Waterstop Installation Guide

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Waterstop Design- Purpose of Waterstop

...to prevent the passage of liquid through a joint
The goal...this!
The goal...not this!
Keys to Success

- Proper Joint Detailing
- Quality Waterstop Materials
- Strong Specifications
- Proper Waterstop Installation

Watertight Structure
Construction

**Waterstop Materials**

- PVC (Polyvinyl Chloride)
- Rubber – SBR and Neoprene
- TPE-R (Thermoplastic Elastomeric Rubber)
- Polyethylene
- Stainless Steel

*Not highly recommended for chemical containment*

- Strip-applied Hydrophilic Rubber
- Strip-applied Hydrophilic Bentonite
- Strip-applied Mastic
Typical Waterstop Profile Options

- Dumbell
- Dumbell with Centerbulb
- Labyrinth
- Base Seal
- Tear Web
- Split
- Ribbed
- Ribbed with Centerbulb
“The ribbed centerbulb is generally regarded as a universal type waterstop for application to both expansion and contraction joints. Its ability to accommodate both transverse and lateral movements provide an additional dimension of safety...”
-Army COE Engineering Manual, Waterstops and Other Joint Materials
Gaps between concrete and waterstop create leak paths.

Loss of contact with concrete.
Good Contact with Waterstop means Fluid Tight Seal

Ribbed...

Intimate contact with concrete
Construction

Purpose of Centerbulb?

Fig. 2 — O-bulb deformations
Standard Waterstop

Using pre-applied metal eyelets, and wire tie # 1/2" OC, max, wire in waterstop prior to placement of concrete.

WESTEC 619 TAPER WATERSTOP PROFILE

CONSTRUCTION JOINT

1/2 WATERSTOP WIDTH PLUS 2X LARGEST AGGREGATE SIZE

2" CLEAR COVER

REBAR MAT WITH BOWELS CONTINUOUS THRU JOINT (BY OTHERS)

619 INSTALLATION DETAIL - TYPICAL

SCALE: NOT TO SCALE
Construction

**Installation Procedures – Key Items for Success**

- Installed prior to concrete placement
- Tie off to adjacent rebar through factory-installed grommets/hog rings
- Proper alignment with joint (centered in joint)
- Heat welded connections only
- Proper consolidation of concrete around waterstop
- Split-formwork often required
Proper Concrete Coverage

Waterstop coverage = ½ waterstop width
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Waterstop coverage = ½ waterstop width
Waterstop must be installed prior to first pour – No “wet setting”
Correctly installed prior to first pour
Correctly installed prior to first pour
Correct tie-off of waterstop
Waterstop not tied off
Suspending Waterstop in Place
Split-form bulkheads may be required
Results of split formwork
Waterstop Positioning – Must be centered on the joint
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Avoid Waterstop/Rebar Interference
Improper concrete consolidation
Gaps in Waterstop Design
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Standard Factory Fabrications

- Flat Cross
- Flat Tee
- Flat Ell
- Vertical Cross
- Vertical Tee
- Vertical Ell
Factory Fabrications
Complex fabrications made in the shop leave only butt welds to be performed in the field.
Incorrect corner splice
Incorrect fabrication