



**SPECIAL PROVISIONS
FOR
STAMPED AND COLORED CONCRETE**

**Polk County
STP-U-6170(606)--70-77**

**Effective Date
October 21, 2025**

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

231067.01 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Integral Color Concrete.
 - 2. Stamping/Imprinting.
 - 3. Powder Antiquing Release Agent.
 - 4. Curing of integrally colored and imprinted concrete.
 - 5. Sealant of integrally colored and imprinted concrete.

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 301 "Specification for Structural Concrete for Buildings."
 - 2. ACI 302 IR "Recommended Practice for Concrete Floor and Slab Construction."
 - 3. ACI 303.1 "Standard Specification for Cast-In-Place Architectural Concrete."
 - 4. ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing of Concrete."
 - 5. ACI 305R "Recommended Practice for Hot Weather Concreting."
 - 6. ACI 306R "Recommended Practice for Cold Weather Concreting."
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C309 "Liquid Membrane-Forming Compounds for Curing Concrete."
 - 2. ASTM C494 "Standard Specification for Chemical Admixtures for Concrete."
 - 3. ASTM C979 "Standard Specification for Pigments for Integrally Colored Concrete."
- C. American Association of State Highway and Transportation Officials (AASHTO):
 - 1. AASHTO M194 "Chemical Admixtures."

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's complete technical data sheets for the following:
 - 1. Integral Color Concrete Admixture.
 - 2. Imprinting/Texturing Tools.
 - 3. Powder Antiquing Release Agent.
 - 4. Curing Compound.
 - 5. Sealant.
- B. Design Mixes: For each type of integrally colored concrete.
- C. Samples for Initial Selection: Manufacturer's color charts showing full range of colors available.
- D. Mockup example for each type of colored concrete specified by Contractor to provide to the Engineer for approval prior to installation.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer with 10 years experience in production of specified products.
- B. Installer Qualifications: An installer with 5 years experience with work of similar scope and quality.
- C. Comply with the requirements of ACI 302.
- D. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout project.
- E. Notification of manufacturer's authorized representative shall be given at least 1 week before start of work.
- F. Colored Concrete Mock-ups:
 - 1. A location for the mock-up pads shall be selected by the Contractor and approved by the Engineer. The mock-up shall be located in an area that will allow it to remain in-place during the duration of pavement installation. The mock-up shall be a minimum of 4 feet by 4 feet and separate from the proposed paving and can't be a part of the finished work, unless approved by the Engineer.
 - 2. Construct mockup for each type of color concrete application using processes and techniques intended for use on permanent work, including curing and sealing procedures. Include samples of control, construction, and expansion joints in sample panels. Mock-up shall be produced by the individual workers who will perform the work for the project.
 - 3. Test each mockup for wet and dry slip resistance to ensure they are safe.
 - 4. Accepted mock-up provides visual standard for work of Section.
 - 5. Mock-up shall remain through completion of the work for use as a quality standard for finished work.
 - 6. Remove mock-up when directed.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's instructions. Deliver products in original, unopened packaging. Store in dry conditions and protect from damage, weather and construction activity.

1.6 PROJECT CONDITIONS

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

1.7 PRE-JOB CONFERENCE

- A. One week prior to placement of integrally colored concrete, a meeting shall be held to discuss the project and application methods.
- B. It is suggested that the Engineer, Contractor, ready-mix concrete representative, and a manufacturer's representative be present.

1.8 MEASUREMENT AND PAYMENT

- A. Stamped and Colored Concrete
 - 1. Measurement: Measurement will be in square yards for each different thickness of stamped and colored PCC pavement. The area of manholes, intakes, or other fixtures in the pavement will not be deducted from the measured pavement area.
 - 2. Payment: Payment will be at the unit price per square yard for each thickness of stamped and colored PCC pavement.
 - 3. Includes: Unit price includes, but is not limited to, final trimming of subgrade or subbase, integral curb, bars and reinforcement, joints and sealing, surface curing and pavement protection (excluding cold weather protection; see Iowa DOT Standard Specification Section 2301.03, K.3, safety fencing, concrete for rigid headers, boxouts for fixtures, pavement smoothness testing, and quality control for stringless paving.

