CSC SPECIFICATIONS

DRY SHAKE CRYSTALLINE WATERPROOFING

Section 03 35 14

This section includes Krystol Broadcast, a crystalline waterproofing powder applied to the surface of freshly placed concrete during the final stages of finishing. Krystol Broadcast chemically reacts with water and un-hydrated cement particles to form needle-shaped crystals that fill capillary pores and micro-cracks in the concrete and permanently block the pathways for water and waterborne contaminants. Any moisture introduced over the lifespan of the concrete will initiate crystallization, ensuring permanent waterproofing protection.

Krystol Broadcast is applied as a dry-shake and trowelled into the concrete during final finishing, where it penetrates deeply into the concrete mass. The dry broadcast method produces a smooth finished surface suitable for typical traffic or application of common floor finishes, and may be used for bridge decks, water containment structures, tunnels, etc.

Krystol Broadcast replaces the need for conventional membrane waterproofing systems, and is best suited for thick concrete slabs that will be power-troweled during finishing.

Part 1 General

1.1 SECTION INCLUDES

.1 Dry shake crystalline waterproofing surface treatment applied during final finishing of horizontal concrete surfaces.

1.2 RELATED SECTIONS

In this article, indicate those sections that inter-rely on this section. The listing below is only partial and should be edited to include those sections specific to the project that describes subjects or products that affect this section directly.

.1 Section 03 30 00 - Cast-in-place Concrete: [Prepared concrete surfaces ready to receive finish].

.2 [Section 03 35 10 - Concrete Floor Finishing.]

.3 [Section 03 35 13 - High Tolerance Concrete Floor Finishing.]

.4 [Section 07 16 16 - Crystalline Waterproofing.]

.5 [Section 07 92 00 - Joint Sealants.]

1.3 REFERENCES

Edit this article after editing the rest of this section. Only list reference standards below, that are included within the text of this section, when edited for a project specification - delete other references that do not apply. Comparable Canadian and US are listed for some products.

.1 American Concrete Institute (ACI).

.1 ACI 305R-10 - Guide to Hot Weather Concreting.

.2 ACI 306R-10 - Guide to Cold Weather Concreting.

.3 ACI 308.1-11 - Specification for Curing Concrete.

.2 American Society of the International Association for Testing and Materials (ASTM).

.1 ASTM C309-11 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

.3 British Standard Institution.

.1 BS EN 12390-8:2009 - Testing Hardened Concrete: Depth of Penetration of Water Under Pressure.

.4 Canadian Standards Association (CSA).

.1 CSA A23.1-09/A23.2-09 (R2014) - Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

.5 German Institute for Standardization (DIN).

.1 DIN 1048 Part 5, Testing Concrete: Testing of Hardened Concrete Water Permeability.

.6 NSF International.

.1 NSF/ANSI Standard 61 - Drinking Water System Components, Health Effects.

1.4 PERFORMANCE REQUIREMENTS

.1 Permeability: When tested to BS EN 12390-8 or DIN 1048-5 at <0.5 MPa><<72.5 psi>> for 72 hours, permeability of treated concrete will be reduced by 60% over untreated concrete.

.2 Self-Sealing: Autogenous crack sealing of treated concrete for cracks with width of <0.5mm><<0.02 inches>> or greater; verified by independent testing.

1.5 ADMINISTRATIVE REQUIREMENTS

.1 Section [01 31 00]: Project management and coordination procedures.

.2 Pre-Installation Conference:

.1 A meeting shall be held prior to placement of waterproofing treatment and concrete with the Contractor, forming contractor, finisher, waterproofing installer, and Owner's testing agency and the Consultant in attendance.

.2 Review the following:

.1 Project requirements for placement, curing and waterproofing concrete as set out in Contract Documents.

.2 Manufacturer's product data.

.3 Applicable application instructions which focuses on this project's specific requirements.

.4 Substrate conditions and procedures for substrate preparation and waterproofing installation.

.3 Coordination: Coordinate with concrete placement and concrete curing, and other work having a direct bearing on work of this section.

1.6 SUBMITTALS FOR REVIEW

.1 Section [01 33 00]: Submission procedures.

.2 Product Data: Manufacturer's product data and general recommendations for waterproofing applications.

.3 Independent Test Reports: Provide reports certifying compliance of waterproofing admixtures with specified performance requirements.

1.7 SUBMITTALS FOR INFORMATION

The following submittals are for information only.

.1 Section [01 33 00]: Submission procedures.

.2 Installation Data: Manufacturer's special installation requirements.

