

VOLCLAY®

WATERSTOP-RX®



BENTONITE WATERSTOP SYSTEM

PRODUCT MANUAL



CERTIFIED TO
ANSI/NSF 61

CETCO

BUILDING MATERIALS GROUP

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embedded in the top surface for high tensile strength. The patented trapezoidal shape distributes the expansive force over a greater area. Waterstop-RX 102 is extruded in half-circle (crescent) shape measuring 3/4" x 3/8" x 25" (19mm x 9mm x 7.62m). See Table 1.

Volclay WB-Adhesive is used to adhere Waterstop-RX to the structure. Volclay WB-Adhesive is a gray, non-flammable, water based latex adhesive. Volclay WB-Adhesive is formulated for easy use and high performance.

Section 1 Product Description

Waterstop-RX® is a flexible strip concrete construction joint waterstop that provides a permanent seal by expanding upon contact with water. Waterstop-RX is an active sodium bentonite based waterstop that is designed to replace conventional passive PVC dumb-bell waterstops, thus eliminating the requirement of split-forming and product seam welding.

Waterstop-RX® is manufactured in light weight, flexible coils that can be installed in both hot and cold weather. The product is adhered to concrete, steel, and PVC (pipes) with Volclay® WB-Adhesive; at or exceeding the required minimum distance from the exterior concrete surface.

The key to Waterstop-RX® is sodium bentonite. Sodium bentonite swells when in contact with water, forming an impermeable barrier. This swelling property allows Waterstop-RX to form a permanent pressure seal within the concrete joint, thus eliminating water migration over or along the waterstop (see Figure 1.1). In addition to forming a positive pressure seal, the product's expansion properties allow it to seal small cracks and void areas. Waterstop-RX has been successfully tested by independent testing firms to over 150 feet (50 meters) of hydrostatic water pressure, under both continuous emersion and wet/dry cycling.

Waterstop-RX® is extruded in three sizes and shapes (see Figure 1.2). Waterstop-RX 101 is extruded in a rectangular shape measuring 1"x3/4"x16'8" (25mm x 19mm x 5.03m). Waterstop-RX 101T is extruded in a trapezoidal shape measuring 1-1/4" x 1/2" x 16"8" (31mm x 12mm x 5.03m) with a reinforcing plastic scrim

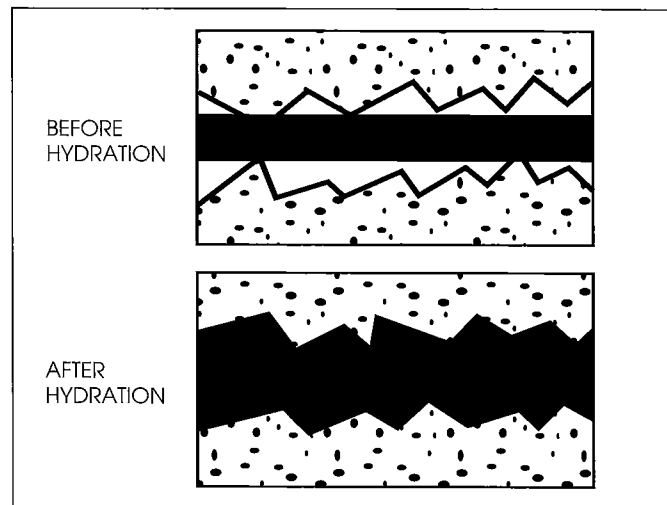


Figure 1.1 - Swelling property of Waterstop-RX

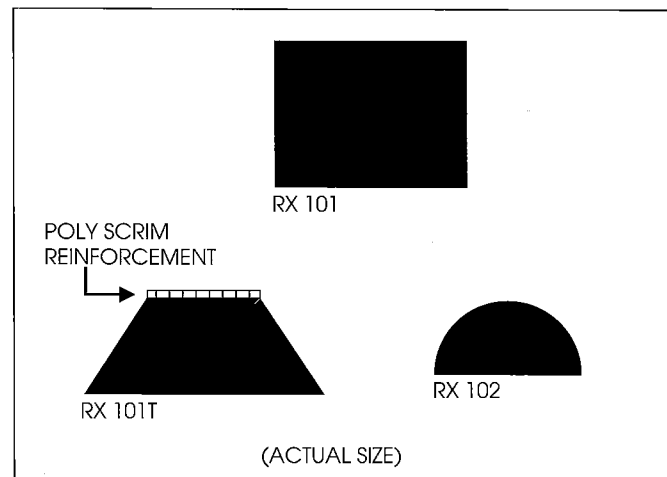


Figure 1.2 - Three sizes and shapes of Waterstop-RX

Section 2
General Applications

Waterstop-RX® applications include both vertical and horizontal concrete construction joints, new-to-existing construction, irregular surfaces, and around through-wall penetrations, such as plumbing and electrical conduit. Waterstop-RX is designed for both hydrostatic and non-hydrostatic conditions. Waterstop-RX is not designed, nor intended to function as an expansion joint sealant. Contact manufacturer for precast concrete applications, technical information and approval.