231067.02 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. SIKA Corporation, (L.M. SCOFIELD COMPANY BRAND), 200 West 22nd Street, Suite 216 Lombard, IL 60148, Phone: 800-532-5123.
Website: <https://usa.sika.com/en/construction/concrete/decorative-concrete.html>
- B. Or Approved Equal.

2.2 MATERIALS

- A. Integral Color Concrete: CHROMIX® P, CHROMIX® L or CHROMIX® G Admixture for Color-Conditioned® Concrete; SIKA Corporation, factory proportioned, mixed, and packaged, ready-to-use integral color concrete, or approved equal.

1. Admixture shall be a colored, water-reducing, admixture containing no calcium chloride with coloring agents that are lime proof and UV resistant.
 2. Colored admixture shall conform to the requirements of ACI 303.1, ASTM C979, ASTM C494, and AASHTO M194.
- B. Stamping/Imprinting Tools and Materials: SIKA Corporation, Butterfield Color or LITHOTEX® Pavecrafters® imprinting tools, or approved equal.
- C. Color Hardner: LITHOCHROME® Color Hardener; SIKA Corporation, or approved equal.
1. An abrasion resistant dry shake color hardener for high volume pedestrian or vehicular traffic areas. Shall be acceptable by pattern tool manufacturer and compatible integral concrete and curing or sealing compounds.
- D. Powder Antiquing Release Agent: LITHOCHROME® Antiquing Release Pro; SIKA Corporation, or approved equal.
1. Powder antiquing release agent shall be acceptable by pattern tool manufacturer and compatible integral concrete, curing sealing compounds and with dry-shake colored hardener.
- E. Curing Compound: LITHOCHROME® Colorwax™ colored concrete curing compound, SIKA Corporation, or approved equal. Curing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally colored concrete, or approved equal.
- F. Sealing Compound: SIKA Corporation Cureseal™350 or equivalent solvent based sealer with Matte Finish Additive, a solvent-based silica paste that is added directly to the sealer.. Curing and sealing compound shall comply with ASTM C309 and be of same manufacturer as colored admixture, for use with integrally colored concrete, or approved equal.
- G. SUBSTITUTIONS: The use of products other than those specified will be considered providing that Contractor requests its use in writing within 10 days prior to bid date. This request shall be accompanied by the following:
1. A certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this Section.
 2. Documented proof that proposed materials have a 10 year proven record of performance confirmed by at least five local projects that Engineer can examine.

2.3 COLORS AND PATTERNS

- A. Integral Color: Color shall be coordinated with the existing roundabout located at the northern extents of this project. Acceptable integral color products are as follows: to be 'C-3849 Carob Brown' or as approved by Engineer from SIKA Corporation CHROMIX® Admixtures Color Chart A-350GL.
1. Subject to compliance with requirements, provide one of the following available products that may be incorporated into the work include, but are not limited to, the following:
 - a. Color to be 'Driftwood Select' from Butterfield Color Select Grade® Integral Concrete Colorant Color Chart SG12 Driftwood Select.
 - b. Color to be 'Cocoa' from Proline Integral Color Chart IC574; 1 bag per 4 yards.
 - c. Color to be 'Mocha Brown' from Best Materials, LLC Unimix Colorant Color

Chart U27.

- d. Other manufacturers submitted to the Engineer for review and approval.
- B. Color Hardener: Color shall be coordinated with the existing roundabout located at the northern extents of this project. Acceptable color hardener products are as follows: to be 'Russet' or as approved by Engineer from SIKA Corporation LITHOCHROME® Color Hardener Color Chart A-132.
 - 1. Subject to compliance with requirements, provide one of the following available products that may be incorporated into the work include, but are not limited to, the following:
 - a. Color to be 'Russet' from Butterfield Color Perma-Shake® Color Hardener Color Chart P19.
 - b. Color to be 'Java' from Proline Dura Colors Color Chart 635
 - c. Color to be 'Russet' from Best Materials, LLC Perma-Cast® Shake-On Color Hardener Color Chart P19.
 - d. Other manufacturers submitted to the Engineer for review and approval.
- C. Color Compound: Shall be tinted to match the final intended color of the cured concrete
- D. Imprinting Pattern (for Stamped Concrete ONLY): Texture to be 6 inch by 6 inch Cobble Tile, or approved pattern as selected by Engineer from manufacturer's standard pattern sheets.
- E. Powder Antiquing Release Agent (for Stamped Concrete ONLY): Color shall be coordinated with the existing roundabout located at the northern extents of this project. Acceptable powder antiquing release agent products are as follows: to be "Walnut" or as selected by Engineer from manufacturer's standard colors LITHOCHROME Antiquing Release and Antiquing Agent Concrete Color Chart A-136LA
 - 1. Subject to compliance with requirements, provide one of the following available products that may be incorporated into the work include, but are not limited to, the following:
 - a. Color to be 'Walnut' from Butterfield Color Perma-Cast® Antiquing Release Color Chart R14.
 - b. Color to be 'Mocha' from Proline Dura Colors Color Chart 610.
 - c. Color to be 'Walnut' from Best Materials, LCC Perma-Cast® Antiquing Release Color Chart R14.
 - d. Other manufacturers submitted to the Engineer for review and approval.

