SECTION 07190

WATER REPELLENTS

This guide specification has been prepared by Dayton Superior Corporation to assist designprofessionals in the preparation of a specification section covering clear water repellent coatings forcast-in-place and precast concrete, brick, stone, and portland cement plaster surfaces, both horizontal andvertical. These products are not recommended for use on porous concrete block.

This specification may be used as the basis for developing either a project specification or an officemaster specification. Since it has been prepared according to the principles established in the Manual ofPractice published by The Construction Specifications Institute (CSI), it may be used in conjunctionwith 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 finalprinting.

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 withinparenthesis. Metric measurements are rationalized units based on the SI system of measurement. Deleteeither the inch-pound or metric units of measure depending on project requirements; do not include bothunits 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 mostpopular word processing programs and operating platforms. Please contact Dayton SuperiorCorporation 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 water repellent.

A. Section Includes:

1. Clear water repellent coating applied to exterior [vertical] [and] [horizontal] [cast-in-place concrete] [precast concrete] [brick] [stone] [portland cement plaster] [stucco] [_____] surfaces.

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 [04400 - Stone] [_____ - _____]: Stone substrate.

4 Section [09220 - Portland Cement Plaster] [_____ - _____]: [Plaster] [Stucco] substrate.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM) C 672 - Test Method for Scaling Resistance of Concrete Surfaces Exposed to Deicing Chemicals.

B. National Cooperative Highway Research Program (NCHRP) 244 - Concrete Sealers for Protection of Bridge Structures.

1.3 SYSTEM DESCRIPTION

A. Product Attributes:

1 Single component.

2 One coat application.
Delete the following paragraph if Weather Worker WB is selected in part 2.

3 Masking of adjacent glass and metal framing members prior to application or cleaning after application not required.

4 Typical 1 hour drying time at 70 degrees F.

5 Reduce absorption of water and waterborne contaminants into substrate.

6 Permit water vapor transmittance from substrate.

7 No change in substrate color, texture, or slip resistance.

1.4 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 water repellent, and protection of adjacent surfaces.

2 Test Data: Confirm compliance with specified requirements.

1.5 QUALITY ASSURANCE

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

1 Apply water repellent 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.

5 Water test after curing to verify sufficient coverage to repel moisture from surface.

6 Verify that application of water repellent to substrate will not produce surface stains or discoloration.

1.6 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 0 and 100 degrees F (minus 18 and 38 degrees C). Provide adequate ventilation and keep away from ignition sources.

1.7 PROJECT CONDITIONS

A. Environmental Requirements:

1 Ambient and surface temperatures between 32 and 100 degrees F (0 and 38 degrees C).

2 Do not apply if rain is expected within 3 hours after application.

3 Do not apply during winds that could carry water repellent to adjacent surfaces, properties, or vegetation.

4 Allow minimum 24 hours drying time after surfaces have been exposed to precipitation or other water
source.

B. Substrate:

1 New concrete cured minimum 28 days unless otherwise approved by manufacturer.
2 Tuckpointing cured minimum 3 days.
3 Not frozen or frost covered.
4 Clean, sound, and dry.
5 Joint sealers, paints, and glazing compounds and sealants fully cured.

C. Ensure adequate ventilation in application areas.

1.8 SEQUENCING

A. Apply water repellents after installation of joint sealers.

1.9 WARRANTIES

Select the applicable warranty period as stipulated for each product under Part 2.

A. Provide manufacturer's [5] [10] year warranty against water absorption through treated 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

Include the following for a 40 percent water repellent. A VOC compliant version is also available; contact Dayton Superior Corporation. A 10 year warranty is available for this product. Masking of windows is not required with this product.

A. Water Repellent:

1 Product: Weather Worker S-40 (J-29).

2 Description: 40 percent solids by weight silane-isobutyl trimethoxysilane.

3 Tested in accordance with NCHRP 244 by an independent testing agency with following results:

a. Water absorption - Series II: Reduce average weight gain of 15 percent NaCL solution by minimum
86 percent.

b. Accelerated weathering - Series IV: Reduce average chloride ion content by minimum 98 percent.

c. Vapor transmission: No moisture retained after 21 days.

4. Freeze/thaw cycling: Tested in accordance with ASTM C 672 by an independent testing agency with following results:

a. Treated concrete: Plus 0.

b. Control: 5.

**** OR ****

Include the following for a 20 percent water repellent. A 5 year warranty is available for this product. Masking of windows is not required with this product.

B. Water Repellent:

1 Product: Weather Worker S-20 (J-28).

2 Description: 20 percent solids by weight silane-isobutyl trimethoxysilane.

3 Tested in accordance with NCHRP 244 by an independent testing agency with following results:

a. Water absorption - Series II: Reduce average weight gain of 15 percent NaCL solution by minimum
88 percent.

b. Accelerated weathering - Series IV: Reduce average chloride ion content by minimum 91 percent.

c. Vapor transmission: No moisture retained after 21 days.

**** OR ****

Include the following for a water based, VOC compliant siloxane water repellent. A 5 or 10 year warranty is available for this product. Both 7 and 10 percent solids content versions are available. Contact Dayton Superior for the latest test results on this product.

C. Water Repellent:

1 Product: Weather Worker WB (J-26WB).
2 Description: [7] [10] percent solids by weight siloxane.
**** OR ****
Include the following for a VOC compliant water repellent. A 10 year warranty is available for this product.

D. Water Repellent:

1 Product: Weather Worker S-100 (J-29-A).

2 Description: 100 percent silane-isobutyl trimethoxy silane, VOC compliant.

3 Tested in accordance with NCHRP 244 by an independent testing agency with following results:

a. Water absorption - Series II: Reduce average weight gain of 15 percent NaCL solution by minimum
85 percent.

b. Accelerated weathering - Series IV: Reduce average chloride ion content by minimum 97 percent.

c. Vapor transmission: No moisture retained after 21 days.
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 remove loose and foreign matter that could interfere with application or performance of coating.

1 Sweep new concrete surfaces clean, except wash high traffic and dirty areas with 2000 psi (13.8 mPa) cold water.

2 Clean existing concrete surfaces by sandblasting, steel shotblasting, 2000 to 10,000 psi (13.8 to 69.0
mPa) cold or hot water, or chemical cleaning as required to ensure a clean surface.

B. Allow surfaces to dry completely before beginning application.

C. Test surfaces for absorption by placing several drops of water repellent on surface. Reclean surfaces not showing immediate absorption of water repellent.

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

3.2 APPLICATION

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

B. Vertical Surfaces:

1 Apply from top of wall down using low pressure sprayer at maximum 15 psi (104 kPA).

2 Flood surface until material runs down 6 inches (150 mm) below spray pattern before being absorbed.

C. Horizontal Surfaces:

1 Apply using low pressure sprayer at maximum 15 psi (104 kPA).

2 Flood surface with sufficient material so that surface remains wet for several minutes before material
is absorbed.
Edit the following to suit project requirements; delete surfaces not receiving water repellent.

D. Apply to following coverage rates unless otherwise determined by testing of mockup:

1 Cast-in-place concrete: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

2 Precast concrete: 125 to 150 square feet per gallon (3.1 to 3.7 sq m/L).

3 Clay brick: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

4 Concrete brick: 75 to 125 square feet per gallon (1.9 to 3.1 sq m/L).

5 Glazed brick: 150 to 175 square feet per gallon (3.7 to 4.4 sq m/L).

6 Rough stone: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

7 Smooth stone: 150 to 175 square feet per gallon (3.7 to 4.4 sq m/L).

8 [Portland cement plaster] [Stucco]: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

END OF SECTION