Waterstop-RX is certified by NSF International to conform with the requirements of NSF Standard 61 - Drinking Water System Components - Health Effects. Waterstop-RX is certified as a joint sealant for potable water concrete tanks of 1,000 gallons or larger.

Waterstop-RX® is designed for structural concrete with a minimum of 3000 psi. Waterstop-RX 101 and 101T, require a minimum 3" (75mm) of concrete coverage. Waterstop-RX 102 requires a minimum concrete coverage of 2" (50mm).

RX 101 and RX 101T are designed for vertical and horizontal reinforced concrete 8" (200mm) thick or greater, with two rows of reinforcing steel (see Figure 2.1). RX 101T (trapezoidal) is recommended for shotcrete or gunite concrete construction, extreme hot weather and difficult applications. RX 102 is designed for vertical reinforced concrete 5" (125mm) thick or greater; and horizontal reinforced concrete 4" (100mm) thick or greater. RX 102 is designed primarily for concrete with one row of reinforcement, concrete curbs, planter walls, and light weight concrete.

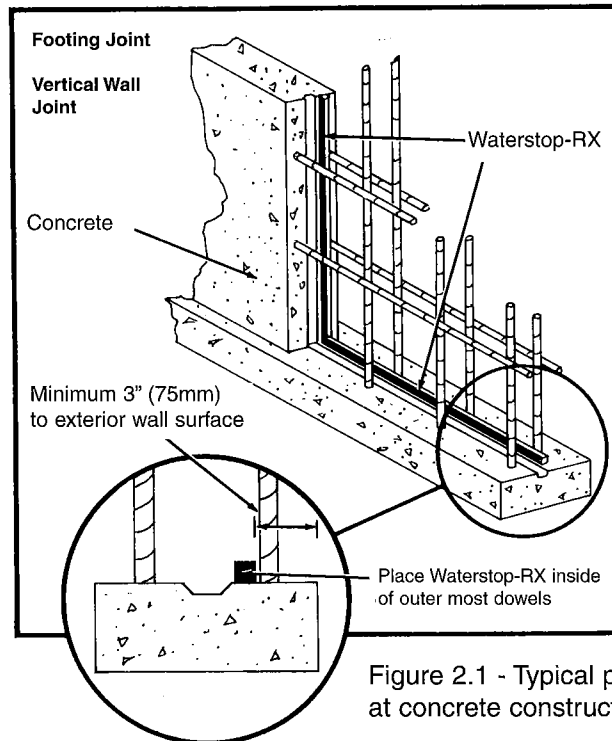


Figure 2.1 - Typical placement of Waterstop-RX at concrete construction joint

Table 1 - Product Table

Product	Size	Shape	Hydration Type	Ln Ft Carton	Carton Weight
RX 101	1" x 3/4" x 16'8"	Rectangle	Standard	100	53 lbs
RX 101T	1-1/4" x 1/2" x 16'8"	Trapezoid with Poly Reinforcement	Standard	100	36 lbs
RX 102	3/4" x 3/8" x 25'	Half Circle Poly Reinforcement	Standard	150	25 lbs

Section 3 General Installation Procedures

Surface Preparation. Surfaces should be clean and dry. Remove all dirt, rocks, rust or other debris. Do not install Waterstop-RX® in standing water.

Installation. Roller or brush apply Volclay® WB-Adhesive a minimum of 5 mils thick, by the width of Waterstop-RX. Apply the adhesive over the entire surface to receive Waterstop-RX. Allow the adhesive to dry 10-15 minutes or until it turns black. At temperatures below 55°F (13°C), or in damp conditions, allow a longer period to dry. Adhesive application rate is 400-600 linear feet (120 meters) per gallon (3.78 liters).

After allowing adhesive to dry black, remove release paper and firmly press the entire length of Waterstop-RX onto the adhesive. Press firmly for several seconds; especially at the highest coil end on vertical applications. For best results, apply Waterstop-RX within two hours of adhesive turning black. Areas not receiving Waterstop-RX within six (6) hours shall be recoated. WB-Adhesive may be applied to damp surfaces and green concrete, but not in free standing water.