.3 Qualification Statements:

.1 Written notice from manufacturer confirming that the manufacturer conforms to the qualifications specified.

.2 Written notice from manufacturer confirming manufacturing and project experience.

1.8 CLOSEOUT SUBMITTALS

The following submittals are for project close-out purposes.

.1 Section [01 78 10]: Submission procedures.

.2 Warranty Documents: Manufacturer's warranty documentation for specified coverage executed in the Owner’s name.

1.9 QUALITY ASSURANCE

.1 Perform Work in accordance with [ACI 301][CSA-A23.1/A23.2].

.2 Source Quality Control: Obtain all waterproofing products from a single manufacturer, including jointing and leak repair products.

.3 Conform to [ACI 305R] [CSA-A23.1/A23.2] when concreting during hot weather.

.4 Conform to [ACI 306R] [CSA-A23.1/A23.2] when concreting during cold weather.

.5 Manufacturer:

.1 Company specializing in manufacturing the Products specified in this section with minimum [twenty-five (25)] years [documented] experience.

.6 Installer:

.1 Company specializing in performing the work of this section with minimum [three (3)] years documented experience.

.7 Product Certifications:

.1 NSF/ANSI Standard 61 certified for use with potable water.

1.10 DELIVERY, STORAGE, AND PROTECTION

.1 Section [01 61 00]: Transport, handle, store, and protect products.

.2 Deliver packaged waterproofing admixture materials in original undamaged containers, with manufacturer's labels and seals intact.

.3 Store materials in dry environment at a temperature above <7 degrees C><<45 degrees F>>.

1.11 PROJECT CONDITIONS

.1 Concrete Mix: Minimum Portland cement content shall in no case be less than <250 kg/m3><<420 lb./cu. yd.>>, with w/c ratio no greater than 0.5, and air content no greater than 3%.

1.12 WARRANTY

.1 Section [01 78 10]: Warranties.

.2 Manufacturer's Warranty: Provide warranty limited to waterproofing materials for a period of [ten (10)] years from date of Substantial Performance of the Work.

Part 2 Products

2.1 MATERIALS

.1 Crystalline Waterproofing Surface Treatment: Surface-applied, dry shake crystalline waterproofing.

.1 Shape of crystal: when observed under 30x magnification, crystal growth will be long and needle shaped, allowing crystals to grow deeper and pack more tightly.

.2 Certifications: NSF/ANSI Standard 61 certified for use with potable water.

.2 Product: Krystol Broadcast.

.3 Manufacturer - Basis of Design:

.1 Kryton International Inc.
Toll Free: 1.800.267.8280
E-mail: info@kryton.com
Website: www.kryton.com

.4 Substitutions: Not permitted.

2.2 QUALITY CONTROL

.1 Application: Provide temporary colorant integral to the waterproofing treatment to permit visual verification of uniform distribution during Product placement.

Part 3 Execution

3.1 EXAMINATION

.1 Section [01 70 00]: Verify existing conditions before starting work.

.2 Verify that concrete surfaces are acceptable to receive the work of this section.

3.2 CONCRETE FINISHING

.1 Finish concrete surfaces to [CSA-A23.1/A23.2] and [Section 03 35 10].

.2 Waterproofing broadcast can be applied during finishing after the concrete has reached its initial set and the bleed water has disappeared.

3.3 INSTALLATION - WATERPROOFING

.1 Apply dry shake waterproofing to manufacturer's written instructions on concrete surfaces.

.2 Apply waterproofing by spreading onto the concrete surface just before finishing begins at a coverage rate of <1 kg/sq.m.><<0.2 lb/sq.ft.>>.

.3 Immediately begin power-floating to work the waterproofing into the surface.

.4 Do not add water.

.5 Curing:

.1 Cure in accordance with [ACI 308.1][CSA-A23.1] guidelines.

.2 Wet cure the concrete with a fog mist spray, sprinkler or wet burlap for 5 to 7 days. Protect from rain, excessive wind, and sun.

.3 Alternatively, a curing compound conforming to ASTM C309 may be used.

3.4 PROTECTION OF FINISHED WORK

.1 Section [01 78 40]: Protecting installed work.

.2 Protect completed waterproof assemblies from damage after application.

3.5 SCHEDULES

The following article will assist in preparing a schedule when differing finishing criteria are required for the project. The following schedule includes are EXAMPLES only. Edit the paragraphs below to create a schedule for the components specified in this section. Do not repeat statements that may exist on drawings.

.1 [Pool Equipment Room #106: Provide waterproofing to all floor areas].

END OF SECTION