

Butterfield Color® Decorative Concrete – Guide Specification

NOTE** This Section is based on systems of

NOTE** Butterfield Color®

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NOTE** This guide specification is intended to be used by a qualified construction specifier. It should not be used without appropriate modifications.

NOTE** Notes for review by specifier begin with “NOTE**.” Optional text requiring a selection is enclosed within brackets, e.g., “Color shall be [gray] [white].” Items requiring specifier input are indicated by a blank line enclosed within brackets, e.g., “Color: [_____].” Delete specifier notes and non-applicable optional text in final specification.

NOTE** Specification Section numbers and Section titles are according to The Construction Specifications Institute MasterFormat™ 1995 edition and indicated within brackets for MasterFormat™ 2004 edition.

GUIDE SPECIFICATION

SECTION 02768 [32 13 16]

DECORATIVE CEMENT CONCRETE PAVEMENT [DECORATIVE CONCRETE PAVING]

NOTE ** Delete Section numbers and titles above if decorative concrete for exterior concrete paving is not required and revise footer Section number and title to match. Delete Section number and titles below if decorative concrete for interior concrete is not required.

SECTION 03335 [03 33 50]

DECORATIVE CONCRETE [DECORATIVE CONCRETE]

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

NOTE** Delete decorative concrete system subparagraphs below that are not required. Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

1. Integrally colored concrete [pavement] [floor].
2. Dry-shake color hardened concrete[pavement] [floor].
3. Stenciled concrete[pavement] [floor].
4. Stamped concrete[pavement] [floor].

B. Related Sections:

NOTE** Delete subparagraphs below that are not required; add others as required.

1. Division 2 Section "Earthwork" ["Earth Moving"] for preparation of subgrade and base course.
2. Division 2 [Division 32] Section "Cement Concrete Pavement" ["Concrete Paving"] for cast-in-place concrete pavement with other finishes.
3. Division 3 Section "Cast-in-Place Concrete" for general applications of concrete.

1.2 SUBMITTALS

- A. Submit according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: For each product indicated.
- C. Mix Designs: For each type of integrally-colored concrete mix required.
- D. Samples for Initial Selection: Manufacturer's color charts.

Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

- E. Sample Panels: [2 by 2 feet (610 by 610 mm)] [_____], to demonstrate finish, color, and texture of decorative cement concrete[pavement] [floor].
- F. Qualification Data: For Installer and manufacturer specified in Quality Assurance Article, including names and addresses of completed projects, architects, and owners.
- G. Material Test Reports: From testing agency indicating compliance of concrete materials, reinforcing materials, admixtures, and similar items with requirements.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Two year's experience with projects of similar scope and quality.

NOTE ** Delete paragraph above or below.

- B. Installer Qualifications: Trained or approved by Manufacturer of decorative concrete systems.
- C. Manufacturer's Qualifications: Three year's experience manufacturing products required.

NOTE ** Delete paragraph below if testing is not required.

- D. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1077.
- E. Source Limitations: Obtain products from same source throughout Project.
- F. Field Samples: Locate at site and obtain approval before start of final work. Field samples shall be minimum [4 by 4 feet (1.2 by 1.2 m)] [_____] by full thickness.
 1. Demonstrate range of finishes and workmanship, including curing procedures.
 2. Approved field samples set quality standards for comparison with remaining work.

3. [Remove field samples when directed.] [Approved field samples may become part of the completed Work if undisturbed at completion of Project.]

NOTE ** Delete paragraph below if preinstallation conference is not required.

- G. Preinstallation Conference: Conduct conference at site to comply with requirements of Division 1 Section "Project Meetings."

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packaging with labels intact.
- B. Store in clean, dry and protected location, according to manufacturer's requirements.

1.5 PROJECT CONDITIONS

NOTE** Retain optional text in paragraph below for Section that specifies concrete.

- A. Environmental Requirements: Comply with requirements of [Division 3 Section "Cast-in-Place Concrete"] [Division 2 Section "Cement Concrete Pavement"] [Division 32 Section "Concrete Paving"].

PART 2 - PRODUCTS

2.1 FORMS

NOTE ** Delete Article if integrally colored concrete is not required. Retain optional text for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section "Cast-in-Place Concrete"] [Division 2 Section "Cement Concrete Pavement"] [Division 32 Section "Concrete Paving"].