Waterstop-RX is not a self-adhering product. Use Volclay WB-Adhesive to adhere the product. Mechanical fasteners should not be used to secure product alone, but may be used in conjunction with WB-Adhesive. (Keep WB-Adhesive from freezing. Frozen adhesive is damaged beyond use even after thawing. Discard frozen adhesive per applicable laws and regulations.)

Tightly butt coil ends together to form a continuous waterstop (do not overlap coil ends). Place in maximum practical lengths to minimize coil end joints. Where required, cut coils with knife or utility blade to fit coil ends together. Pour Concrete.

Waterstop-RX® is not designed, nor intended to function as an expansion joint sealant. RX-101 and RX 101T require a 3" (75mm) minimum concrete coverage to the exterior concrete surface (see Figure 3.1). RX 102 requires a 2" (50mm) minimum concrete coverage to the exterior concrete surface (see Figure 3.2).

Waterstop-RX should not be prehydrated by submersion or remain in contact with water prior to concrete pour. If the product exhibits considerable swell prior to confinement in the joint, it must be replaced with new material.

In conditions where severe ground water chemical contamination exists, or is expected, consult with

manufacturer for compatibility information and approval.

Waterstop-RX is recommended for installation outside of any formed keyway in poured-in-place concrete construction. Waterstop-RX can be installed in a formed keyway with the approval of the structural engineer. Consult manufacturer for recommendations on conditions not represented herein.

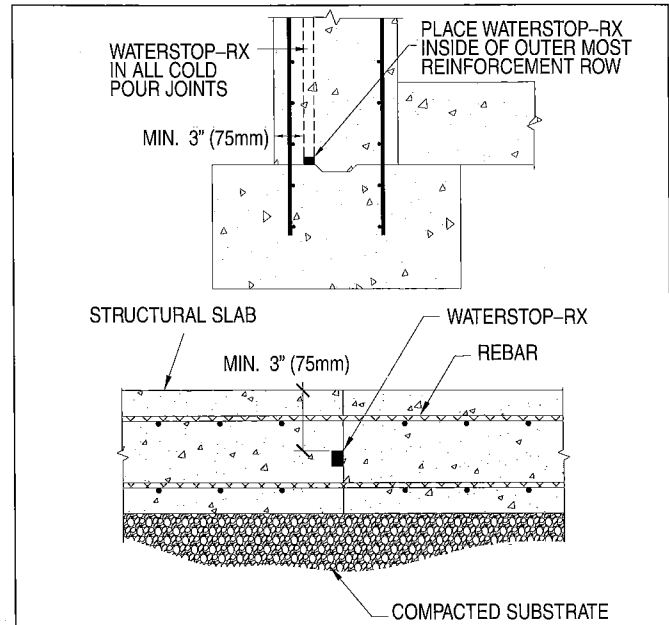


Figure 3.1 - Placement of Waterstop-RX 101 & 101T at typical construction joints with required 3" (75mm) concrete coverage.

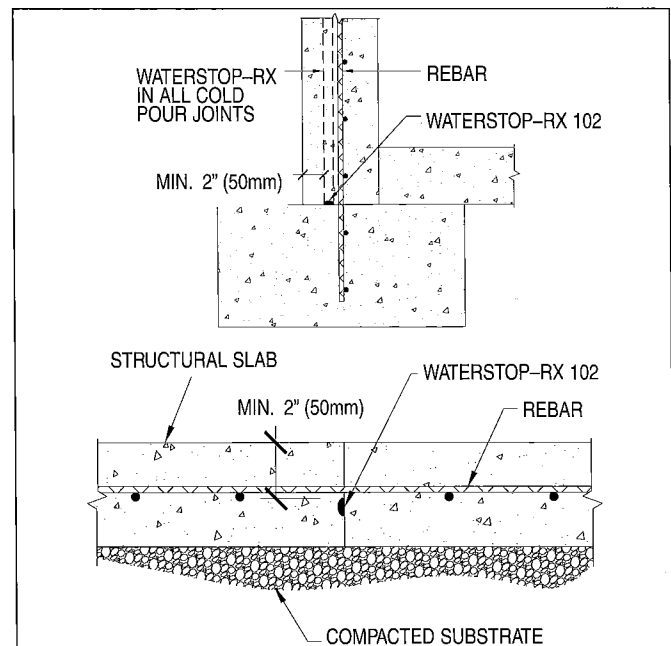


Figure 3.2 - Placement of Waterstop-RX 102 at typical construction joints with required 2" (50mm) concrete coverage.

