

TYPE S ROOF SCUTTLE

1. GENERAL

1.1 Summary

- .1 Work included: Furnishing and installing factory fabricated roof scuttles

1.2 References

- .1 American Society for Testing and Materials (ASTM), 100 Bar Harbor Drive, West Conshocken, PA 19428-2959; (610) 832-9585, fax (610) 832-9555
- .1 ASTM A 36-93a: Standard Specification for Structural Steel

1.3 Submittals

- .1 Product Data: Provide manufacturer's product data for all materials in this specification.
- .2 Shop Drawings: Show profiles, accessories, location, and dimensions.
- .3 Samples: Manufacturer to provide upon request; sized to represent material adequately.
- .4 Contract Closeout: Roof scuttle manufacturer shall provide the manufacturer's Warranty prior to the contract closeout.

1.4 Product Handling

- .1 All materials shall be delivered in manufacturer's original packaging.
- .2 Store materials in a dry, protected, well-vented area. The contractor shall thoroughly inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier's freight bill of lading.
- .3 Remove protective wrapping immediately after installation.

1.5 Substitutions

- .1 Proposals for substitution products shall be accepted only from bidding contractors and not less than (10) working days before bid due date. Contractor guarantees that proposed substitution shall meet the performance and quality standards of this specification.

1.6 Job Conditions

- .1 Verify that other trades with related work are complete before installing roof scuttle.
- .2 Mounting surfaces shall be straight and secure; substrates shall be of proper width.
- .3 Refer to the construction documents, shop drawings, and manufacturer's installation instructions.
- .4 Coordinate installation with roof membrane and roof insulation manufacturer's instructions before starting.
- .5 Observe all appropriate OSHA safety guidelines for this work.

1.7 Warranty/Guarantee

- .1 Manufacturer's standard warranty: Materials shall be free of defects in material and workmanship for a period of five years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no

TYPE S ROOF SCUTTLE

charge. Electrical motors, special finishes, and other special equipment (if applicable) shall be warranted separately by the manufacturers of those products.

2. PRODUCTS

2.1 Manufacturer

- .1 The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-203-934-6363, Fax: 1-203-933-8478, Web: www.bilco.com

2.2 Roof Scuttle

- .1 Furnish and install where indicated on plans metal roof scuttle Type S, size width 914 mm x length 762 mm. Length denotes hinge side. The roof scuttle shall be single leaf. The roof scuttle shall be pre-assembled from the manufacturer.
- .2 Performance characteristics:
 - .1 Cover shall be reinforced to support a minimum live load of 195 kg/m² (40 psf) with a maximum deflection of 1/150th of the span or 98 kg/m² (20 psf) wind uplift.
 - .2 Operation of the cover shall be smooth and easy with controlled operation throughout the entire arc of opening and closing.
 - .3 Operation of the cover shall not be affected by temperature.
 - .4 Entire scuttle shall be weathertight with fully welded corner joints on cover and curb.
- .3 Cover: Shall be G-90 galvanized steel with a 76 mm beaded flange with formed reinforcing members. Cover shall have a heavy extruded EPDM rubber gasket that is bonded to the cover interior to assure a continuous seal when compressed to the top surface of the curb.
- .4 Cover insulation: Shall be fiberglass of 25 mm thickness, fully covered and protected by a metal liner G-90 galvanized steel.
- .5 Curb: Shall be 305 mm in height and of G-90 galvanized steel. The curb shall be formed with a 89 mm flange with 11 mm holes provided for securing to the roof deck. The curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners, that features the Posi-Flash[®] flashing system, including stamped tabs, 153 mm on center, to be bent inward to hold single ply roofing membrane securely in place.
- .6 Curb insulation: Shall be rigid, high-density fiberboard of 25 mm thickness on outside of curb.
- .7 Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe through bolted to the curb assembly.

TYPE S ROOF SCUTTLE

- .8 Hardware
 - .1 Heavy pintle hinges shall be provided
 - .2 Cover shall be equipped with a spring latch with interior and exterior turn handles
 - .3 Roof scuttle shall be equipped with interior and exterior padlock hasps.
 - .4 The latch strike shall be a stamped component bolted to the curb assembly.
 - .5 Cover shall automatically lock in the open position with a rigid hold open arm equipped with a 25 mm diameter red vinyl grip handle to permit easy release for closing.
 - .6 Compression spring tubes shall be an anti-corrosive composite material and all other hardware shall be zinc plated and chromate sealed. Springs shall have an electrocoated acrylic finish for corrosion resistance.
 - .7 Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.
- .8 Finishes: Factory finish shall be mill finish aluminum.

3. EXECUTION

3.1 Inspection

- .1 Verify that roof scuttle installation will not disrupt other trades. Verify that the substrate is dry, clean, and free of foreign matter. Report and correct defects prior to any installation.

3.2 Installation

- .1 Submit product design drawings for review and approval to the Contract Administrator before fabrication.
- .2 The installer shall check as-built conditions and verify the manufacturer's roof scuttle details for accuracy to fit the application prior to fabrication. The installer shall comply with the roof scuttle Manufacturer's installation instructions.
- .3 The installer shall furnish mechanical fasteners consistent with the roof requirements.

END OF SECTION

PIPE SPOOL

1. GENERAL

1.1 Description

- .1 This Section describes the requirements for the fabrication of the blind spool, installed for connection to the future clarifiers, as shown on Drawing No. 66303D CP2.02
- .2 The inside diameter of the spool piece is 2286 mm (7.5 ft), selected to match the diameter of the future secondary effluent pipe. The length of the spool piece is a minimum of 900 mm, which includes the 300 mm thickness of the concrete wall and 300 mm extending from each side of the wall to provide adequate working space for future connection.
- .3 The pipe will convey secondary effluent by gravity from future clarifiers.

