

SECTION 09960
HIGH PERFORMANCE COATINGS

This guide specification has been prepared by Dayton Superior Corporation to assist design professionals in the preparation of a specification section covering:

Graffiti protectors for concrete, brick, block, stone, portland cement plaster, tile, wood, metal and painted surfaces.

Graffiti cleaners for protected and non-protected surfaces.

Clear and colored sealers for concrete, brick, and terrazzo surfaces.

This specification may be used as the basis for developing either a project specification or an office master specification. Since it has been prepared according to the principles established in the Manual of Practice published by The Construction Specifications Institute (CSI), it may be used in conjunction with most commercially available master specifications systems with minor editing.

The following should be noted in using this guide specification:

Editing notes to assist users are included within bordered boxes. Delete these notes prior to final printing.

Optional text requiring a selection by the user is enclosed within brackets, e.g.: Section [01330][_____]."

Items requiring user input are enclosed within brackets, e.g.: Section [____-_____]."

Optional paragraphs are separated by an OR" statement, e.g.:

**** OR ****

Metric equivalents to inch-pound units follow the inch-pound units and are contained within parenthesis. Metric measurements are rationalized units based on the SI system of measurement. Delete either the inch-pound or metric units of measure depending on project requirements; do not include both units in a project specification, as conflicting requirements could result.

This guide specification is available in both hard copy and a variety of electronic formats to suit most popular word processing programs and operating platforms. Please contact Dayton Superior Corporation at (800) 745-3707 for additional copies or for information on available electronic formats.

1 GENERAL

1.1 SUMMARY

Edit the following to suit project requirements; delete substrates not receiving coatings.

A. Section Includes:

1. [Clear] [and] [colored] sealers applied to [vertical] [and] [horizontal] [cast-in-place concrete]

[precast concrete] [brick] [block] [portland cement plaster] [and] [terrazzo] surfaces.

2. Anti-graffiti coatings applied to [vertical] [and] [horizontal] [cast-in-place concrete] [precast concrete] [brick] [block] [stone] [portland cement plaster] [tile] [wood] [metal] [and] [painted] surfaces.

3. Removal of graffiti.

Edit the following paragraphs to suit project requirements; list only those sections specifically applicable to the work of this section.

B. Related Sections:

Concrete should be cured with Dayton Superior's Day-Chem Sil-Cure (J-13) or wet cured; coordinate with related concrete sections.

1. Section [03300 – Cast-In-Place Concrete] [03410 – Structural Precast Concrete] [03450 – Architectural Precast Concrete] [03470 – Tilt-Up Precast Concrete] [____ – ____]: Concrete substrate.

2. Section [04210 – Brick Masonry] [____ – ____]: Brick substrate.

3. Section [04220 – Concrete Unit Masonry] [____ – ____]: Concrete masonry substrate.

4. Section [04400 – Stone] [____ – ____]: Stone substrate.

5. Section [05500 – Metal Fabrications] [05700 – Ornamental Metals] [____ – ____]: Metal substrate.

6. Section [09220 – Portland Cement Plaster] [____ – ____]: [Plaster] [Stucco] substrate.

7. Section [06200 – Finish Carpentry] [____ – ____]: Wood substrate.

8. Section [09300 – Tile] [____ – ____]: Tile substrate.

9. Section [09400 – Terrazzo] [____ – ____]: Terrazzo substrate.

10. Section [09900 – Painting] [____ – ____]: Painted substrate.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. C 642 – Test Method for Specific Gravity, Absorption, and Voids in Hardened Concrete.

2. D 1653 – Test Method for Water Vapor Transmission of Organic Coating Films.

1.3 SUBMITTALS

Edit the following paragraph to indicate the correct Division 1 section.

A. Submit under provisions of Section [01330] [____]:

1. Product Data: Include manufacturer's specifications, surface preparation and application instructions, recommendations for each surface to receive coatings, and protection of adjacent surfaces.

2. Test Data: Confirm compliance with specified requirements.

1.4 QUALITY ASSURANCE

A. Mockup:

Edit the following paragraph to indicate the correct Division 1 section. Edit remaining paragraphs to suit project requirements.

1. Apply coatings to actual substrates under provisions of Section [01430] [____].

2. Size: [100] [____] square feet ([9] [____] sq m) [of each substrate].

3. Location: [____] [Approved by Architect/Engineer].

4. Determine optimum coverage rate for application.

1.5 DELIVERY, STORAGE AND HANDLING

Edit the following paragraph to indicate the correct Division 1 section.