Section 4
Penetrations

Following the General Installation Procedures in Section 3, install Waterstop-RX® directly around all applicable single and multiple poured-in-place or sleeved pipe penetrations (see Figure 4.1).

Single Pipe Penetration: Install Waterstop-RX around outer diameter of the pipe (see Figure 4.2). Waterstop-RX 102 shall be installed around all polyvinyl chloride (PVC) pipes.

Multiple Pipe Penetrations. Install Waterstop-RX around each pipe, as well as, around any block out box construction joint. Waterstop-RX 102 shall be installed around penetrations with less than 4" (100mm) between penetrations and all polyvinyl chloride (PVC) pipes (see Figure 4.3).

Sleeved Pipe Penetrations. Install Waterstop-RX around the outer diameter of the sleeve. Install another Waterstop-RX strip between the sleeve's inner diameter and the pipe, contacting both surfaces continuously (see Figure 4.4). When there is an excessive gap between the inner diameter of the sleeve and the pipe, it may be necessary to install two separate Waterstop-RX strips - one on the inner diameter and the other on the pipe. Then completely fill the void area between the sleeve and the pipe with non-shrink grout (see Figure 4.5).

Consult manufacturer for recommendations on conditions not represented herein.

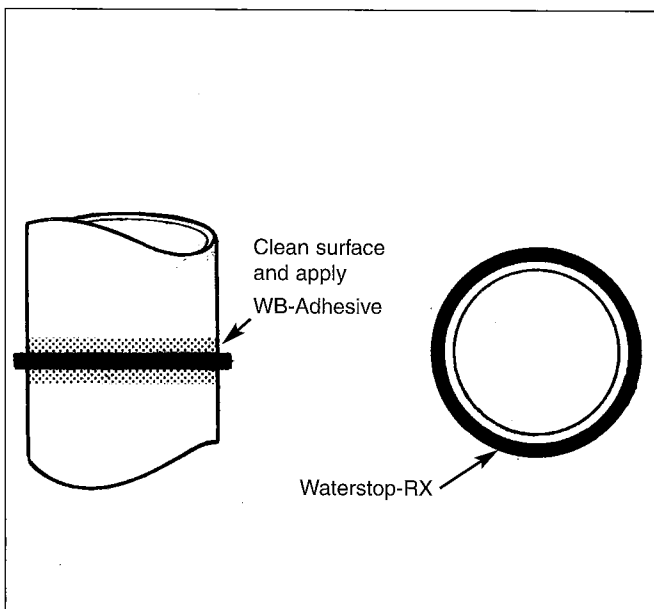


Figure 4.1 - Waterstop-RX installed around all applicable penetrations

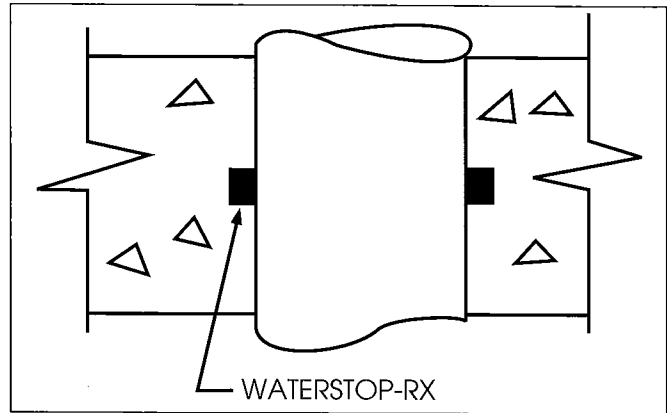


Figure 4.2 - Single pipe penetration

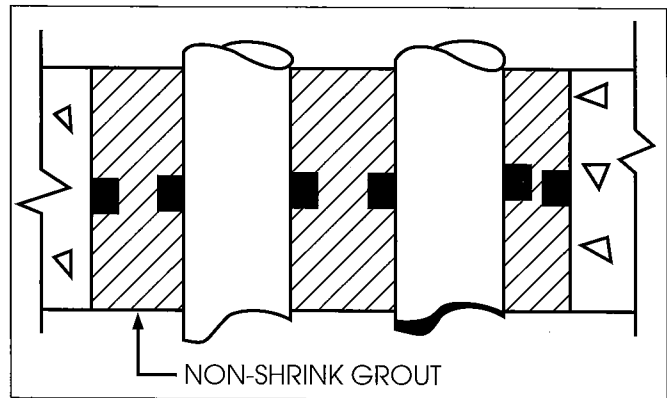


Figure 4.3 - Multiple pipe penetration

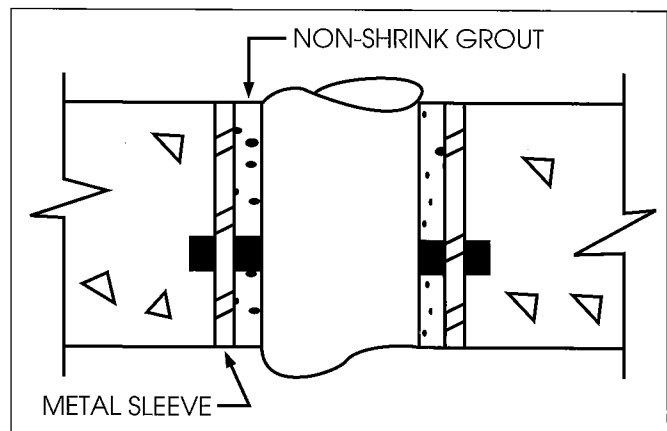


Figure 4.4 - Sleeved pipe

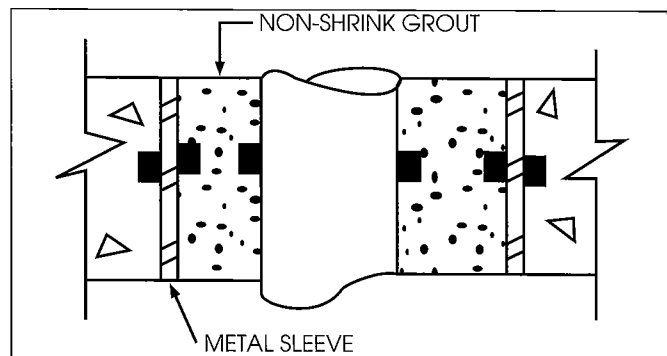


Figure 4.5 - Sleeved pipe (excessive gap)

Section 5
Pile Caps and Grade Beams

Following the General Installation Procedures in Section 3, install Waterstop-RX® in all applicable concrete construction joints around or adjacent to pile caps and grade beams.

Install Waterstop-RX around pile caps and grade beams above the layer (not contacting) of exterior waterproofing to establish a separate waterstop layer (see Figure 5.1). Contour all I-beams extending outward from pile caps with Waterstop-RX (see Figure 5.2) or encircle all metal reinforcement rods extending out of pile caps (see Figure 5.3).

