

SECTION 07190

WATER REPELLENTS

This guide specification has been prepared by SaverSystems, a division of Meredith, Inc. to assist design professionals in the preparation of a specification section covering clear water repellent coatings for protection of precast and cast-in-place concrete, natural stone, portland cement plaster, concrete unit masonry, and clay and concrete brick masonry surfaces, both horizontal and vertical. It 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), this guide specification 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 [01340] [____].”
- 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 parentheses. 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 SaverSystems at (800) 860-6327 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 [interior] [and] [exterior] [vertical] [horizontal] [concrete] [masonry] [stone] [____] surfaces.

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

B. Related 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 [04200 - Unit Masonry] [____ - ____]: Masonry 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:

1. ASTM C 67-91 - Test Methods of Sampling and Testing Brick and Structural Clay Tile.
2. ASTM C 97-90 - Standard test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
3. ASTM C 140-91 - Test Methods of Sampling and Testing Concrete Masonry Units.
4. ASTM E 514-90 - Test Method for Water Penetration and Leakage Through Masonry.
5. ASTM G 53-88 - Practice for Operating Light-and Water-Exposure Apparatus (Fluorescent UV-Condensation Type) for Exposure of Nonmetallic Materials.

B. Environmental Protection Agency (EPA) Method 24 (7/1/91) - Determination of Volatile Matter Content.

C. Federal Specification (FS) SS-W-110C (Feb 7, 1963) - Water-Repellent, Colorless, Silicone Resin Base.

D. National Cooperative Highway Research Program (NCHRP) 244 (December 1981) - Concrete Sealers for Protection of Bridge Structures.

E. Oklahoma Dept. of Transportation (OHD) HD-L-35 (3/2/92) - Test for Moisture Vapor Permeability of Treated Concrete.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Reduce absorption of water and waterborne contaminants into substrate.
2. Permit water vapor transmittance.
3. No change to slight darkening of substrate after application.

1.4 SUBMITTALS

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

A. Submit under provisions of Section [01340] [____]:

1. Product Data: Include manufacturer's specifications, surface preparation and application instructions, recommendations for each surface to receive water repellent, protection, and cleaning requirements.

2. Test Data: Confirm compliance with specified requirements.
3. Certificate: Manufacturer's installer approval certificate.

1.5 QUALITY ASSURANCE

A. Mockups:

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 32° and 100° F (0 to 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 40 and 100 degrees F (4 and 38 degrees C).
2. Do not apply if rain or temperatures below 40 degrees F (4 degrees C) are expected within 6 hours after application.
3. Do not apply during winds that could carry water repellent to adjacent surfaces, properties, or vegetation.
4. Do not apply sooner than 24 hours after surface has been exposed to rain or other water source.

B. Substrate:

1. Cured minimum 30 days.
2. Not frozen or frost covered.
3. Clean, sound, and dry.

C. Ensure adequate ventilation in application areas.

D. Joint sealers, paints, and glazing compounds and sealants fully cured.

1.8 SEQUENCING

- A. Apply water repellents after installation of joint sealers.

1.9 WARRANTIES

A 10 year material replacement warranty is also available; contact SaverSystems for additional information.

- A. Provide manufacturer's 5 or 7 year material replacement warranty against failure of coating to repel water.

2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: SaverSystems, Division of Meredith, Inc., 800 South 7th Street, Richmond, IN 47374, (800) 860-6327.

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

- B. Substitutions: [Not permitted.] [Permitted, under provisions of Section [01600] [____].]

2.2 MATERIALS

Include the following for an 8 percent solvent-based water repellent for use on concrete, masonry, plaster, stone or other cementitious surfaces.

****** OR ******

Include the following for a 6 percent water-based water repellent for use on concrete, masonry, plaster, stone or other cementitious surfaces.

- A. Water Repellent:
1. Product: MasonrySaver WB.
 2. Description: Approximately 6 percent proprietary modified siloxane in water solution.
 3. Performance attributes:
 - a) Water repellency, test brick: Minimum 96.9 percent, ASTM C 67, Section 7.
 - b) Water repellency, test mortar: 0.59 percent average absorption, immersed for 72 hours, FS SS-W-110C.
 - c) Reduction in water absorption on 3000 psi (21 MPa) concrete: Minimum 91.29 percent, immersed in water for 24 hours, ASTM C 140, Section 6.
 - d) Reduction in water absorption on Indiana limestone: Minimum 81.7 percent, immersed in water 48 hours, ASTM C 97.
 - e) Vapor transmission: Minimum 100 percent, OHD-L-35.
 - f) Resistance to efflorescence: No efflorescence on treated specimens, ASTM C 67, Section 10.
 - g) Accelerated weathering: No loss in water repellency, tested for 3000 hours, ASTM G 53.
 - h) Water permeance of masonry: Minimum 99.9 percent improvement, ASTM E 514.