A. Deliver, store, and handle products under provisions of Section [01600] [____].

B. Store materials in a dry area at a temperature between 40 and 100 degrees F (4 and 38 degrees C). Provide adequate ventilation and keep away from ignition sources.

1.6 PROJECT CONDITIONS

A. Environmental Requirements:

1. Ambient and surface temperatures between 50 and 95 degrees F (0 and 35 degrees C).
2. Do not apply if rain is expected within 12 hours after application.
3. Do not apply during winds that could carry coatings to adjacent surfaces, properties, or vegetation.

B. Substrate:

1. New concrete cured minimum 28 days.
2. Not frozen or frost covered.
3. Clean, sound, and dry.

C. Ensure adequate ventilation in application areas.

1.7 WARRANTIES

A 5 year dustproofing warranty is available for Day–Chem Poxy Plus (J–36), Day–Chem Urethane (J–38), and Day–Chem Urethane V.O.C. (J–39).

A. Provide manufacturer's 5 year warranty against failure of sealer to provide dustproofing protection to concrete surfaces.

2 PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Dayton Superior Corporation, 402 South First Street, Oregon, IL 61061, (800) 745–3707.

Edit the following paragraph to indicate whether substitutions will be permitted; indicate the correct Division 1 section.

B. Substitutions: [Not permitted.] [Under provisions of Section [01630] [____].]

2.2 MATERIALS – ANTI–GRAFFITI COATINGS

A. Anti–Graffiti Coating:

1. Product: Graffiti Protector (J–44).
2. Description: Water based, low odor, biodegradable, vapor permeable, sacrificial anti–graffiti coating.
3. Ph: 7 to 8.5.
4. VOC compliant.
5. Water vapor transmission: 7.28 g/sq m/24 hours/mmHg, tested per ASTM D 1653.
6. Water absorption: 80 percent effective, Tested per ASTM C 642.

2.3 MATERIALS – [CLEAR] [COLORED] SEALERS

Include the following for a heavy duty, VOC compliant, water based sealer.

A. Clear Sealer:

1. Product: Safe Seal Heavy Duty (J–24 H.D.).
2. Description: Water based, low odor, acrylic copolymer, non–yellowing, dustproofing clear sealer containing 27 percent solids by weight.
3. VOC compliant.

**** OR ****

Include the following for a gloss or matte finish, non–yellowing, acrylic sealer.

B. Clear Sealer:

1. Product: Day–Chem Aggre–Gloss (J–25).
2. Description: Methacrylic copolymer, non–yellowing, clear sealer containing 25 percent solids in an aromatic solvent.

Edit the following to suit project requirements.

3. Appearance: [Gloss] [Matte].

**** OR ****

Include the following for a chemical, gasoline, and oil resistant, non-yellowing, clear sealer.

C. Clear Sealer:

1. Product: Day-Chem Tuf Seal (J-35).
2. Description: Thermoplastic methacrylate copolymer, non-yellowing, clear sealer.
3. Appearance: Gloss.

**** OR ****

Include the following for a VOC compliant, high performance, chemical resistant, water based epoxy floor coating.

D. Clear Sealer:

1. Product: Day-Chem Poxo Plus (J-36).
2. Description: Two-component, water based, low odor, non-yellowing, dustproofing epoxy floor coating.
3. Abrasion resistance: 55 mg loss in 500 cycles, tested with Taber abraser, CS-17 wheel, 1000 g load.
4. Flexibility: Passes 1/8 inch (3 mm) mandrel bend test. Adhesion: No delamination at 410 psi (2.8 MPa), tested with Elcometer.

Edit the following to suit project requirements.

5. Colors: [Clear] [Off White] [Light Grey] [Medium Grey] [Dark Grey] [Charcoal Gray] [Tile Red] [Brown] [Tan] [Beige] [Light Blue] [Green] [Black].

6. VOC compliant.

7. USDA approved.

**** OR ****

Include the following for a high performance, chemical resistant, aliphatic polyurethane floor coating.

