SECTION 07 73 00
ACCESS HATCHES

PART 1 GENERAL

1.1 WORK INCLUDED

A. This section of the specifications will govern the furnishing and installation of all access hatch assemblies, including materials, fabrications, and installation.

B. The sizes of the manway and equipment hatches are shown on the Drawings.

1.2 ACCEPTABLE MANUFACTURER / MODELS

A. Products manufactured by the Bilco Company, New Haven, Connecticut are used herein to establish quality and type. No alternates are acceptable.

B. Hatch types include Type "D" scuttles and Type "K" doors.

1.3 INTENDED USE

A. The intended use of the Type "D" scuttle is for a water and insect tight installation.

B. The CONTRACTOR is responsible for informing the manufacturer of the intended use.

1.4 DESIGN LOAD

A. The Type "D" scuttle shall be capable of meeting a **snow load of ____ psf** applied uniformly over the hatch.

1.5 SHOP DRAWINGS

A. Drawings

B. Manufacturer's data sheets

C. Guarantee

1.6 GUARANTEE

A. The manufacturer shall guarantee the hatch for a period of five years from defects in material or workmanship.

PART 2 PRODUCTS

2.1 TYPE "D" SCUTTLES

A. Cover Leaf:

1. The door leaf shall be manufactured from 11 gauge aluminum with an 18 gauge aluminum liner.
2. The cover shall be insulated with one inch glass fiber between the liner and cover material.
3. The cover shall have a continuous extruded neoprene gasket all around the cover perimeter to provide a positive, complete, seal onto the top surface of the curb to prevent entry of insects, dust and snow when the cover is closed. Splices or gaps in the gasket are unacceptable. Light visible through any part of the gasket is cause for rejection of the access hatch. If the hatch is rejected it shall be replaced at the CONTRACTOR's expense.
4. The equipment hatch cover shall be equipped with an enclosed two point snap lock.
5. Covers shall automatically lock in the open position with a rigid hold open arm equipped with a vinyl grip to permit easy release for opening.

B. Curb

1. The 12-inch high fully enclosed curb shall be manufactured from 11 gauge aluminum inside and outside. The curb shall have a 3 1/2-inch flange with holes for anchors spaced at 9 inch ceneters maximum to secure the hatch to the concrete pedestal. The curb shall be equipped with an integral 11 gauge aluminum cap flashing fully welded at the corners and weathertight.
2. Anchor bolt holes in the flange of the curb shall be spaced no greater than 9-inches.

C. Anchor bolts

1. Wedge style anchor bolts shall be Redhead WW-5860 (5/8-inch dia. by 3 1/2-inch long) stainless steel anchor bolts or equal.

D. Hardware:

1. All hardware shall be stainless steel, Type 302 or 304, including the latch assembly, inside and outside padlock hasps, arm guide bracket, hinges, hinge pins, hold open arm, lock strike, spring tubes, shoes and all fasteners.
2. Cover hardware shall be bolted to the cover into heavy gauge channel supports welded to the underside of the cover and concealed within the insulation space.

3. The hatch shall be completely assembled with heavy pintle hinges and compression spring operators enclosed in telescopic tubes. The upper tube shall be the outer tube to prevent accumulation of moisture, grit and debris inside the tube assembly.

E. Lock:

1. The scuttle shall have a spring latch with handles on the inside and outside and padlock hasps on the outside.

F. Padlock Hasp

1. The scuttle shall have a padlock hasp incorporated into the outside handle. The handle and hasp shall be enclosed in a covered three sided box enclosure to minimize the entry of rain and snow into the padlock and to deter vandalism to the lock. The enclosure shall be large enough to permit easy access to the handle and lock.
2. Alternatively, the padlock hasp may be separate from the handle. The separate padlock hasp shall also be enclosed with a covered three sided box enclosure.

2.2 TYPE "K" DOOR

A. Frame:

1. The frame shall be 1/4-inch extruded aluminum, mill finished, with built-in neoprene cushion for the door leaf and with strap anchors bolted to the exterior.
2. A bituminous coating shall be factory applied to the exterior of the frame to prevent electrolytic action between the aluminum and the reinforcing steel in the concrete.