2.4 CONCRETE MIX DESIGN

- A. See Standard Specifications for Concrete Mix Design and additional specifications. A minimum cement content of 517 pounds per cubic yard is required. Conduct testing to demonstrate concrete from the mix design meets all slump, air content, flow, compressive strength, and all required concrete specifications.
- B. Integral color admixtures for concrete can be introduced at any point in the concrete mixing process if the other conditions of the plans and specifications are met. Enough mixing and time must be given for the color to reach an unchanging uniform appearance.
- C. Color selection will determine the ratio of base colors needed, and color saturation, and intensity will determine the amount of liquid or granules required. Mix in accordance with Manufacturers requirements, recommendations and specifications for colors specified.
 - 1. If CHROMIX® L is utilized, dosages range between 0.2 to 15.5 pounds of liquid per 94 pound sack of cement. If supplementary cementitious materials such as fly

- ash or blast-furnace slag are used in the mix, their weight must be added to the weight of the cement when determining the correct dosage
2. If CHROMIX® G is utilized, Color selection will determine the ratio of base colors needed, and color saturation, and intensity will determine the amount of granules required. Typical dosages range between 0.2 to 10.0 pounds of granules per 94 pound sack of cement. If supplementary cementitious materials such as fly ash or blast-furnace slag are used in the mix, their weight must be added to the weight of the cement when determining the correct dosage.
- D. Slump of concrete shall be consistent throughout project at 4 inches or less. At no time shall slump exceed 5 inches.
 - E. No high salt aggregates that can cause efflorescence and make color irregular.
 - F. Do not add calcium chloride to mix as it causes mottling and surface discoloration.
 - G. Supplemental admixtures shall not be used unless approved by manufacturer.
 - H. Do not add water to the mix design once established or in the field. Do not add water to loosen partially cured loads.
 - I. Maximum air content shall not exceed 5 %.
 - J. If air voids and bugs are a concern, one bottle of SCOFIELD® Ready-Mix Truck Defoamer, or approved equal, per concrete truckload can be used to minimize.

231067.03 - EXECUTION

3.1 CONCRETE AND COLOR HARDENER PLACEMENT

- A. Move concrete into place with square-tipped shovels or concrete rakes.
- B. Vibrators, when used, shall be inserted and withdrawn vertically.
- C. Concrete shall be struck to specified level with wood or magnesium straight edge or mechanical vibrating screed.
- D. The concrete surface shall be further leveled and consolidated with highway magnesium straight edge and/or magnesium bull float.
- E. Mechanically float concrete surfaces as soon as concrete surface has taken its initial set and will support weight of a power float machine equipped with float shoes or combination blades and operator.
- F. Color hardener installation steps:
 1. Apply color hardener at the same time plastic concrete is poured and placed. Apply when a thumbprint can still indent the surface, and kneeboards and application of the hardener will not alter flatness.
 2. Apply color hardener at a rate of 120 pounds per 100 square feet.
 3. The color hardener mix shall have enough water to bleed to the surface when placed. This water must be completely absorbed when the concrete reaches its initial set. To avoid trapping water beneath the surface do not apply while bleed water
 4. Initial Placement: Spread, shovel, rod, and vibrate the initial concrete placement to eliminate voids and properly consolidate the concrete. Complete surface

