

**Suggested Long Form Guide Specification****PART 1 GENERAL**

## 1. Provision Includes

- A. The use of metallic waterstops for use in concrete joints subjected to corrosive effects of aggressive chemicals, ozone and high temperatures, which would destroy other types of waterstops.

## 2. References

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

- A. American Society for Testing and Materials (ASTM)
  - 1. ASTM A 240 — Test Method for Stainless Steel Physical Properties.
- B. Federal Specifications
  - 1. COE CEGS-03250 July 1995 Guide Specification for Military Construction.
  - 2. EPA Title 40 CFR Section 265.193.
- C. Canadian Council of Ministers of the Environment
  - 1. Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.
- D. Buncefield Standards Task Group
  - 1. Safety and Environmental Standards for Fuel Storage Sites — Final Report July 2007
- E. American Welding Society
  - 1. D1.6 (1999) Structural Welding Code — Stainless Steel

## 3. Submittal Procedures

- A. Chemical Resistant Waterstops
  - 1. Earth Shield Stainless Steel Metallic Waterstop submittal shall contain the following:
    - a. Samples of each size and shape to be used.
    - b. Plate drawings of the waterstop profile indicating all dimensions.
    - c. Shop drawings of shop made fittings to be provided by the manufacturer or prepared by the contractor.
    - d. Sample field lap splice to be furnished with shipment.
    - e. Manufacturer's Literature, including MSDS sheets, installation instructions and splicing instructions.
    - f. Certificate of compliance to physical properties outlined in this specification using ASTM A 240 test method.

## 4. Delivery and Storage

Material delivered and placed in storage shall be stored off the ground and protected from moisture, dirt, and other contaminants.

**PART 2 PRODUCTS**

## 1. Waterstops

Intersection and change of direction waterstops shall be shop fabricated.

- A. Manufacturer: JP Specialties, Inc. — 25811 Jefferson Avenue, Murrieta, CA 92562 — Phone 800-821-3859; International 951-763-7077; Fax 951-763-7074; Web [www.earthshield.com](http://www.earthshield.com); E-mail davidp@earthshield.com
- B. Stainless Steel — Stainless Steel waterstops shall conform to ASTM A 240 (type 316ELC), be 20 gauge thick, and be manufactured specifically as a waterstop, with outer flanges and center “V”, as opposed to flat steel.

**Stainless Steel Waterstop shall conform to the following minimum physical properties:**

Property	Test Method	Required Results
Tensile Strength	ASTM A 240	90,000 psi
Elongation in 2" minimum	ASTM A 240	45%
Yield Strength	ASTM A 240	45,000 psi
Rockwell B Hardness	ASTM A 240	95
High Temp. Resistance		2,552°F

*Unless otherwise specified or indicated on the drawings provide the following types:*

1. **Part No. JP558** — 6", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **JP Specialties, Inc.** (*all-purpose waterstop*)
  2. **Part No. JP358** — 4", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **JP Specialties, Inc.** (*all-purpose waterstop*)
  3. **Part No. JP578** — 6", 20 gauge, 316 extra low carbon, “U” shaped, as manufactured by **JP Specialties, Inc.** (*large joint movement waterstop*)
  4. **Part No. JP858** — 9", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **JP Specialties, Inc.** (*all-purpose waterstop*)
  5. **Part No. JP558R** — 6" retrofit, 20 gauge, 316 extra low carbon, joins to “W” shaped material (558), as manufactured by **JP Specialties, Inc.** (*for joining to concrete to existing surface*)
  6. **Part No. JP1122** — 12", 20 gauge, 316 extra low carbon, “W” shaped base seal, as manufactured by **J P Specialties, Inc.** (*base seal waterstop*)
  7. **Part No. JP1122R** — 12" retrofit, 20 gauge, 316 extra low carbon, joins to “W” shaped base seal material (1122), as manufactured by **JP Specialties, Inc.** (*for joining to concrete to existing surface*)
  8. **Part No. JP1158** — 12", 20 gauge, 316 extra low carbon, “W” shaped, as manufactured by **J P Specialties, Inc.** (*all-purpose waterstop*)
- C. Stainless Steel Waterstop Shop Made Fittings
    1. Provide shop made fittings, which are T.I.G. welded to provide maximum tensile strength.
    2. Shop made fittings shall maintain continuity of profile (center “V” and flanges). All directional changes shall be miter cut and welded.
    3. All welds shall be nonporous and contaminant-free.

**PART 3 EXECUTION**

1. Waterstop, Installations and Splices — Waterstops shall be installed at the locations shown to form a continuous fluid-tight diaphragm. Adequate provision shall be made

to support and completely protect the waterstops during the progress of the work. Exposed waterstops shall be protected during application of form release agents to avoid being coated. Suitable guards shall be provided to protect exposed projecting edges and ends of partially embedded waterstops from damage when concrete placement has been discontinued. Splices shall be made by certified, trained personnel using approved equipment and procedures.

- A. Stainless Steel — Splices in stainless steel waterstops shall be welded using a TIG (recommended) or MIG process utilizing a weld rod to match the stainless (weld rod: 316ELC; diameter — .035 to .045). Damaged waterstops shall be repaired by removing damaged portions and patching. Patches shall overlap a minimum of 1 inch onto undamaged portion of the waterstop. Weld all straight run material edge-to-edge (no overlapping). If installed in expansion joint, assure backside (or open end of the center “V”) is covered completely with tape and the annulus (between tape and waterstop) is filled with 7/8” diameter backer rod prior to concrete pour. This allows the center “V” to remain open allowing for joint movement. (Tape and backer rod is not necessary in non-moving contraction and construction joints.)

## 2. Preparation

- A. Position waterstop to ensure proper distance from steel reinforcing bars to prevent rock pockets and honey comb (see installation section 3.04).
- B. Protect waterstop from damage during progress of work.
- C. Clean concrete joint after first pour to remove debris and dirt.

## 3. Examination/Inspection

- A. Prior to placement of concrete notify engineer for field inspection approval.
- B. Upon inspection of waterstop installation, replace any damaged or unacceptable waterstop and dispose of defective material.

## 4. Installation

- A. Position waterstop in joint as indicated on drawings.
- B. Center waterstop on joint, with approximately one-half of waterstop width to be embedded in concrete on each side of the joint.
- C. Allow clearance between waterstop and reinforcing steel of a minimum two times the largest aggregate size. Prevent rock pockets and air voids caused by aggregate bridging.
- D. Carefully place concrete without displacing waterstop from proper position.
- E. Thoroughly and systematically vibrate concrete in the vicinity of the joint, and to maximized intimate contact between concrete and waterstop.
- F. After first pour, clean unembedded waterstop leg to ensure full contact of second concrete pour. Remove laitance, spillage, form oil and dirt.

END OF SECTION