B. Door Leaf:

1. Door leaf shall be 1/4-inch aluminum diamond plate reinforced with aluminum stiffeners as required to withstand a live load of 150 pounds per square foot.
2. The door leaf shall open to 90-degrees and lock automatically in that position.
3. The hinge direction shall be as shown in the Drawings.
4. The door leaf shall be equipped with a "snap" lock and removable exterior handle "key wrench".

C. Hardware:

1. All hardware shall be stainless steel, Type 302 or 304, including the latch assembly, hinges, hinge pins, hold open arm, lock strike and all fasteners.
2. The hinges shall be bolted to the underside of the frame and pivot on torsion bars that counterbalance the weight of the door leaf for easy operation.
3. A vinyl grip handle attached to the hold open arm shall be provided to release the cover for closing.

2.4 COATING SYSTEM FOR TYPE "D" SCUTTLE EXTERIOR SURFACES

A. See SECTION 09900 - PAINTING AND PROTECTIVE COATINGS.

B. The color of the exterior surfaces shall be Desert Sand unless otherwise shown in the Drawings.

2.5 GASKET

A. Sheet rubber with a Shore A Durometer of 40. See SECTION 05850 – NEOPRENE SHEET PADS.

2.6 CURB FLANGE BACKING BAR

A. The 1/4-inch thick backing angle shall be fabricated from aluminum meeting ASTM B 209, B 210 or equivalent.

PART 3 EXECUTION

3.1 GENERAL

A. The scuttles and doors shall be installed in accordance with the manufacturer's instructions and recommendations and the Drawings.

B. A watertight seal is required between the scuttle and the concrete pedestal. Place a fabricated 1/2 inch thick x 2-1/2-inch wide neoprene gasket between the scuttle and the concrete pedestal. No more than four joints are permitted in the gasket. Also, joints shall be fabricated to eliminate gaps in the gasket.

C. Place the ¼-inch thick x approximately 2-inch wide aluminum angle on top of the curb flange to stiffen the flange and facilitate a tight seal between the scuttle and concrete. Do not over tighten the bolts.

D. Sikaflex 1-c sealant shall be placed between the concrete pedestal and the scuttle curb flange using the sheet neoprene gasket as a backerrod. Place sealant on both the inside and outside surfaces.

3.2 INSTALLATION

A. Scuttles

1. All wedge style anchor bolt holes shall be drilled when the scuttle is temporarily set in place as a template.
2. Redrilling of holes or enlarging of holes is not permitted.
3. The stainless steel wedge anchors shall be installed in accordance with the manufacturer's recommended procedures.
4. The threads of the exposed bolt shall be tack welded or "cross" threaded to prevent removal.

B. Doors

1. The frame shall be leveled and supported during concrete curb placement.
2. Check strap anchor bolt nut for tightness prior to placing concrete.
3. Remove any concrete from the exposed frame and door leaf immediately after concrete placement.

3.3 COATING OF EXTERIOR SURFACES OF TYPE "D" SCUTTLES

A. See SECTION 09900 - PAINTING AND PROTECTIVE COATINGS

END OF SECTION

SECTION 07 91 23
BACKER ROD

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work consists of furnishing and installing closed cell foam backer rod in joints between adjacent constructions in accordance with these specifications and in conformity with the Drawings.

B. See SECTION 07 92 00 – SEALANTS for requirements relating to use with sealants.

1.2 QUALITY STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM D 1621 – Test Method for Compressive Properties of Rigid Cellular Plastics
2. ASTM D 1622 - Test Method for Apparent Density of Rigid Cellular Plastics
3. ASTM D 1623 – Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
4. ASTM E 96 – Test Methods of Water Vapor Transmission of Materials
5. ASTM C 509 – Specification for Elastomeric Cellular Preformed Gasket and Sealing Materials
6. ASTM C 1016 – Test Method for Determination of Water Absorption of Sealant Backup (Joint Filler) Material

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver the materials to the project site in the manufacturer's containers with all labels intact and legible at the time of use.

