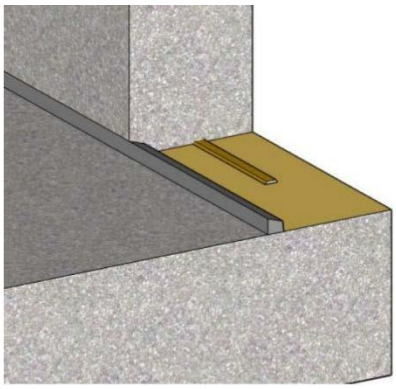
Krystol® Waterstop System

Waterproofing Horizontal & Vertical Construction Joints - Triple Protection Method

DESCRIPTION



Follow these instructions to waterproof horizontal and vertical construction joints with the Triple Protection Method, using Krystol Waterstop Grout, Krystol Waterstop Treatment and Krytonite Swelling Waterstop.

NOTE: Use a high quality, exterior grade construction adhesive based on Polyurethane (PU) or Modified Silane (MS-Hybrid) to install Krytonite Swelling Waterstop.

NOTE: Krytonite Swelling Waterstop is available in a standard yellow version and a rain protected blue version. The standard yellow version must be protected from rain until covered in concrete. The blue version can resist heavy rain for at least 24 hours and light rain for longer, but you should still minimize its exposure to wet weather as much as possible.

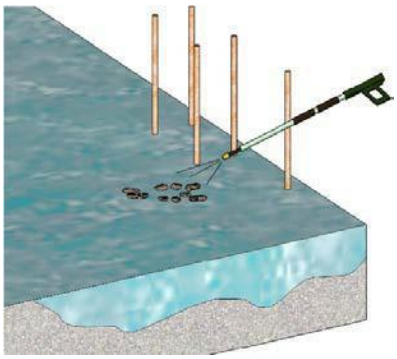
LIMITATIONS

Not for use at expansion joints. The Krystol Waterstop System is effective for rigid structures only and may not reliably seal joints that experience variable loading or repeated movement. Not compatible with stay-in-place metal mesh formwork. Air and surface temperatures at the time of application must be at least 4°C (40°F).

SAFETY PRECAUTIONS

Read and follow the Safety Data Sheets (SDS) for these products (available at www.Kryton.in). For professional use only. These products become highly caustic when mixed with water or perspiration. Avoid contact with skin or eyes. Avoid breathing dust. Wear long sleeves, safety goggles and impervious gloves.

STEP 1: SURFACE PREPARATION



1. Joints must be level and sound. Use a chipping hammer to level areas that are very rough or uneven. Chip out voids or rock pockets using a sharp, flat chisel (ensure edges are square and not feathered). **TIP:** Forming joints so they are sound and level while the concrete is fresh will eliminate the need to do this after it has hardened.
2. Clean joints by high-pressure water blasting, or use a wire brush and rinse until very clean. Remove laitance, oils, curing compounds or anything that may interfere with bonding. Use a de-greaser if needed to remove form release agents. A final ICRI Concrete Surface Profile (CSP) of 1-3 is adequate.
3. If voids or rock pockets were chiseled out, fill them with Krystol Waterstop Grout as follows: Mix grout to a sag free but workable putty (approximately 4.5 parts powder to 1 part clean water by volume), install to damp concrete and allow to harden (approx. 1 hour at 20°C).

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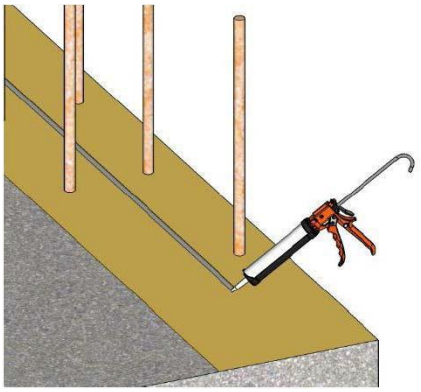
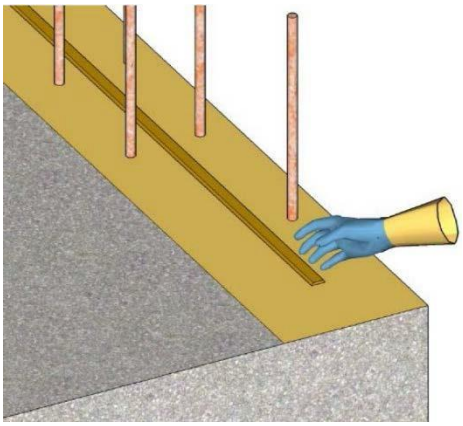
STEP 2: INSTALL KRYTONITE SWELLING WATERSTOP



