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PART 1. GENERAL

(SECTION 031513 FOR BOMETALS THERMOPLASTIC ELASTOMER RUBBER WATERSTOPS)

1.01 SECTION INCLUDES

A. Provision of waterstops embedded in concrete and spanning control, expansion and/or construction joints thus creating a continuous diaphragm, thus preventing fluid migration.
B. Non-metallic waterstops for use in concrete joints subject to water, chlorinated water, seawater, waterborne chemicals, solvents, hot petro-chemicals and many aggressive chemicals.

1.02 REFERENCE

A. THERMOPLASTIC ELASTOMERIC RUBBER WATERSTOP
1. American Society of Testing Materials (ASTM)
2. Canadian General Standards Board: 41-GP-35M Type 1 & 3
3. Section 031000-Concrete Forms and Accessories
4. Section 033000-Cast In Place Concrete
5. ACI 350R.2R-04 Concrete Structures for Containment of Hazardous materials.
6. ACI 350R-01 Code Requirements for Environmental Engineering Concrete Structures.

1.03 QUALITY ASSURANCE

A. Waterstop manufacturer demonstrates five years (minimum) continuous, successful experience in production of TPER waterstop.

1.04 SUBMITTALS

A. Comply with Section 013300 – Submittal Process
B. Submit manufacturer product data with physical properties and instructions for installation.
C. Submit manufacturer 6-inch sample of each TPER waterstop profile.
D. Submit certification from manufacturer that materials comply with specifications.
E. Submit manufactures data for chemical resistance.
F. Submit warranty from manufacturer

1.05 DELIVERY, STORAGE AND HANDLING

A. Store TPER waterstop in storage containers or under tarps to protect from oil, dirt, and sunlight/ultraviolent exposure.

PART 2. PRODUCTS

2.01 MANUFACTURER

A. Provide Thermoplastic Elastomeric Rubber waterstop profile (s) as manufactured by BoMetals, Inc. (fill in profile type [s] and number [s])
B. The TPER waterstop shall be extruded from a thermoplastic elastomeric rubber material, of which the basic resin is prime and virgin raw material. The TPER compound shall not contain any scrapped or reclaimed material or pigments whatsoever.
C. Performance Requirements as follows:

Typical Properties	**Nominal Value**	**ASTM**
Shore A Hardness (±3)	90	D-2240
Tensile Strength @ break, psi	2300	D-412
Elongation @ break, %	530	D-412
Brittle Point (T_b), ºF	-65	D-746
Specific Gravity, g/cm^3	0.96	D-792
100% Modulus, psi	1000	D-638
Ozone Resistance, pphm	500 passed	D-1171

2.02 ACCESSORIES

A. Provide factory made waterstop fabrications for all changes of direction, intersections and transitions leaving only butt joint splicing for the field.
B. Provide hog rings, grommets, or eyelets spaced at 12 inches on center along the length of the waterstop.
C. Provide thermostatically controlled Teflon covered waterstop splicing irons for field splicing as provided by BoMetals, Inc.

PART 3. EXECUTION

3.01 INSTALLATION

A. Field butt splices shall be fused welded using a thermostatically controlled Teflon covered waterstop iron 380-400 degree Fahrenheit. Follow the Manufacturers recommended methods for welding. This will form a continuous watertight diaphragm. Lapping, gluing or use of adhesives shall not be permitted.
B. Center waterstop in the joint and secure waterstop in correct position using hog rings, grommets, or eyelets spaced 12 inch on center along the length of the TPER waterstop and wire tied to reinforcing steel.
C. Always place the center bulb in the center of the expansion joint. Do not embed the center bulb in concrete.
D. Vibrate concrete around waterstop thoroughly to prevent honeycombing and to ensure contact between concrete and waterstop.

3.02 PREPARATION

A. Uncoil waterstop 24 hours prior to installation for ease of fabrication and handling.
B. Position waterstop to ensure proper distance from steel reinforcing bars.
C. Clean concrete joint after first pour to remove dirt and debris.
D. Protect waterstop from damage during progress of work.

3.03 EXAMINATION/ INSPECTION

A. Waterstop splicing defects which are unacceptable include, but, are not limited to the following:

1. Tensile strength is less that 80% of parent section.
2. Misalignment of center bulb, ribs and end bulbs greater than 1/16”.
3. Bond failure at joint deeper than 1/16” or 15% of material thickness.
4. Misalignment that reduces waterstop cross section more than 15%.
5. Visible porosity in the weld.
6. Bubbles in the welds
7. Inadequate bonding.
8. Visible signs of splice separation when cooled splice is bent at a sharp angle using hand pressure.
9. Charred or burnt splices.

END OF SECTION