integral color concrete to be a light etch finish.

The light etch finish shall provide an exposed aggregate finish without exposing the coarse aggregate in the concrete. The light etch finish to be accomplished by the use of the releasing agent and shall be used as recommended by the manufacturer.

4. Application of Chemical Stain.

A. Immediately prior to chemically staining, thoroughly clean the concrete. Sweep surfaces, then pressure wash or scrub using commercial detergents to facilitate cleaning. Rinse surfaces after cleaning until rinse water is completely clean. Allow area to dry completely prior to application of floor stain.

B. Concrete surfaces shall be dry and properly prepared as described above. Protect surrounding areas from over-spray, run-off and tracking. Divide surfaces into small work sections using wall, joint lines, or other stationary breaks as natural stopping points.

C. Apply chemical stains full strength (undiluted) at the coverage rate recommended by the manufacturer and use application equipment described in the manufacturer's printed technical literature. The color of the liquid chemical stain has no resemblance to the final color produced on the concrete substrate.

D. Chemical stains normally fizz when reacting with the concrete. If fizzing does not occur, the substrate has not been adequately prepared or the concrete pH level is too low. If this should happen, contact the local representative for further recommendations.

E. Transfer chemical stain to the substrate and immediately scrub into surface.

F. Reaction time depends on wind conditions, temperatures, and humidity levels.

G. Wash and dry area between coats.

H. After the final coat of chemical stain has remained on the surface for a minimum of four hours, remove all residue by wet scrubbing with commercial grade detergent. Collect the wash water as well as the rinse water. Rinse surfaces after scrubbing until rinse water is completely clean. Run off may stain the adjacent areas or harm plants. Collect rinse water by wet vacuuming or absorbing with an inert material.

5. Sealer.

A. Apply sealer only after chemically stained areas of this project have been completed.

B. This applies to both integral color, chemical stain, and plain concrete.

C. Concrete substrate shall be completely dry.

D. Test surface for proper pH level prior to applying sealer.

E. Apply sealer according to manufacturer's written instructions at a rate of 200 to 400 square feet per gallon per coat.

F. Maintain a wet edge at all times.

G. Allow sealer to completely dry before applying additional coats.

H. Apply second coat of sealer at 90 degrees to the direction of the first coat using the same application method and rates.

I. Protect concrete from traffic for at least 72 hours after final application of sealer.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price for the following pay items:

Pay Item	**Pay Unit**
Sidewalk, Integral Color Conc, Type 2 (Green), __ inch, Modified	Square Foot
Sidewalk, Integral Color Conc, Type 3 (Limestone), __ inch, Modified	Square Foot
Chemically Stained Colored Concrete, Type 4, (Antique Amber)	Square Foot
Chemically Stained Colored Concrete, Type 5, (Dark Walnut)	Square Foot
Chemically Stained Colored Concrete, Type 6, (Green)	Square Foot

The contract unit price will be payment in full for furnishing all materials, labor and equipment necessary to construct the integral color and chemically stained concrete sidewalks. Sawcutting, control joints, expansion joints, sealant, reinforcement, tie bars, and other items which may be required is included as part of the integral color and chemically stained pay items and will not be paid for separately. Removal of the existing curb, pavement, and sidewalk will be paid separately. Any excavation required to construct the walk will be paid for separately as part of the Sidewalk Grading pay item. Granular Material, Cl II will be paid separately.