IMPORTANT: Install Krytonite after the Treatment has hardened. Ensure 65 mm (2.5 inches) of concrete cover in all directions. Installing too close to the outside edge may damage to the concrete. Leave about 25 mm (1 inch) between the Krytonite and rebar to prevent void spaces.

1. Use a high quality, exterior grade thixotropic epoxy adhesive to install Krytonite Swelling Waterstop. Apply a 2 mm (3/4 in.) bead of adhesive at or near the center of the joint and press the Krytonite strip into it. Do not allow time for the adhesive to form a skin. Use enough adhesive so it squeezes out the sides when Krytonite is pressed down. Rough surfaces will require more adhesive. Alternatively (or in addition), nails can be used to secure the waterstop (approx. three nails per meter; one nail per foot).



2. Cut Krytonite to length using scissors. Butt ends tightly together (do not overlap). Mitre corners by cutting both strips at an angle. Allow adhesive to cure before pouring concrete.
IMPORTANT: Contact with water may cause the strip to swell and lose bond with the adhesive. If this occurs, the material can be recovered by allowing it to dry until it returns to its original size before reinstalling.

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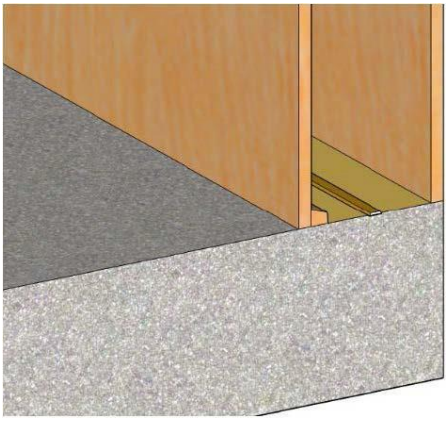
STEP 3: CREATE A KEYWAY

1. Create a keyway at the intersection where the two concrete sections will meet. A suitable keyway can be formed from a dressed 2x2 by trimming one edge off at an angle to leave a narrow edge of about 1. in. (25 mm x 25 mm tapering to 15 mm).

2. Attach the keyway form to the edge of the concrete form with the narrow end facing inwards. The keyway can be pressed into the fresh concrete for slab-to-slab joints.



STEP 4: PLACE AND CONSOLIDATE CONCRETE

Place concrete over the joint as normal, taking care not to dislodge Krytonite during placement. Allow concrete to fall directly over the joint, and avoid shooting shotcrete directly at the side of the Krytonite strip. To achieve a waterproof joint:

1. Remove debris and water from the joint before placing concrete.
2. Do not let form release oil contaminate the joint.
3. Remove form spreaders (if present) as the concrete is placed.
4. Place and vibrate concrete following ACI 309R - Guide for Consolidation of Concrete.
5. Place shotcrete using an ACI certified nozzle crew following ACI 506R – Guide to Shotcrete.
6. Cure following ACI 308.1 (Specification for Curing Concrete) taking measures to prevent rapid drying.

