Heat spliced at ALL intersections
Incorrect waterstop splice
Joining Waterstop Lengths

- Heat welding with approved waterstop welding iron – NO OVERLAPPING
  - 380 – 390 F for PVC
  - 390 - 410 F for TPER & PE
  - Avoid charring or pinholes
  - Proper rib/centerbulb alignment

- Testing
  - Field test by bending around curved object once weld has cooled.

- Highly recommend factory-made fabrications for intersections!
Field Fabrication Tools
Field Fabrication Tools
Waterstop between the base of a wall and top of slab

- Waterstop in recessed keyway will often interfere with top mat of steel in foundation/slab
- Cannot puncture waterstop to accommodate

This is a problem!
The Infamous Detail...
Some Common Solutions

Waterstop Between the base of a wall and top of slab

1. Bend Rebar
2. Lower Top Mat of steel
The Infamous Detail...Common Solutions

“Upturned Keyway”

ADEQUATE DIMENSION TO PROVIDE 1" OF CLEARANCE BETWEEN BOTTOM EDGE OF WATERSTOP AND REBAR LOCATED IN SLAB.

HOG RING

GREENSTREAK PVC WATERSTOP INSTALLED PRIOR TO SLAB PLACEMENT - HANG FROM WALL REBAR USING TIE WIRE LOOPED THROUGH FACTORY-INSTALLED HOG RING OR GROMMET

2X4 TIED TO WALL REBAR - ELEVATION OF BOTTOM OF 2X4 LEVEL WITH TOP OF SLAB - REMOVE PRIOR TO WALL POUR

WATERSTOP INSTALLATION DETAIL
The Infamous Detail...Common Solutions
“Starter Wall”
**Strip-applied Waterstops**

Applications include:
- Foundation walls and slabs
- Slabs-on-grade
- Precast wall panels
- Manholes
- Pipe connections
- Box culverts
- Utility and burial vaults
- Wet wells
- Portable water tanks
Remember the rebar interference issue? Solved!
Other Useful Applications

Repairing damaged or improperly installed internal waterstop

Inexpensive “Belt & Suspenders”
Strip-applied Mastic Waterstop

- Adhesive Seal – no swelling action
- No chemical resistance
- Durability – Fair
- Lowest cost
Strip-applied Bentonite Waterstop

- Swells upon contact with water to provide a compression seal
- Swells several times its original volume
- 2-4 inches concrete coverage required…VERIFY!!
- Durability – Fair
- Not considered chemical resistant

Applications include:
- Foundation walls and slabs
- Slabs-on-grade
- Precast wall panels
- Manholes
- Pipe connections
- Box culverts
- Utility and burial vaults
- Wet wells
- Portable water tanks
Strip-applied Hydrophilic Rubber/Acrylate Waterstop (Hydrotite)

- Swells upon contact with water to provide a compression seal
- Contains NO bentonite
- 2” concrete coverage required - VERIFY
- Durability – Excellent
- Consider swell time & degree of swell for chemical applications
- Should not be specified as “equal” to bentonite waterstop
Leakmaster LV-1

- Swells upon contact w/ water to provide a compression seal
- Expands about two times its original volume
- Adheres to various materials before swelling
- Substitute for Greenstreak 7300 Epoxy for Hydrotite (smooth, dry conditions)
- Not considered chemical resistant
- User-dependent consistency
**Strip-applied Waterstops**

**Pro’s...**
- Eliminates need for split-formwork
- Eliminates need for heat splicing
- Easy to bend around small radii
- Easy to install in tight spaces
- Economical waterstop for retrofit applications
- Overall, easy to install

**Con’s...**
- For use in non-moving joints only
- Must be secured with a primer/adhesive - often requires fairly smooth, dry surface
- Requires excellent concrete consolidation
- Often attacked by chemicals
- Chemicals can affect maximum swell capacity
- Chemicals can affect swell rate
- Work best in constantly wet environments
- Improper installation/cover results in spalled concrete
Retrofit Applications –
Sealing between new & existing concrete structures
Retrofit Systems
For Existing Concrete or Around Columns
Good Installation – Epoxy Squeezes from behind waterstop
Good Installation - offset batten bars
A Tapcon in every hole
Fully Welded Fabrication
Retrofit Profiles
#630

NOTES:
1. ALL FITTINGS AT INTERSECTIONS BETWEEN TPER CONTROL
JOINT CAP AND RETROFIT WATERSTOP SHALL BE
PREFACTRICATED BY WATERSTOP MANUFACTURERS.
2. ALL WATERSTOP CORNER JOINTS SHALL BE FACTORY MADE.
3. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

TPER JOINT AT EXISTING CONCRETE OR PENETRATIONS THRU SLABS.
Curved foundations can use straight retrofit if they are 15’ diameter or greater.
What about pipe penetrations?

- All Westec retrofit profiles available as pipe penetration fabrication
- Wrapped around pipe/column like a “belt” (open end field welded)
- Secured to pipe/column with stainless steel banding and epoxy
Construction

EXISTING CONCRETE WALL

FULLY GROUT CAVITY AROUND PIPE, WITH EPOXY GROUT

PIPE (SEE PLAN FOR SIZE & LOCATION)
(SEE NOTE 3 FOR ANCHOR REQUIREMENTS)

COPE DRILL HOLE EQUAL TO PIPE DIAMETER PLUS 150 (6") MINIMUM

HYDROTITE DSS-0420 TO BE INSTALLED AROUND PIPE AND ON INSIDE OF CUTOUT.
BUT THE ENDS TOGETHER AND GLUE USING CYANACRYLATE (SUPER GLUE) ADHESIVE

SECTION

NOTES:
1. HYDROTITE MANUFACTURED BY C.I. KASEI CO LTD.
   IS AVAILABLE FROM:
   WESTEC BARRIER TECHNOLOGIES INC.
   3400 TREE COURT INDUSTRIAL BLVD.
   ST. LOUIS, MISSOURI, 63122
   PHONE: (314) 395-9500 / (636) 225-9400
   EMAIL: INFO@GREENSTEAK.COM
   WWW.CHEMSTOP.COM

2. HYDROTIGHT SHALL BE INSTALLED PER MANUFACTURE SPECIFICATIONS.
3. PIPE MUST BE ANCHORED AT OR NEAR WALL PENETRATION
   TO PREVENT MOVEMENT AND LOSS OF SEAL.

PIPE PENETRATION THROUGH EXISTING CONCRETE WALL
EB-Cap

Installed Sealant/Waterstop

Expansion Board Cap Seal System
EB-Cap One Step Sealed Joint Placement

3/4" TPER EXPANSION BOARD
CAP SEAL BY WESTEC PROFILE 638

3/4" X 18" STEEL DOWEL
(BY OTHERS)

3/4" X 9" ONE-PIECE
SPEED LOAD TRANSFER SLEEVE

STAPLE CONTROL JOINT CAP TO
EXPANSION BOARD @ 2'-0" C/C EACH SIDE

HOPE EXPANSION BOARD
3/4" X 5 1/2" OR 3/4" X 7 1/2"
SEE CONCRETE DETAILS FOR SLAB THICKNESS
EB-Cap Installation Process
Finished/Installed Product
Questions and References

- Download Data Sheets and Installation Guides
- www.chemstop.com
- www.greenstreak.com
- Installation Video – YouTube Greenstreak
- Bruce Zhu – Zhu.Bruce@us.sika.com
Thank You!