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CONCRETE WATERPROOFING DESIGN SPEC.

Plug-in Design Specification – New Concrete Joint
Design
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**CONCRETE
WATERPROOFING**

QUESTIONS: 1-800-267-8280 or www.kryton.com

Plug-in Specification
Section 03152
OR
Master Format 2004 Section 031513
Waterstops
Cementitious Reactive Waterstop System

SPECIFICATION

Part 1 General

1.1 Work Included

Provide a two component, high-strength, Cementitious, reactive waterstop system at all non-moving slab to wall construction joints as detailed and described herein.

1.2 Related Sections

- A. A. Cast – in – place concrete

1.3 References

- A. U.S. Army Corps of Engineers C48-92

1.4 Submittals

- A. Certificates of Conformance or Compliance: before delivery of the materials a copy of the manufacturer's certificates, attesting that materials meet the requirements specified, shall be submitted to and approved by the contracting officer.
- B. Descriptive Product Literature: Manufacturer's descriptive product literature shall be submitted and shall consist of detail specifications, available performance test data and instructions for application.
- C. Certified Laboratory Test Reports: Before delivery of materials copies of the reports of all tests specified herein or in reference publications shall be submitted to and approved by the contracting officer. Test reports shall be accompanied by certificates from the manufacturer certifying that the previously tested material is of the same type, quality, manufacturer and make as that proposed for this project.
- D. Training: Contractor shall advise manufacturer 2 weeks prior to placement of jointing materials to ensure manufacturer's representative can be available on site for application training.
- E. Shop Drawings: Show construction joint types, layout and location

1.5 Delivery, Storage and Handling

- A. Deliver all materials in unbroken, original packages bearing the manufacturer's name and brand designation, batch number and date of manufacture. Store in dry storage area to avoid contact with moisture.

Part 2 Products

2.1 Manufacturer

- A. Materials specified herein are products of Kryton International Inc., 8280 Ross St., Vancouver, BC, V5X 4C6

2.2 Materials

- A. System components include the K-322i Krystol Waterstop Grout and K-321 Krystol Waterstop Treatment.
- B. Krystol Waterstop Grout shall be non-shrink, non-toxic, fast setting (initial 25 minutes) and contain high growth organic chemicals and withstand 1250 vertical feet of head pressure when tested in accordance with USACE C48-92
- C. Krystol Waterstop Treatment shall consist of a cementitious powder containing reactive chemicals with the ability to grow and penetrate to a minimum depth of four inches in both directions from the coated surface.

Part 3 Execution

3.1 Examination and Preparation

- A. Concrete surfaces to receive waterstop materials must be clean and free of contaminants or debris. Remove form oils, release agents curing agents or sealers from surfaces to be treated.
- B. Concrete must be sound. Remove loose rock pockets or honeycombing and repair with Krystol Waterstop Grout.
- C. VERY IMPORTANT: Surfaces to be treated must be brought to a saturated/surface-dry (SSD) condition. This means that the concrete pores are completely saturated with water but no free water remains at the surface. Pre-soak the surface with water then remove excess water with a towel just before applying the Krystol Waterstop Grout or Treatment.

3.2 Installation

- A. Mix Krystol Waterstop Grout to a stiff putty consistency. Begin by mixing approximately 4 parts powder to 1 part clean water. With vigorous mixing the Krystol chemicals will dissolve and the mix will change from dry and crumbly to flowable.
- B. Mix only small amounts at a time. Note that material left standing will quickly stiffen, but vigorous mixing will restore flowability. Do not add water to material once it has begun to set.
- C. Do not apply over standing water. Do not apply to dry concrete. Surface must be SSD.
- D. Apply the Grout to the center of the horizontal joint area in a triangular strip. If reinforcing bars are present, apply the strip as close to the center of the joint as possible.
- E. Place the Grout with the 2" margin trowel then use the Kryton triangle shaper or similar tool to form a continuous strip of peaked material. The triangular shaped strip will have straight angled sides and should measure 2 inches across by at least 1.25 inches high (50mm by 30mm)
- F. Protect the Grout application from damage, rain, freezing or direct sunlight for at least 12 hours.
- G. Follow with Krystol Waterstop Treatment anytime after the Grout has hardened (typically 2 to 4 hours)
- H. Re-wet surface including Krystol Waterstop Grout triangle to an SSD state prior to installation of Krystol Waterstop Treatment
- I. Mix Krystol Waterstop Treatment to a slurry consistency (5 parts powder to 2 parts clean water by volume).
- J. Apply the Treatment slurry to the intended joint area of the existing concrete using a stiff-bristled concrete brush. Employ a circular, scrubbing motion so as to achieve good contact and penetration.
- K. Apply Treatment at a spread rate of 5 square feet per pound (1kg/square meter) . Be sure to cover the entire contact area of the joint.
- L. Forms may be closed immediately after inspection. Protect the Treatment application from damage, rain, freezing or drying for at least 12 hours or until covered by concrete.
- M. Concrete may be poured over the joint anytime after the Treatment application has hardened - even several days later.

3.3 Inspection

- A. The installation shall be inspected in two stages:
 - a. Following the installation of the Grout strip, an inspector shall visually inspect the installation to confirm the presence and location of the "red" triangular strip in the proper dimensions.
 - b. Following the installation of the Treatment slurry, an inspector shall visually inspect the installation to confirm the presence and location of the "gold" strip which shall cover the entire contact area of the joint.
- B. If it is not possible to inspect the installation in two stages, then a single inspection can be made after the completion of the installation of both products. The inspector shall confirm the presence and location of the "gold" strip which shall cover the entire contact area of the joint. At or near the center of the gold strip shall be a raised triangular section of the proper dimensions. If necessary, a small section of the "gold" Treatment may be removed from the triangle portion of the strip to reveal the "red" Grout beneath.