- i) Volatile organic content (VOC): Less than 55 g/L, EPA Method 24.
- j) Penetration: 1/16 to 1/4 inch (1.5 to 6 mm) depending on substrate.

**** OR ****

Include the following for a 8 percent water-based water repellent for use on concrete, masonry, plaster, stone or other cementitious surfaces in applications where protection from de-icing salts and chloride ions is desired.

B. Water Repellent:

- 1. Product: MasonrySaver.
- 2. Description: Approximately 8 percent proprietary modified siloxane in mineral spirit solution.
- 3. Performance attributes:
 - a) Water repellency, test brick: Minimum 96 percent, ASTM C 67, Section 7.
 - b) Water repellency, test mortar: 0.76 percent average absorption, immersed for 72 hours, FS SS-W-110C.
 - c) Vapor transmission: Minimum 100 percent, OHD-L-35.
 - d) Resistance to efflorescence: No efflorescence on treated specimens, ASTM C 67, Section 10.
 - e) Accelerated weathering: No loss in water repellency, tested for 3000 hours, ASTM G 53.
 - f) Water permeance of masonry: Minimum 100 percent improvement, ASTM E 514.
 - g) Volatile organic content (VOC): Less than 725 g/L, EPA Method 24.
 - h) Penetration: Up to 1/4 inch (6 mm) depending on substrate.

C. Water Repellent:

- 1. Product: MasonrySaver WB with SaltShield.
- 2. Description: Approximately 8 percent proprietary modified silane/siloxane in water solution.
- 3. Performance attributes:
 - a) Water absorption reduction:
 - 1) Minimum 92 percent, to SS-W-110C.
 - 2) Minimum 90 percent, to NCHRP 244 SERIES II.
 - b) Vapor transmission: Minimum 100 percent, OHD-L-35.
 - c) Accelerated weathering: No loss in water repellency, tested for 3000 hours, ASTM G 53.
 - d) Volatile organic content (VOC): Less than 115 g/L, EPA Method 24.
 - e) Penetration: 1/16 to 1/4 inch (1.5 to 6 mm) depending on substrate.

**** OR ****

Include the following for a 20 percent water-based water repellent for use on concrete, concrete unit

masonry, concrete brick, plaster, or other cementitious surfaces.

- D. Water Repellent:
1. Product: MasonrySaver 20B.
 2. Description: Approximately 20 percent proprietary optimized silane/siloxane blend in water solution.
 3. Performance attributes:
 - a) Water repellency, test brick: Minimum 96 percent, ASTM C 67, Section 7.
 - b) Water repellency, test mortar: 92 percent water absorption reduction, immersed for 72 hours, FS SS-W-110C.
 - c) Chloride ion intrusion: Minimum 90 percent reduction in chloride ion intrusion, NCHRP 244, Series II.
 - d) Water permeance of masonry: Minimum 100 percent improvement, ASTM E 514.
 - e) Volatile organic content (VOC): Less than 150 g/L, EPA Method 24.
 - f) Penetration: 1/16 to 1/4 inch (1.5 to 6 mm) depending on substrate.

**** OR ****

Include the following for a 20 percent water-based water repellent designed for use specifically on concrete masonry units of all types.

- E. Water Repellent:
1. Product: MasonrySaver for Block.
 2. Description: Approximately 20 percent proprietary optimized blend of silane/siloxane and acrylic elastomers in water solution.
 3. Performance attributes:
 - a) Volatile organic content (VOC): Less than 80 g/L, EPA Method 24.
 - b) Penetration: Up to 3/4 inch (19 mm) depending on substrate.