- smoothing with a wood float to ensure the surface does not close and trap water below the surface.
5. Pause for Initial Set: Allow concrete to initially set. When all visible bleed water has reabsorbed into the concrete and the slab flatness will not be affected by hardener application, begin hardener broadcast.
 6. Broadcast of Hardener: Using a technique that keeps product below the knee to minimize dusting, waste, and loss of fine materials, hand or machine broadcast 1/2 of the desired dose of hardener across the surface of the concrete. Use an underhand or side arm motion taking care to ensure even distribution. Float the hardener into the concrete surface as described in Step 4, then broadcast the remaining material from a different direction than the first to eliminate bare spots. Heavy doses may require three broadcast and float cycles.
 7. Float and Bond to the Concrete Surface: Hand or power tool float the hardener into the concrete surface between broadcast actions. All water necessary to wet the hardener must come from the underlying concrete. Do not add additional water to wet material. Floating must be thorough and complete so that all hardener is wet-out, and completely worked into and bonded with the partially set concrete.

3.2 TEXTURE INSTALLATION

- A. Do not add water to the surface. Do not use “watering” sprinklers as colored concrete cures, or use wet brooms and tools while finishing.
- B. Apply powder antique release agent prior to stamping. Concrete is ready when all water has bleed and has been reabsorbed into the substrate but is still plastic, can be moved with moderate finger pressure, and is still easy to imprint.
- C. Application of Powder Antique Release Agent: Using a soft long-bristle masonry brush to broadcast the releasing agent across the surface, flicking or shaking the brush at knee level above the surface. Repeat until an even layer of material completely covers all of the surfaces to be stamped, creating a dry boundary layer between the concrete and the imprinting tool. Do not broadcast by hand.
- D. Stamp concrete using tools and methods recommended, required and specified by the manufacturer. Dust a small amount of powder antique release agent onto the stamp tool, mat, or skin, and immediately place the stamp tool onto the concrete pre-covered with antique release powder. Apply pressure to the stamp as recommended by the tool manufacture. Use impact devices as by tool manufacturer to ensure a complete imprint is made. Remove the stamp according to tool manufacturer’s requirements, recommendations and specifications.
- E. If wet areas appear, re-dust the concrete and stamp tool. Carefully apply the tool back onto the surface in the original position and re-stamp the surface.
- F. Allow the antiqued and stamped concrete to stand undisturbed until it cures to a stage where it is walkable and won’t be altered by the removal of excess antique release powder, minimum of 24 hours.
- G. Remove excess antique release powder to achieve the desired artistic effect approved in the mock-up process and remove all loose powder that may interfere with subsequent sealer or coating adhesion. This may be done with a broom, a vacuum, power tool scrubbing, or gentle power washing. Mild detergent solutions may also be used.

3.3 CURING AND SEALING

- A. After surface is cleaned of excess antique release powder, allow concrete to dry for a minimum of 24 hours. Concrete must be thoroughly dry prior to applying curing and sealing compounds.
- B. Apply curing compound in accordance with manufacturer requirements, recommendations and specifications. Ensure product penetrates into concrete pores, joints, and cracks. Provide even coating without lap marks.
- C. After surface has had proper time to dry, apply sealing compound in two thin even coats in accordance with manufacturer requirements, recommendations and specifications.
- D. Before application the Moisture Vapor Emission Rate (MVER) of the concrete or cementitious topping must be measured and be less than 5 pounds per 1000 square feet per 24 hours.
- E. Apply when ambient and substrate temperatures are between 50°F and 85°F. Do not apply at or below 50°F or when such temperatures are expected within 72 hours following application.
- F. Avoid excessive build-up, particularly in the depressed textures and grout joints of stamped or stenciled concrete, hand tooled or saw cut joints. Before the film becomes tacky, wipe up or brush out excessive material.
- G. Avoid foot-traffic for a minimum of 24 hours after final application.

3.4 PROTECTION OF FINISHED WORK

- A. Protect finished work in accordance with Iowa DOT Standard Specification Section 2301.
- B. Prohibit foot or vehicular traffic on the newly imprinted concrete surface. Barricade if necessary.
- C. Protect floor surface from damage until final inspection and acceptance by the Engineer.

3.5 TOLERANCES

- A. Minor variations in appearance of colored concrete, which are similar to natural variations in color and appearance of uncolored concrete, are acceptable.