2.2 STEEL REINFORCEMENT

NOTE ** Delete Article if integrally colored concrete is not required. Retain optional text for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section "Cast-in-Place Concrete"] [Division 2 Section "Cement Concrete Pavement"] [Division 32 Section "Concrete Paving"].

2.3 COLOR MATERIALS

- A. Integral Concrete Colorant: ASTM C 979, factory-measured powdered mix in self-dissolving packaging, consisting of non-fading finely-ground synthetic mineral-oxide coloring pigments and water reducing wetting agent.
 1. Product: Butterfield Color® Uni-Mix® Integral Colorant.
 2. Colors: As selected by [Architect] [_____] from Class [1] [2] [3] [4] colors.

NOTE ** Select Class for colors in subparagraph above. Costs increase with higher Class numbers. Delete subparagraph above if colors are selected and indicate Uni-Mix® Integral Colorant numbers in subparagraph below. Add a schedule if multiple colors are required. Delete subparagraph below if colors are not selected.

3. Color: Uni-Mix® U[_____].

NOTE ** Delete paragraph and subparagraphs above if liquid colorant is required. Delete paragraph and subparagraphs below if powdered colorant is required.

B. Integral Concrete Liquid Colorant: ASTM C 979, admixture for integrally coloring concrete, consisting of non-fading synthetic mineral-oxides coloring pigments suspended in a pH adjusted water-based solution, dispensed at the batch plant, or premeasured in pails for job-site addition.

1. Product: Butterfield Color® Uni-Mix® Liquid Colorant.
2. Colors: As selected by [Architect] [_____] from Class [0] [1] [2] [3] [4] [5] colors.

NOTE ** Select Class for colors in subparagraph above. Costs increase with higher Class numbers. Delete subparagraph above if colors are selected and indicate Uni-Mix® Liquid Colorant numbers in subparagraph below. Add a schedule if multiple colors are required. Delete subparagraph below if colors are not selected.

3. Color: Uni-Mix® U[_____].

NOTE ** Delete paragraphs above if integrally colored concrete is not required. Delete paragraph below if pigmented dry-shake color hardener is not required.

C. Pigmented Mineral Dry-Shake Color Hardener: ASTM C 979, factory-packaged dry combination of Portland cement, graded quartz aggregate, non-fading finely-ground mineral oxide coloring pigments, and plasticizing admixture.

1. Product: Butterfield Color® Perma-Cast® Shake-on Color Hardener.
2. Colors: As selected by [Architect] [_____] from Class [1] [2] [3] [4] colors.
3. Coverage: [_____] lbs. per 100 sq. ft., minimum.

NOTE ** Select Class for colors in subparagraph above. Costs increase with higher Class numbers. Delete subparagraph above if colors are selected and indicate Perma-Cast® color numbers in subparagraph below. Add a schedule if multiple colors are required. Delete subparagraph below if colors are not selected.

4. Color: Perma-Cast® P-[_____].

D. Pigmented-Powder Release Agent: Factory-packaged, nonfading finely-ground, streak free, colored powder that facilitates release of stamps and texture rollers from colored concrete and imparts a secondary accent color.

1. Product: Butterfield Color® Perma-Cast® Antiquing Release.
2. Colors: As selected by [Architect] [_____].

NOTE **Delete subparagraph above if colors are selected and indicate Perma-Cast® Antiquing Release color numbers in subparagraph below. Add a schedule if multiple colors are required. Delete subparagraph below if colors are not selected.

3. Color: Butterfield Color® Perma-Cast® Antiquing Release R-[_____].

NOTE ** Delete paragraph and subparagraphs above if liquid release is required. Delete paragraph below if pigmented-powder release agent is required.

- E. Liquid Release Agent: Clear, evaporating formulation that facilitates release of stamp mats and texture rollers from colored concrete.
 - 1. Product: Butterfield Color® Perma-Cast® Clear Liquid Release.

2.4 IMPRINTING TOOLS

NOTE ** Delete paragraphs and subparagraphs below for imprinting tools that are not required.