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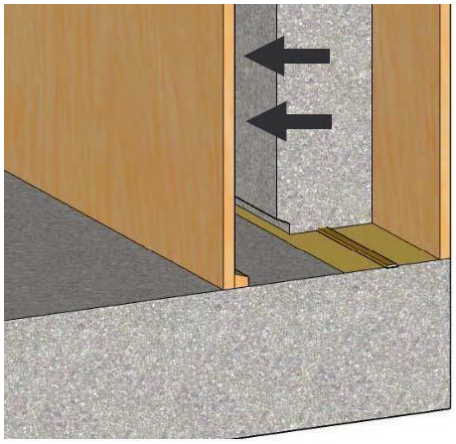
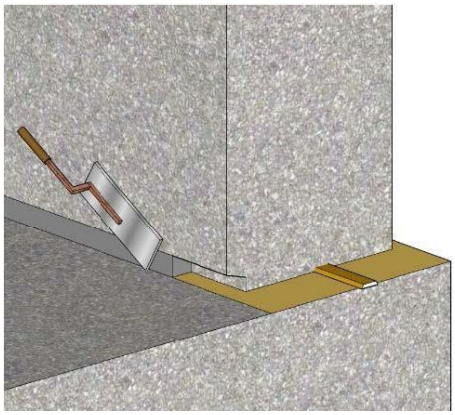
STEP 5: PREPARE THE KEYWAY



1. Remove keyway forms from the hardened concrete. Ensure no wood remains in the keyway.
2. Inspect for rock pockets, or any part of the keyway that is filled with concrete but should not be. Chip these areas out using a sharp, flat chisel. Ensure edges are square and not feathered.
3. Clean the keyway by high-pressure water blasting, or use a wire brush and rinse until very clean. Use a de-greaser if needed to remove form release agents.

STEP 6: INSTALL KRYSTOL WATERSTOP GROUT



NOTE: Install Krystol Waterstop Grout at any time, but for best results, wait for concrete drying shrinkage to take place first.

NOTE: Only proceed if the keyway is NOT leaking water. If it is leaking, stop the leak by installing 12 mm (0.5 inches) of Krystol Plug before finishing with Krystol Waterstop Grout.

1. Bring the concrete to a saturated surface-dry (SSD) condition. This means the concrete is saturated with water, but no free water remains at the surface. Thoroughly soak the keyway with water; then remove excess water with a sponge just before installing Krystol Waterstop Grout.
2. Mix Krystol Waterstop Grout as follows: Slowly add powder to water while mixing (approximately 4.5 parts powder to 1 part clean water by volume) and mix thoroughly. The mixture may appear dry at first, but will become workable when fully mixed. The grout should be sag free and stiff enough to hold its shape, but still easy to handle and trowel. Mix only as much as you can place in 30 minutes.
   NOTE: After mixing, the material may stiffen in the pail. Do not add more water. Remixing will make the grout easy to work with again.
3. Tightly pack Krystol Waterstop Grout into the keyway so it is flush with the surface.

IMPORTANT: Protect the joint from rain and rapid drying. Use plastic sheeting to protect from rain, sun and wind until the grout hardens (approx. 1 hour at 20°C). Once hardened, protect from freezing for 24 hours, and keep damp for 48 hours or until Treatment is applied.

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APPLICATION INSTRUCTION

Construction Joints & Details

4.16

SMART CONCRETE®

COVERAGE

Material	Coverage
Construction Adhesive	Most construction adhesives yield 8-10 m (26-32 ft.) per tube for a 6 mm (1/4 inch) bead.
Krytonite Swelling Waterstop	50 m (164 ft.) per/box; 5 rolls @ 10 m (33 ft.) per/roll
	Joint Width: — Coverage per Pail 150 mm (6 inches) — 164 m (540 feet) 200 mm (8 inches) — 125 m (405 feet) 250 mm (10 inches) — 100 m (325 feet) 300 mm (12 inches) — 82 m (270 feet)
Krystol Waterstop Grout	One 15 kg (33 lb. Bag) will yield approximately 11 liters (0.38 cubic feet) of grout. Approximate lineal coverage: Keyway Size: — Coverage per bag 25x25 mm (1x1 inches) — 17 m (55 feet) per bag 25x40 mm (1x1.5 inches) — 10 m (32 feet) per bag Consult a Kryton Representative to determine the best keyway size for your project.

TOOLS & MATERIALS

- Clean water supply
- Mixing bucket, drill and mortar paddle
- Natural bristle concrete brush
- Water spray and towel/sponge
- Margin trowel
- High pressure water blaster
- Measuring cups
- Keyway form
- Caulking gun
- Construction Adhesive
- Scissors

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