B. Materials shall be stored in a secure, indoor, dry area.

C. Maintain the filler in a dry condition during delivery, storage, handling and installation.

1.4 SUBMITTALS

A. Manufacturer's data sheet and installation instructions

PART 2 MATERIALS

2.1 PHYSICAL PROPERTIES

Physical Property	*ASTM Test Method*	*Value*
Density	ASTM D 1622	2.0 lbs. / cu. Ft.
Tensile Strength	ASTM D 1623	50 psi
Compressive deflection	ASTM D 1621	25% at 5 psi
Water absorption	ASTM C 1016	0.03 gm / cc
Water Absorption	ASTM C 509	0.02% by volume
R Value	ASTM E 96	3.4
Color		Grey

2.2 COMPATIBILITY

A. The backer rod shall be compatible with butyl, polysulfide, acrylic, polyurethane and silicone sealant compositions.

2.3 MATERIAL

A. The backer rod shall be an extruded round, closed cell, low-density polyethylene foam material with a skin-like outer texture.

2.4 ACCEPTABLE PRODUCTS/ MANUFACTURERS

A. Industrial Thermo Polymers Limited (ITP) closed-cell Polyethylene Foam Backer Rod, 2316 Delaware Avenue, Suite 216, Buffalo, New York 14216 (800) 387-3847, or equivalent

PART 3 EXECUTION

3.1 GENERAL

A. Examine the concrete surfaces and correct any surface imperfections that will prevent proper installation and performance of the backer rod.

B. The joint shall be clean, dry and free of obstructions.

C. Backer rod for each joint shall be furnished in a single piece for the full depth, length and thickness required for the joint.

C. Where joints are required, i.e., around a rectangular or circular opening, the backer rod joint shall be made by butting two pieces together.

E. Backer rod that is torn or irregular in any manner shall not be used.

F. Use a blunt instrument, which will not damage the backer rod, or roller to uniformly install the backer rod at the proper depth.

3.2 BACKER ROD DIAMETER

A. Install the backer rod in accordance with the following table.

Joint Width (Inches)	Backer rod size (Inches)
3/16	1/4
1/4	3/8
3/8	1/2
1/2	5/8
5/8	3/4
3/4	7/8
7/8	1
1	1 1/4
1 1/8	1 1/2
1 5/8	2
2	2 1/2
2 1/2	3
3 1/2	4

END OF SECTION

SECTION 07 92 00
SEALANTS

PART 1 GENERAL

1.1 WORK INCLUDED

A. The Contractor shall furnish all labor, materials, tools, equipment, and perform all work and services for all sealant work, both exterior and interior where the words caulk, caulking or sealant is shown on drawings or specified, in accordance with provisions of the Contract Documents, and completely coordinated with work of all other trades.

B. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.2 QUALITY STANDARDS

A. American Society for Testing and Materials (ASTM)

1. ASTM C 509 - Cellular Elastomeric Preformed Gasket and Sealing Material
2. ASTM C 920 - Elastomeric Joint Sealants
3. ASTM D 1056 - Flexible Cellular Materials - Sponge or Expanded Rubber
4. ASTM D 1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam)

B. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification

C. Federal Specification (FS)

1. TT-S-011543A
2. TT-S-00227E(3)
3. TT-S-00230C, Type II, Class A

D. Acceptable manufacturers

1. Subject to compliance with specifications, products of the following manufacturers are accepted for use:

a. Potable Water Containment Structures

1) Polyurethane sealant:

a) Sikaflex - 1a
b) Sikaflex -2c, NS

b. Fire Resistant Sealant for Buildings

1) Fire resistant sealant:

a) 3-6548 silicone RTV foam by General Electric

c. Portland Cement Concrete Pavements

1) Dow Corning 888 or 890.
2) Sika, Sikaflex - 15 LM

d. Portland Cement Concrete Curb, Gutter and Sidewalk

1) Sikaflex 1a
2) Sikaflex - 2c, NS or SL

1.3 SUBMITTALS

A. Sealants

B. MSDS

C. Primers

1.4 QUALITY ASSURANCE

A. Perform work in accordance with SWRI requirements for materials and installation.

B. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

C. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.1 MATERIALS

A. Color

1. Provide colors matching materials being sealed.
2. Where compound is not exposed to view in finished work, provide manufacturer's color which has best performance.