- A. Stamp Mats: Semi-rigid polyurethane mats with projected texture and ridged underside capable of imprinting texture and joint patterns to plastic concrete.
 - 1. Manufacturer: Butterfield Color®.
 - 2. Pattern: As selected by [Architect] [_____].
- B. Stencils: Moisture-resistant paper stencils, designed for use on plastic concrete.
 - 1. Manufacturer: Butterfield Color®.
 - 2. Pattern: As selected by [Architect] [_____].
- C. Texture Rollers: Manually controlled, abrasion-resistant polyurethane rollers capable of imprinting texture on plastic concrete.
 - 1. Manufacturer: Butterfield Color®.
 - 2. Pattern: As selected by [Architect] [_____].
- D. Accessory Stamp Tools: Aluminum detailing tools capable of imprinting joints and dressing stamped joints of plastic concrete.
 - 1. Product: Butterfield Color® Stamp Tools.

2.5 ADMIXTURES

NOTE ** Delete Article if integrally colored concrete is not required. Retain optional text for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].
- B. Do not use calcium chloride or admixtures containing calcium chloride.

2.6 RELATED MATERIALS

NOTE ** Delete Article if integrally colored concrete is not required. Retain optional text for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”] for expansion joint filler, bonding agents, etc.
- B. Bonding Agent: ASTM C 1059, Type II.

2.7 CURING AND SEALING MATERIALS

- A. Clear, Solvent-Borne, Membrane-Forming Curing and Sealing Compound: ASTM C 309, non-yellowing, VOC-compliant, high-gloss, clear liquid.
 - 1. Product: Butterfield Color® Clear-Guard™ Cure & Seal.

NOTE ** Delete subparagraph above and retain subparagraph below if colored curing compound is required.

- 2. Product: Butterfield Color® Color-Guard Cure & Seal.
 - a. Color to match integrally-colored concrete.

NOTE ** Delete paragraph below if matte finish for curing and sealing compound is not required.

- B. Flatten Paste: Manufacturer's standard product designed to reduce sealer gloss finish to matte finish.
 - 1. Product: Butterfield Color® Flatten Paste.

NOTE ** Delete paragraph below if slip-resistive additive is not required for interior concrete.

- C. Slip-Resistive Additive: Finely graded aggregate or polymer additive designed to add to sealer for slip-resistant surface.

2.8 INTEGRAL CONCRETE MIXES

NOTE** Delete Article if integrally colored concrete is not required. Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”] and as follows:
 - 1. Minimum Portland Cement Content: Five sacks of cement per cubic yard.
 - 2. Maximum Slump: 4 inches.

NOTE** Retain subparagraph below for concrete subject to freeze/thaw.

- 3. Air Content: 6 percent plus or minus 1 percent.
- B. Add integral concrete colorant according to manufacturer's instructions.
- C. Maintain mix characteristics for all concrete required to have matching finish.

PART 3 - EXECUTION

3.1 EXAMINATION

NOTE** Delete Article if integrally colored concrete is not required.

- A. Examine subgrade and sub base for compliance with requirements.

Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

- B. Do not proceed with decorative cement concrete[pavement] [floor] until unacceptable conditions are corrected.

3.2 FORMWORK

NOTE** Delete Article if integrally colored concrete is not required. Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].

3.3 STEEL REINFORCEMENT

NOTE** Delete Article if integrally colored concrete is not required. Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].

3.4 CONCRETE PLACEMENT

NOTE** Delete Article if integrally colored concrete is not required. Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].
- B. Do not add water once placing has begun. Do not retemper concrete that has started to set.

3.5 STENCILING

NOTE** Delete Article if stenciling is not required.

- A. Cut stencils to slab width and lay on wet concrete. Overlap mortar joint on trailing edge of each section of stencil onto leading mortar joint of previous section.
- B. Slightly embed paper stencil into concrete by rolling with stencil roller.
- C. Trim stencils to fit slab and special patterns, such as [soldier courses] [cobble circles] [_____].
- D. Apply dry-shake color hardeners to concrete surfaces according to manufacturer's instructions.

NOTE** Delete paragraph below if texture roller is not required.

- E. Apply liquid or pigmented-powder release agent according to manufacturer's instructions prior to applying texture roller to surface of concrete.

