SECTION 071900

IMPREGNATING WATER-REPELLENT CONCRETE MASONRY SEALER

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

A. The Contract Documents, including General Conditions, Bidding Requirements, and

Drawings apply to this Section.

1.02 SUMMARY

A. Provide all labor, materials, equipment services, and accessories necessary to furnish and install work on this Section, complete and functional as indicated in the Contract Documents and as specified herein.

B. The Base Scope of Work includes the following:

1. Provide for mockups of surface preparation and water-repellent sealer at locations selected by the Engineer.

2. Prepare concrete or masonry surfaces with dry nylon bristle brush.

3. Apply a single application of impregnating water-repellent sealer at all exterior concrete or masonry surfaces that will be permanently exposed to the exterior.

1.03 RELATED WORK

A. Coordinate the work of this Section with the work of all other trades under this

Contract.

1.04 REFERENCE STANDARDS

A. In general, follow all requirements, recommendations, and procedures of the following standards and publications:

1. ASTM International (ASTM) standards as specified or referenced herein.

2. Manufacturer’s product data, written instructions and recommendations.

B. The Contractor shall follow the material standards included in the manufacturer’s technical literature.

1.05 QUALITY CONTROL AND PROJECT PROCEDURES

A. Attend a preconstruction conference to be held with the Owner’s Representative, Architect, the General Contractor’s field superintendent, and all other involved trades to discuss and coordinate the work covered under this Section.

B. Contractor and Installer Qualifications:

1. The installer shall be licensed by the manufacturer of the products to be used on the project with a minimum of 5 yrs’ experience in the application of similar impregnating water-repellent sealers and concrete or masonry repair materials.

2. The Contractor's site superintendent shall have at least 5 yrs’ experience supervising the installation of water-repellent sealer systems and concrete or masonry repair materials.

3. Upon request, provide the Engineer with a list of five representative projects successfully completed by the contractor that are of similar scope and size. For each project, provide the project name, Owner’s name, Owner’s Representative name and phone number, description of the work, name of the sealer/impregnating water-repellent applied, Project supervisor, total cost of the impregnating water-repellent work vs. the total cost of the project, and the project completion date

1.06 SUBMITTALS

A. Submit the following specific items in time to allow for review by the Architect and resubmittals, if needed, without delaying the work. Do not order materials or start work before receiving the Architect’s written approval.

1. Subcontractors' qualifications, including a letter from the manufacturer stating that the contractor is approved for installation of their product.

2. Manufacturers’ literature for all materials specified for use on this project, each properly labeled and referenced to appropriate Specification Section, in time to prevent delay of the project.

3. Material Safety Data Sheets (MSDS) for all materials to be used.

4. Certifications by the producers of the materials that all materials supplied comply with all the requirements of the appropriate referenced standards, that all materials are compatible with adjacent materials, and that all materials are suitable for their intended purpose.

5. Manufacturer’s requirements and testing procedures for moisture conditions (moisture vapor emission rate, relative humidity, etc.) of the concrete or masonry at time of installation necessary to ensure proper bond.

6. Manufacturer's written instructions regarding equipment, materials and workmanship requirements for surface repairs, surface preparation, and installation of water-repellent sealer materials.

1.07 DELIVERY, STORAGE, AND HANDLING

A. All materials to be new. Handle all materials to prevent damage. Place materials on pallets. Use waterproof and fire-retardant tarpaulins to cover all stored materials top to bottom.

B. Store all materials in original, unopened, labeled containers and packaging and in compliance with manufacturer’s directions. Comply with manufacturer’s recommendations for minimum and maximum time and temperature limits for storage.

C. Store unopened and sealed containers in a dry place and protect from direct sunlight or frost and any sources of fire or ignition. Do not store containers once they are opened or when the seal has been broken. Unopened and sealed containers can be stored up to twelve months in a dry location at a temperature between 45°F and

85°F.