3 EXECUTION

3.1 PREPARATION

- A. Clean surfaces to remove loose and foreign matter that could interfere with application or performance of coating.
- B. Allow surfaces to dry completely before beginning application.
- C. Repoint loose mortar; allow to dry 72 hours before applying water repellent.
- D. Protect adjacent and underlying surfaces 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 bottom of wall up using low pressure sprayer at 10 to 25 psi (69 to 172 kPA).
2. Flood surface until material runs down 6 to 8 inches (150 to 200 mm) below spray pattern before being absorbed.
3. Re-apply within 5 minutes if required to ensure complete coverage.

C. Horizontal Surfaces:

1. Apply using low pressure sprayer at 10 to 25 psi (69 to 172 kPA) or deep nap roller.
2. Flood surface with sufficient material so that surface remains wet for several minutes before material is absorbed.

Utilize the following for MasonrySaver WB, Edit to suit project requirements.

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

1. Porous brick masonry: 90-150 square feet per gallon (2.2 to 3.7 sq m/L).
2. [Concrete block] [Concrete brick]: 70 to 150 square feet per gallon (1.75 to 3.7 sq m/L).
3. [Precast] [Cast-in-place]: 150 to 300 square feet per gallon (3.7 to 7.4 sq m/L).
4. [Portland cement plaster] [Stucco]: 80 to 150 square feet per gallon (2.0 to 3.7 sq m/L).
5. Adobe: 90 to 110 square feet per gallon (2.0 to 3.0 sq m/L).
6. Limestone: 80 to 120 square feet per gallon (2.0 to 3.0 sq m/L).

Other cementitious surfaces: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

**** OR ****

Utilize the following for MasonrySaver . Edit to suit project requirements.

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

1. Porous brick masonry: 90 to 110 square feet per gallon (2.2 to 2.8 sq m/L).
2. Dense brick masonry: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).
3. Smooth concrete unit masonry: 40 to 80 square feet per gallon (1.0 to 2.0 sq m/L).
4. Split face or split rib concrete unit masonry: 75 to 125 square feet per gallon (1.9 to 3.2 sq m/L).
5. [Portland cement plaster] [Stucco]: 60 to 100 square feet per gallon (1.5 to 2.5 sq m/L).
6. Adobe: 90 to 110 square feet per gallon (2.2 to 2.8 sq m/L).
7. Smooth concrete: 125 to 200 square feet per gallon (3.2 to 5.0 sq m/L).
8. Limestone: 80 to 120 square feet per gallon (2.0 to 3.0 sq m/L).
9. Sandstone: 80 to 120 square feet per gallon (2.0 to 3.0 sq m/L).
10. Polished granite: 500 to 700 square feet per gallon (12.5 to 17.5 sq m/L).
11. Other cementitious surfaces: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

Utilize the following for MasonrySaver with SaltShield. Edit to suit project requirements.

- F. Apply to following coverage rates unless otherwise determined by testing of mockup:
1. Porous brick masonry: 90 to 150 square feet per gallon (2.2 to 3.7 sq m/L).
 2. [Concrete block] [Concrete brick]: 70 to 150 square feet per gallon (1.75 to 3.7 sq m/L).
 3. [Precast] [Cast-in-place]: 150 to 300 square feet per gallon (3.7 to 7.4 sq m/L).
 4. [Portland cement plaster] [Stucco]: 80 to 150 square feet per gallon (2.0 to 3.7 sq m/L).
 5. Other cementitious surfaces: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

Utilize the following for MasonrySaver 20B. Edit to suit project requirements.

- G. Apply to following coverage rates unless otherwise determined by testing of mockup:
1. [Concrete unit masonry] [Concrete brick]: 80 to 150 square feet per gallon (2.0 to 3.7 sq m/L).
 2. [Portland cement plaster] [Stucco]: 80 to 150 square feet per gallon (2.0 to 3.7 sq m/L).
 3. [Precast] [Cast-in-place] concrete: 150 to 300 square feet per gallon (3.7 to 7.4 sq m/L).
 4. Other cementitious surfaces: 100 to 150 square feet per gallon (2.5 to 3.7 sq m/L).

**** OR ****

Utilize the following for MasonrySaver for Block. Edit to suit project requirements.

- H. Apply to following coverage rates unless otherwise determined by testing of mockup:
1. Concrete unit masonry: 40 to 125 square feet per gallon (1.0 to 3.2 sq m/L).

3.3 FIELD QUALITY CONTROL

- A. After coating has dried, test surfaces with water spray; reapply to any areas showing water absorption.

END OF SECTION