- F. Remove stencils when concrete has sufficiently cured to bear weight. Do not leave stencils in concrete overnight.
- G. Remove debris with mechanical blower before applying curing compound. If pigmented-powder release agent is applied, remove debris after interval recommended by manufacturer and according to manufacturer's instructions. Pressure wash surfaces according to manufacturer's instructions without damaging decorative concrete.

3.6 DRY-SHAKE COLOR HARDENERS

NOTE** Delete Article if dry-shake color hardeners are not required.

- A. Apply dry-shake color hardener at rate recommended by manufacturer and according to manufacturer's instructions.
 - 1. After initial floating, uniformly broadcast approximately two-thirds of dry-shake color hardener to concrete surface, allow to absorb moisture, and embed by floating. Allow excess bleed water to dissipate prior to applying dry-shake color hardener.
 - 2. Apply balance of dry-shake color hardener at right angles to first application and embed by floating.
 - 3. Vertical Surfaces: Plaster dry-shake color hardener at rate recommended by manufacturer and according to manufacturer's instructions.
- B. Do not add water to concrete surfaces.

NOTE** Delete paragraph below if colored concrete is not stamped.

- C. Uniformly broadcast pigmented powder release agent to concrete surfaces at rate recommended by manufacturer and according to manufacturer's instructions.

3.7 FINISHING

NOTE** Delete Article if decorative cement concrete is stamped, texture rolled, indoor, or not required.

- A. After final floating, apply a medium broom finish perpendicular to direction of traffic.

3.8 STAMPING

NOTE** Delete Article if stamped concrete is not required.

- A. Stamp concrete surfaces according to manufacturer's instructions.
- B. Mat Stamping: While concrete is plastic, accurately align stamp mats in sequence and uniformly press into concrete to produce imprint pattern, texture, and depth of imprint, according to manufacturer's instructions. Remove stamps from concrete immediately.
 - 1. Stamp edges and surfaces unable to be imprinted with stamp mat with flexible stamping mats.
- C. Remove unembedded pigmented powder release agent after interval recommended by manufacturer and according to manufacturer's instructions. Pressure wash surfaces according to manufacturer's instructions without damaging decorative concrete.

3.9 JOINTS

NOTE** Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].

3.10 CURING AND SEALING

Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

- A. Protect decorative cement concrete[pavement] [floor] from prematurely drying and excessive cold or hot temperatures.
- B. Cure decorative cement concrete[pavement] [floor] according to manufacturer's instructions.
- C. Curing and Sealing Compound: Apply uniformly in continuous operation by sprayer or short nap roller according to manufacturer's instructions. After initial application is dry and tack free, apply a second coat.
 - 1. Do not over apply or apply in a single heavy coat.

NOTE ** Delete subparagraph below if flatten paste not required for reducing sealer gloss finish to matte finish.

- 2. Thoroughly mix flatten paste in curing and sealing compound according to manufacturer's instructions. Stir occasionally to maintain uniform distribution of paste.

NOTE ** Delete subparagraphs below for interior concrete. For interior applications subject to wetting, consider slip-resistant floor wax over sealer.

- 3. Thoroughly mix slip-resistant additive in sealer according to manufacturer's instructions. Stir occasionally to maintain uniform distribution of additive.
 - 4. Verify adequacy of slip resistance before opening up surfaces to traffic.
- D. Do not cover concrete with plastic sheeting.

Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

3.11 [PAVEMENT] [FLOOR]TOLERANCES

NOTE** Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].

3.12 REPAIRS AND PROTECTION

Delete optional text below for exterior concrete pavement or interior concrete floor that is not required.

- A. Repair damaged decorative cement concrete[pavement] [floor] according to manufacturer's instructions.
- B. Clean spillage and soiling from adjacent construction according to manufacturer's instructions.
- C. Protect decorative cement concrete[pavement] [floor] from damage or deterioration until date of Substantial Completion.

3.13 FIELD QUALITY CONTROL

NOTE** Delete Article if testing is not required. Retain optional text in paragraph below for Section that specifies concrete.

- A. Comply with requirements of [Division 3 Section “Cast-in-Place Concrete”] [Division 2 Section “Cement Concrete Pavement”] [Division 32 Section “Concrete Paving”].

END OF SECTION

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