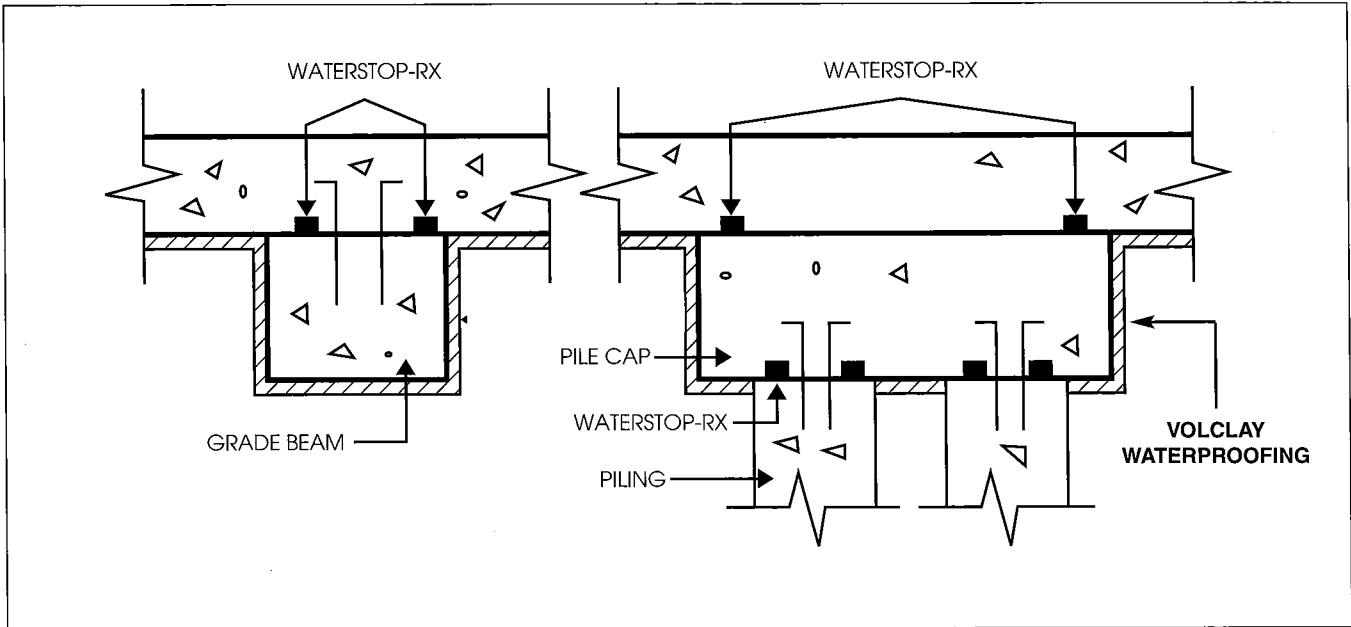


Figure 5.1 - Waterstop-RX at grade beams and pile caps

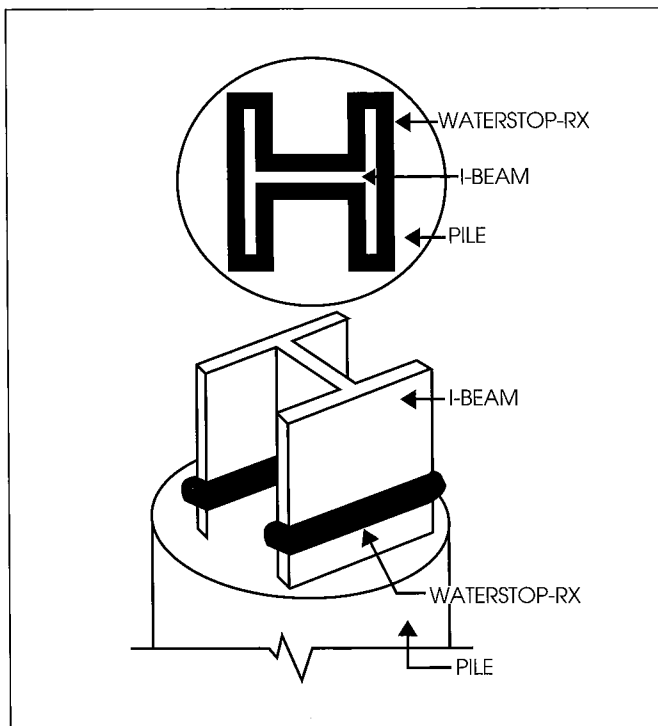


Figure 5.2 - Waterstop-RX encircling pile cap metal I-beam

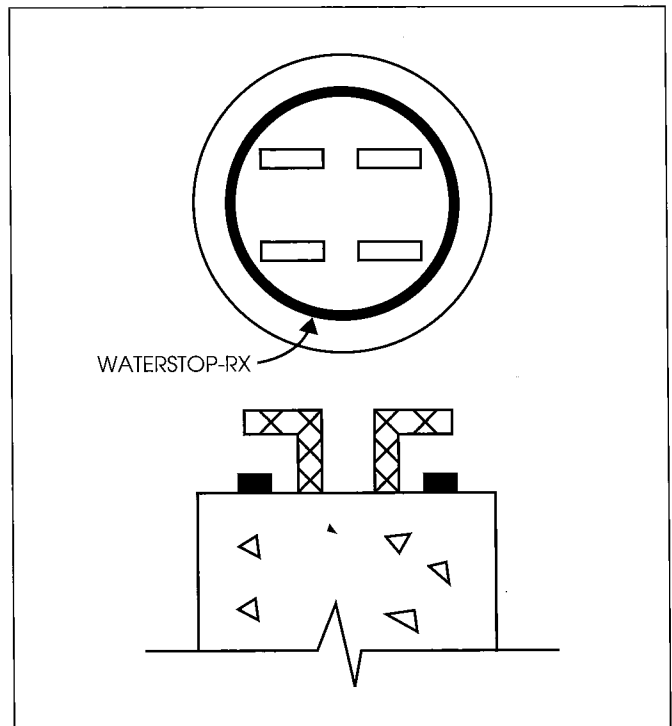


Figure 5.3 - Waterstop-RX encircling pile caps metal reinforcement

Section 6
Property Line Installations

Following the General Installation Procedures in Section 3, install Waterstop-RX® in all applicable horizontal and vertical construction joints within the structural property line wall, including concrete interface joints with soldier piles.

Install Waterstop-RX directly to soldier piles when wood lagging is positioned outside the piles toward the retained earth or when the wood lagging is positioned adjacent to the pile's outer flange (see Figure 6.1).

Install Waterstop-RX within all applicable concrete construction joints when the wood lagging is positioned adjacent to the soldier piles inside flange (see Figure 6.2).

Use Waterstop-RX 101T (trapezoidal) for shotcrete or gunite concrete construction.