E. Clear Sealer:

1. Product: Day-Chem Urethane (J-38).
2. Description: Two-component, chemical resistant, aliphatic polyurethane floor coating.
3. Abrasion resistance: 20 mg loss in 500 cycles, tested with Taber abraser, CS-17 wheel, 1000 g load.
4. Flexibility: Passes 1/8 inch (3 mm) mandrel bend test.
5. Impact resistance: 160 inch pounds (1.84 m/kg), Direct Gardner Impact test.
6. Hardness: 70 Shore D.

Edit the following to suit project requirements.

7. Colors: [Clear] [Off White] [White] [Light Grey] [Medium Grey] [Dark Grey] [Charcoal Gray] [Tile Red] [Brown] [Tan] [Beige] [Light Blue] [Blue] [Green] [Black].

8. Appearance: Gloss.

**** OR ****

Include the following for a VOC compliant, high performance, chemical resistant, aliphatic polyurethane floor coating.

F. Clear Sealer:

1. Product: Day-Chem Urethane V.O.C. (J-39).
2. Description: Two-component, chemical resistant, aliphatic polyurethane floor coating.
3. Abrasion resistance: 20 mg loss in 500 cycles, tested with Taber abraser, CS-17 wheel, 1000 g load.
4. Flexibility: Passes 1/8 inch (3 mm) mandrel bend test.
5. Impact resistance: 160 inch pounds (1.84 m/kg), Direct gardner Impact test.
6. Hardness: 70 Shore D. Density: 8.5 to 10.5 pounds (1.0 to 1.2 kg/L) per gallon, depending on color.

Edit the following to suit project requirements.

7. Colors: [Clear] [Off White] [White] [Light Grey] [Medium Grey] [Dark Grey] [Charcoal Gray] [Tile Red] [Brown] [Tan] [Beige] [Light Blue] [Blue] [Green] [Black].

8. Appearance: [Gloss] [Semigloss].

2.4 MATERIALS – GRAFFITI CLEANERS

Include the following for a graffiti remover for surfaces protected with Graffiti Protector (J-44).

A. Graffiti Cleaner:

1. Product: Graffiti Klean (J-45).

2. Description: Biodegradable, non-toxic graffiti cleaner.

3. VOC compliant.

**** OR ****

Include the following for a graffiti remover for surfaces not protected by Graffiti Protector (J-44).

B. Graffiti Cleaner:

1. Product: Superior Graffiti Remover (J-46).

2. Description: Heavy duty graffiti cleaner.

3. VOC compliant.

3 EXECUTION

3.1 PREPARATION

If final substrate appearance is a consideration, test cleaning methods to determine their effect prior to specifying. Do not use sandblasting, shotblasting or high pressure washing on historic structures; also, chemical cleaning may discolor historic materials. Low pressure water or steam cleaning may be required on historic structures.

A. Clean surfaces to receive coatings remove loose and foreign matter that could interfere with application or performance of coating.

B. Allow surfaces to dry completely before beginning application.

C. Protect adjacent and underlying surfaces and vegetation from overspray and rundown.

3.2 APPLICATION OF ANTI-GRAFFITI COATINGS

A. Follow manufacturer's instructions for application and coverage, and procedures established during preparation of mockup.

B. Apply by low pressure spray, roller, or brush.

C. Apply to uniform coverage without voids, streaks, heavy buildups, or rundowns. Brush out rundowns if they occur.

Include the following paragraph if a second coat is required for porous surfaces.

D. After coating has dried completely, apply second coat using same procedures as first coat.

3.3 APPLICATION OF [CLEAR] [AND] [COLORED] SEALERS

A. Follow manufacturer's instructions for application and coverage, and procedures established during preparation of mockup.

B. Apply by [low pressure spray] [low nap roller] [lambswool applicator] [or] [brush].

C. Apply to uniform coverage without voids, streaks, heavy buildups, or rundowns. Brush out rundowns if they occur.

Include the following paragraph if a second coat is required for porous surfaces.

D. After coating has dried completely, apply second coat using same procedures as first coat.

3.4 GRAFFITI REMOVAL

A. Follow manufacturer's instructions for application and coverage.

B. Apply cleaner in a flood coat by low pressure spray, roller, brush, or sponge.

C. Allow cleaner to remain on surface for 2 to 4 minutes, then rinse completely with clean water.

D. If graffiti remains on surface, reapply cleaner to affected areas and scrub with stiff bristle brush. Rinse completely with clean water.

E. After surface has dried completely, apply anti-graffiti coating.

END OF SECTION