D. Promptly remove from the site all materials rejected by the Architect or exposed to any moisture anywhere, at any time, during transportation, storage, handling, and installation.

E. Do not stockpile materials or equipment to overload any building or site component.

F. Materials shall be marked with the date of manufacture and shelf life. Do not use products beyond the expiration of their shelf life. Store flammable materials in a cool, dry, protected area away from sparks and open flames.

1.08 PROJECT CONDITIONS

A. Do not install water-repellent sealer if:

1. ambient or substrate temperatures are less than 45°F or more than 86°F (substrate), or less than 41°F or more than 95°F (air) or if the substrate temperature is less than 6°F above the dew point at the time of application.

2. rain is forecasted within 24 hrs.

B. The primary concrete or masonry surface must be cured a minimum of twenty-eight days before the application of the water-repellent sealer.

C. Prior to and during application of the water-repellent sealer, the concrete or masonry surface must be completely dry with a maximum moisture content of 4%, as tested with a moisture meter.

D. Provide safe access, staging, temporary protection, and barricades; cleanup and dust and fume control; layout; equipment; waste disposal; and documentation.

E. Dispose of debris as required by federal, state, and local ordinances. Do not throw debris from scaffolding. Protect all building elements and perimeter soils from excessive or damaging runoff. Conduct debris to container trucks or other approved containers. Do not store debris on site at any time.

F. During the period of the conduct of the work, a representative of the Contractor shall be available by phone 24 hrs a day for emergencies. Provide the name and phone number of the 24 hr contact to the Owner at the start of the project.

G. Coordinate with other trades to sequence the work so as to not damage finished work of other trades. Repair all damage to finished work or existing work to remain at no cost to the Owner.

H. Protect adjacent building surfaces (e.g., window frames, glass) and landscaping by masking to protect from overspray. Any product spilled or dripped on an unwanted surface should be immediately removed by wiping with a clean cloth dipped in detergent solution and rinsed with clean water.

I. The water-repellent sealer must never be in direct contact with bitumen.

1.09 WARRANTY

A. Guarantee all work under this Section in a document stating that if, within two years after the Date of Substantial Completion of the Work, any of the work of this Section is found to be defective or not in accordance with the Contract Documents, the Contractor shall, at its sole cost and expense, correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. Also, state that the Contractor shall bear all costs incurred by the Owner, including reasonable attorney's fees, court costs, and expert witness and consultant fees, to enforce Contractor's compliance with the obligations of this Guarantee. The obligations of this Guarantee shall run directly to the Owner and its successors and assigns and may be enforced by the Owner and its successors and assigns against the Contractor, shall survive the termination of the Contract, and shall not be limited by conditions other than this Contract.

B. Provide manufacturer’s 10 yr product warranty beginning at the date of substantial completion.

PART 2 – PRODUCTS

2.01 MATERIALS

1. Water-Repellent Sealer: Thin-coat, liquid-applied, hydrophobic, impregnating water- repellent clear sealer consisting of a silane aqueous emulsion designed for use on concrete or masonry substrates, with 0.5% maximum water absorption with 48 hrs exposure as tested in accordance with ASTM C642; ISO-TEK 8501 by Ghostshield.

PART 3 – EXECUTION

3.01 GENERAL WORKMANSHIP FOR WATER-REPELLENT SEALER

A. Comply with all recommendations of the manufacturer of the water-repellent sealer for surface preparation and installation of the sealer

B. Use containers to hold or transport the fluid sealer that are clean and in good condition.

C. Obtain the manufacturer’s stamp code to be able to read the manufactured date on containers. Check the manufacturer date on all unopened containers prior to opening. Do not open or use any material that is was manufactured more than twelve months earlier – promptly remove from the site any product that is more than twelve months old.

D. Do not dilute the sealer. Keep containers closed, except when removing materials from them. Do not allow contact between various materials through mixing or remains or through dual use of transporting or application equipment. Do not use equipment with remains of previous materials.