B. Type

1. Provide non-sagging sealant for vertical joints.
2. Sealants for horizontal joints may be self-leveling.

C. Filler Compatibility

1. Before use of any sealant, investigate its compatibility with joint surfaces, fillers and other materials in joint system.
2. Provide only materials compatible with installation conditions.

D. Field Services

1. Obtain sealing compounds only from manufacturers who will, when required, provide services of manufacturer's field service representatives at project site for purposes of advising and instructing installers in proper procedures and precautions for use of materials.
2. Provide such services, when required, without expense to Owner.

E. Compressible Sealants

1. Size compressible sealant so that width of material is twice joint width.

F. Sealant Applications

1. One or two component polyurethane. (Exterior and interior use).
2. One or two component silicone. (Exterior use and interior wet area use.)
3. Compressible Sealant (where indicated).
4. Epoxy Sealants (where indicated).

G. Joint Cleaner

1. The joint shall be cleaned as recommended by sealant manufacturer.

H. Joint Primer-Sealer

1. The joint shall be primed as recommended by sealant manufacturer.

I. Bond Breaker

1. Bond breaker material shall be furnished and installed as recommended by sealant manufacturer.

2. Sealant Backer Rod

a. Rod stock of polyethylene, polyethylene jacketed polyurethane foam, or other flexible, non-absorbent, non-bituminous material recommended by sealant manufacturer. The backer rod shall;

1) Control joint depth.
2) Break bond of sealant at bottom of joint.
3) Provide proper shape of sealant bead to minimize possibility of sealant extrusion.

3. Tape

K. Compressible Sealant

1. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing.
2. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing coated on front face with non-reactive release agent that will act as bond breaker for applied sealant.
3. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing coated on front face with non-reactive release agent that will act as bond breaker for applied sealant.

L. Adhesive for Compressive Sealant

1. Apply adhesive as recommended by sealant manufacturer.

PART 3 EXECUTION

3.1 INSTALLATION

A. Surface Preparation

1. Clean all joint surfaces.
2. Joint walls must be sound, clean dry and, free from oil, grease, and frost.

3. Curing compound residues and any other foreign matter must be thoroughly removed.
4. Where required to completely clean the joint, the joint shall be mechanically cleaned by water or sand blasting.

B. Bond Breaker Installation

1. Install bond breaker or backer rod as specified to regulate depth of sealant.

C. Areas to be Sealed

1. Seal building and any joints or areas which will permit penetration of moisture unless sealing work is specifically required under other Sections and/or as shown on the Drawings.
2. Make all joints watertight.

D. Priming

1. Where required, prime joint surfaces.
2. Limit application to surfaces to receive caulking. Mask off adjacent surfaces.

E. Application

1. Use sufficient pressure to fill all voids and joints solid.
2. Apply sealant when joint slot is at the mid-point of its designed expansion and contraction.
3. Install sealant with hand or power-operated caulking gun horizontally in one direction and vertically from top to bottom.
4. Avoid overlapping of sealant to eliminate entrapment of air.
5. To facilitate tooling, wet concave pointing tool with a diluted soap solution.
6. Apply sealants when the surface and ambient temperature is 40° F or higher and in accordance with the temperature limitations of the manufacturer.

F. Compressible Joint Sealant

1. Install compressible sealant in joint to depth recommended by manufacturer. Take care to avoid contamination of sides of joint.
2. Protect side walls of joint (to depth of sealant) as recommended by manufacturer.
3. Install with adhesive on two faces in contact with sides of joints.

G. Clean Up

1. Dispose of all spillage and refuse sealant material in accordance with applicable regulations.

END OF SECTION