1.2 Submittals

- .1 With the submittals required in Division 1 the Contractor shall submit detailed fabrication Drawings, welding procedures, and coating details for review prior to manufacture.

1.3 Reference Standards

- .1 Conform to the following reference standards:
 - .1 AWWA M11, Steel Pipe - A Guide for Design and Installation
 - .2 ASTM A570/A570M, Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality.
 - .3 AWWA C200, Steel Water Pipe, 6 Inches and Larger.
 - .4 AWWA C203, Coal Tar Protective Coatings and Linings for Steel Water Pipelines - Enamel and Tape - Hot Applied.
 - .5 AWWA C206, Field Welding of Steel Water Pipe.
 - .6 AWWA C207, Standard for Steel Pipe Flanges for Waterworks Service – 4 inch Through 144 inch (100 mm Through 3600 mm).
 - .7 AWWA C209, Cold-Applied Tape Coating for Special Sections, Connections, and Fittings for Steel Water Pipelines.
 - .8 AWWA C210, Coal-Tar Epoxy Coating System for the Interior and Exterior of Steel Water Pipe.
 - .9 AWWA C214, Tape Coating Systems for the Exterior of Steel Water Pipelines.

PIPE SPOOL

1.4 Pipe

- .1 Minimum Inside Diameter: 2286 mm (90 inch)
- .2 Minimum length: 900 mm
- .3 Material: Steel, ASTM A570/A570M Grade 3

1.5 Fabrication & Welding Requirements

- .1 **Welding:** Prior to commencing any welding of carbon steel fabrication, prepare and submit to the Contract Administrator a written description of welding techniques including but not limited to materials, methods, and quality control to be utilized.
- .2 Prior to the commencement of welding, submit current and complete documentation of the welder's qualifications prior to the commencement of welding.
- .3 Use welding materials conforming to CSA W48.1.
- .4 Welding procedures shall conform to CSA Z183.
- .5 **Carbon Steel Welding**
 - .1 Use manual shielded metallic arc, submerged arc, or inert gas shield arc welding.
 - .2 Bevel all ends prior to welding.
 - .3 Clean and dry welding surfaces thoroughly prior to welding.
 - .4 Do not proceed with welding when metal temperatures fall below minus 18 degrees C. Apply supplemental heat when metal temperatures are below 0 degrees C, to heat the metal to 20 degrees C.
 - .5 Maintain flanges, pipes, fittings, etc. in alignment during welding. Ensure that no part of the weld is offset by more than 20 % of the wall thickness.
 - .6 Make tack welds of material equal to the root pass. Tack welds which have not cracked may be incorporated in the root pass.
 - .7 Ensure the first bead obtains full root penetration with a minimum of weld material projecting within the pipe.
 - .8 For butt welds use three passes - minimum.
 - .9 For lap joints, weld joint in two passes minimum.
 - .10 Between passes, visually inspect bead for pinholes or other defects. Repair any defects prior to the placement of the next pass.

PIPE SPOOL

- .11 Clean all flux, slag and other foreign material from the weld prior to applying a successive bead, and on completion of the weld.
- .12 Do not start successive passes at the same point.
- .13 Completely fill the joint with weld, and have a reinforcement greater than 1.5 mm and less than 3.0 mm, with no undercutting at the weld edges.

1.6 Quality Assurance

- .1 Welding Certification. As a minimum, welders will hold a Level B Journeyman Welder's Certificate.

1.7 Flanges

- .1 Install blind flange on both ends of spool
 - .1 Type of Flange required: ring-type
 - .2 Pressure rating required: 1034 kPa (150 psi)
 - .3 Class of Flange: D
 - .4 Inside diameter: suitable to attach to pipe of minimum inside diameter 2286 mm as described in 1.4.1
 - .5 Gasket: Rubber, 3.18 mm (1/8 inch) thickness

1.8 Conflicts

- .1 Review the Drawings prior to installation, identify any conflicts and cooperate with the Contract Administrator to determine the adjustments necessary to resolve these conflicts.

1.9 Shipment, Protection and Storage

- .1 Deliver to Site using loading methods which do not damage pipe or coatings.

1.10 Bolts and Nuts

- .1 Provide hex head bolts and nuts. Threads to be ANSI B1.20.1, standard coarse thread series.
- .2 For general service, use bolts and nuts conforming to ASTM A307, Grade A; nuts conforming to ASTM A563, Gr.A.
- .3 Provide stainless steel bolts, nuts and washers for submerged, buried, and concrete encased service; bolts conforming to ASTM A193, Gr.B8, C1.1; nuts conforming to ASTM A194, Gr.8.
- .4 Provide hex nuts equal to or less than 25 mm. Greater than 25 mm, provide heavy hex.

PIPE SPOOL

1.11 Interior Finishes

- .1 Pipe and couplings to have factory applied coatings and finishes unless otherwise noted.
- .2 As a minimum, apply coal tar epoxy to the internal surface of piping in accordance with AWWA C210, to a minimum dry film thickness of 350 microns.

1.12 Exterior Finishes - Shop Applied

- .1 Pipe and couplings to have factory applied coatings and finishes unless otherwise noted.
- .2 As a minimum apply coal tar epoxy to the exterior of pipes and couplings in accordance with AWWA C210.

1.13 Exterior Finishes - Field Applied

- .1 Contractor shall supply the materials necessary to carry out the following:
 - .1 Coal Tar Epoxy: Touch up coal tar epoxy coatings in accordance with AWWA C210.
 - .2 Tape wrap all pipe joints, completely covering the entire coupling Polyken, Tec-Tape or Denso tape, consisting of primer and tape applied to minimum thickness of 0.90 mm in accordance with AWWA C209.

END OF SECTION