E. Discard all unused product in open containers at the end of each work day. Do not store opened containers or containers whose seal has been broken.

F. Measure and record site conditions immediately before (as applicable) and periodically during the installation of the water-repellent sealer. Measurements must including air and substrate temperatures, air and substrate relative humilities, application rate, wet-film thickness, and record general notes on product uptake and performance.

3.02 PREPARATION OF CONCRETE OR MASONRY SURFACES FOR WATER REPELLANT

A. Check concrete or masonry surfaces to ensure that they are suitable for application of water-repellent sealer. Treat unsuitable surfaces (too smooth, too rough, not dry, or contaminated by dirt, oil, or any coating or other impurities) as required to make them suitable for application of sealer. The field representative must advise the Architect in writing that concrete or masonry surfaces are in satisfactory condition and are ready for the sealer application.

1. Remove all dirt, dust, or other foreign matter from the surface of the concrete or masonry prior to the application of the water-repellent sealer using methods described in this section and approved by Architect based on surface preparation mockups.

2. After cleaning, if a wet method such as power washing is used, the concrete or masonry surface must be allowed to dry for not less than 24 hrs before the application of the water-repellent sealer. If good weather conditions conducive to drying are not present, a longer drying time should be allowed and the sealer should not be applied until the concrete or masonry is completely dry as described in this section. Use a moisture meter if necessary to monitor drying of the concrete or masonry.

B. Concrete or masonry substrates must be structurally sound, thoroughly dry, clean, and cured at least twenty-eight days.

C. Do not use an acidic or chemical cleaning agent to clean the concrete or masonry without the express written approval of the Engineer.

3.03 WATER-REPELLANT SEALER APPLICATION

A. Apply water-repellent sealer to prepared substrates within three days after completion of the surface preparation.

B. Stir and mix materials thoroughly to ensure uniformity and in accordance with the manufacturer’s recommendations. Do not dilute or thin product.

C. Apply water-repellent sealer with a brush or airless sprayer.

1. Application rate depends on the density of the concrete or masonry and the depth of penetration required. Apply the sealer, in gel form, liberally to the surface of the concrete or masonry to achieve high penetration depth but no more than what can stay on the surface without run off.

2. For typical first coat applications, apply one coat of sealer at a rate of approximately 165 sq ft per gallon to 187 sq ft per gallon); application rate specific to the project to be determined by the mockup. Apply product at a wet mil thickness of 6 to 8 mils (.006 in. – .008 in.)

a. Measure wet film thickness using a thickness gauge a minimum of once every 200 sq ft of application area. Adjust coverage rate as necessary to achieve required wet film thickness.

3. If two applications are required, do not apply the sealer at a rate more than 370 sq ft per gallon, or at less than a rate of 3 to 5 mils WFT (.003 in. –

.005 in.). Take care to avoid the product running or dripping off the substrate. Allow the first coat to dry at least 24 hrs before applying the second coat.

4. Work material into surface in an even film. Eliminate cloudiness, spotting, holidays, laps, runs, sags, or other surface imperfections. Do not double back, building up film thickness of two coats applied in one application.

D. It may take up to 2 or more hours for the sealer to completely penetrate if the substrate is of high density. The treated surface may remain dark for up to seven days before it returns to normal appearance.

E. Do NOT apply sealer to concrete or masonry surfaces:

1. that are damp or have damp repairs. If rain suddenly begins during installation, immediately stop application of sealer and cover the newly impregnated areas.

1. if the conditions (e.g., weather or surface conditions) do not meet the requirements of Para. 1.08 above or are not expected to meet the requirements for anytime within a 24 hr period after installation.

F. Do not disturb sealed surfaces for a minimum of 6 hrs after the application of the product. Early water repellency will be developed after 24 hrs; however, full curing of the sealer may take up to seven days or longer. Do not install concrete or masonry repairs for a minimum of 72 hrs after application of the sealer.

END OF SECTION