Install Waterstop-RX in all applicable concrete construction joints for metal sheet piling or concrete cassion construction. Install Waterstop-RX around all soldier pile tie-back boxes through wall construction joints (see Figure 6.3).

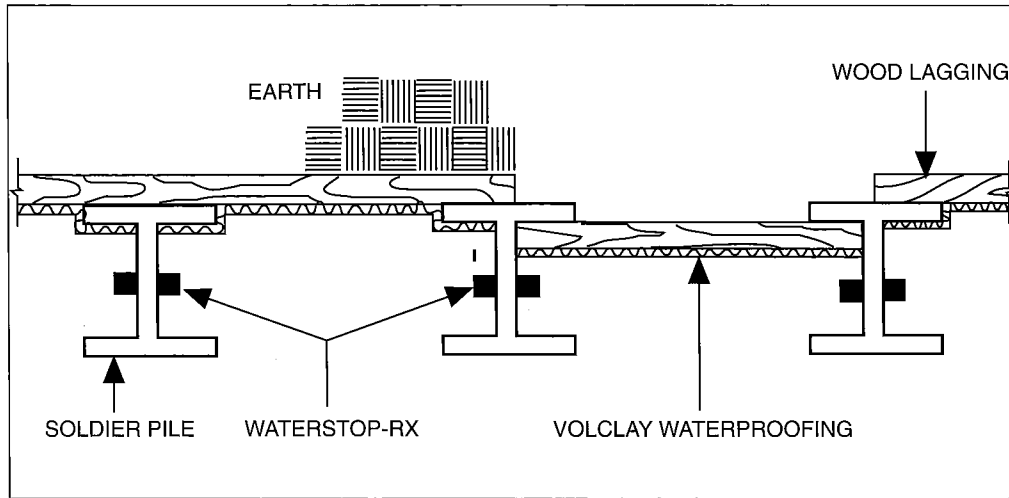


Figure 6.1 - Waterstop-RX installed when wood lagging is positioned outside the soldier piles or adjacent to piles outer flange

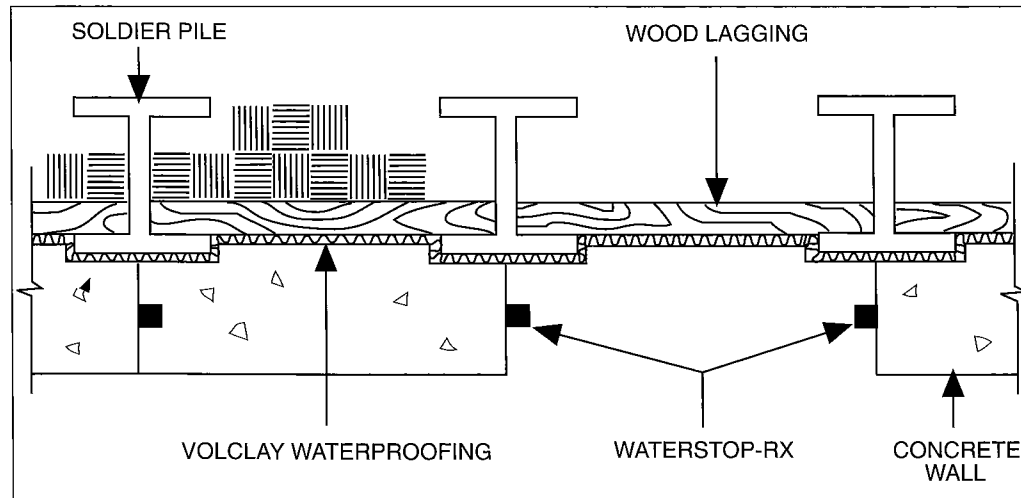


Figure 6.2 - Waterstop-RX installed when wood lagging is positioned adjacent to soldier piles inside flange

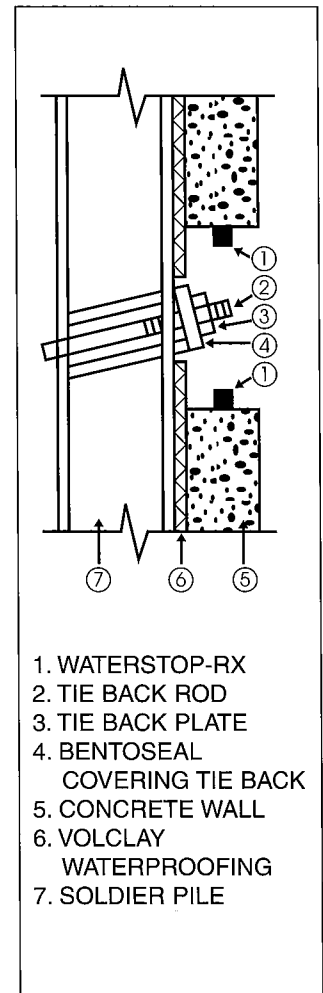


Figure 6.3 - Typical tie-back section detail prior to grouting

Section 7
Irregular Concrete & Stone Surfaces

Following the General Installation Procedures in Section 3, install Waterstop-RX® to existing irregular concrete or stone surfaces.

Press Waterstop-RX continuously against irregular surface, contouring all rises and depressions (see Figure 7.1). Do not span cavities or cracks leaving a gap between the surface and the Waterstop-RX. In special conditions it may be necessary to install Waterstop-RX in an irregular path to circumvent deep depressions or cracks.

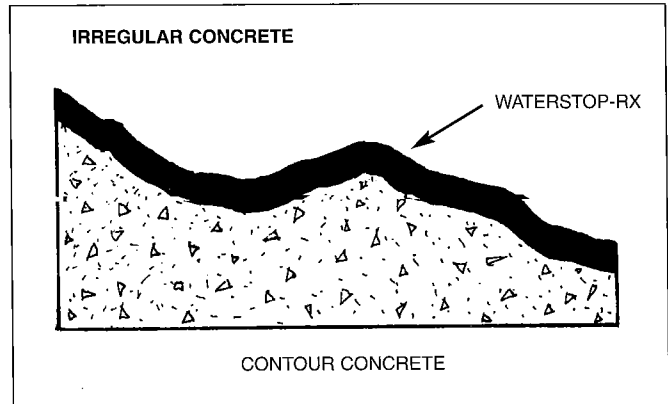


Figure 7.1 - Waterstop-RX installed on irregular concrete

Section 8
Joining Waterstop-RX to PVC Waterstops

Following the General Installation Procedures in Section 3, install Waterstop-RX on the interior side of the PVC dumbbell waterstop (see Figure 8.1). Waterstop-RX should be in direct contact and overlap the passive PVC dumbbell waterstop by a minimum of 3" (75mm).

Consult manufacturer for recommendations on conditions not represented herein.

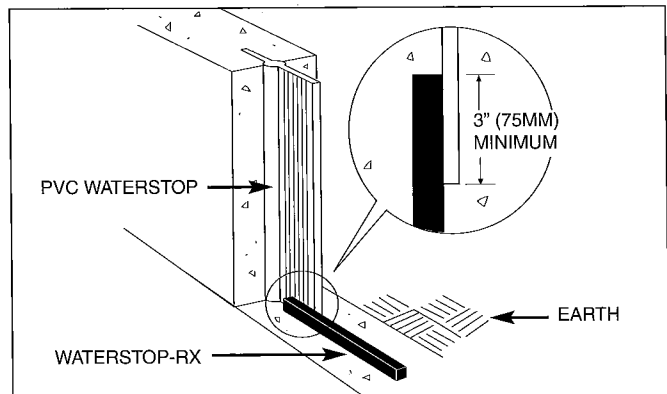


Figure 8.1 - Overlapping dumbbell waterstop



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LIMITED WARRANTY

The information and data contained herein are believed to be accurate and reliable. Specifications and other information contained herein supersede all previously printed material and are subject to change without notice.

Manufacturers warranty of installed system is available. Contact seller for terms and sample document including all limitations.

All goods sold by seller are warranted to be free from defects in material and workmanship.

The foregoing warranty is in lieu of and excludes all other warranties not expressly set forth herein, whether express or implied by operation of law or otherwise including but not limited to any implied warranties of merchantability or fitness.

Seller shall not be liable for incidental or consequential losses, damages or expenses, directly or indirectly arising from the sale, handling or use of the goods, or from any other cause relating thereto, and seller's liability hereunder in any case

is expressly limited to the replacement (in the form originally shipped) of goods not complying with this agreement or at seller's election, to the repayment of, or crediting buyer with, an amount equal to the purchase price of such goods, whether such claims are for breach of warranty or negligence.

Any claim by buyer with reference to the goods sold hereunder for any cause shall be deemed waived by buyer unless submitted to seller in writing within thirty (30) days from the date buyer discovered or should of discovered, any claimed breach.

Materials should be inspected and tested by purchaser prior to their use if product quality is subject to verification after shipment. Performance guarantees are normally supplied by the applicator.

Note: Waterstop-RX is not an expansion joint material. Expansion joints shall be the responsibility of OTHERS.