

**Part 1 General**

**1.1 SUMMARY**

- .1 Section Includes:
  - .1 Materials and installation for plumbing specialties and accessories.
- .2 Related Sections:
  - .1 Section 01 78 00 - Closeout Submittals.

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM).
  - .1 ASTM A126-95(2001), Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
  - .2 ASTM B62-02, Specification for Composition Bronze or Ounce Metal Castings.
- .2 American Water Works Association (AWWA).
  - .1 AWWA C700-02, Cold Water Meters-Displacement Type, Bronze Main Case.
  - .2 AWWA C701-02, Cold Water Meters-Turbine Type for Customer Service.
  - .3 AWWA C702-1-01, Cold Water Meters-Compound Type.
- .3 Canadian Standards Association (CSA International).
  - .1 CSA-B64 Series-01, Backflow Preventers and Vacuum Breakers.
  - .2 CSA-B79-94(R2000), Floor, Area and Shower Drains, and Cleanouts for Residential Construction.
  - .3 CSA-B356-00, Water Pressure Reducing Valves for Domestic Water Supply Systems.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).
- .5 Plumbing and Drainage Institute (PDI).
  - .1 PDI-G101-96, Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data.
  - .2 PDI-WH201-92, Water Hammer Arresters Standard.

**1.3 SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet for fixtures and equipment.
  - .2 Indicate dimensions, construction details and materials for specified items.
- .3 Shop Drawings:

- .1 Submit shop drawings to indicate materials, finishes, method of anchorage, number of anchors, dimensions construction and assembly details and accessories for following: soap dispensing system .
- .4 Instructions: submit manufacturer's installation instructions.
- .5 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals , include:
  - .1 Description of plumbing specialties and accessories, giving manufacturers name, type, model, year and capacity.
  - .2 Details of operation, servicing and maintenance.
  - .3 Recommended spare parts list.

#### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Store and manage hazardous materials in accordance with manufacturer's instructions.

### **Part 2 Products**

#### **2.1 MATERIALS**

#### **2.2 FLOOR DRAINS**

- .1 Floor Drains and Trench Drains: to CSA B79.
- .2 Type 2: heavy duty ; cast iron body, heavy duty non-tilting or hinged lacquered cast iron grate, integral seepage pan and clamping collar.

#### **2.3 ROOF DRAINS**

- .1 Type 2: standard roof drain with cast iron body with aluminum or cast iron dome, under-deck clamp to suit roof construction, flashing clamp ring with integral gravel stop.
- .2 Type 4: parapet or scupper drain ; cast iron body with bronze aluminum strainer/grate and flashing clamp.
- .3 Type 5: inverted roofing system ; cast iron body with aluminum or cast iron dome, under-deck clamp and sump receiver to suit roof construction, with integral gravel stop and stainless steel drainage grid.

#### **2.4 CLEANOUTS**

- .1 Cleanout Plugs: heavy cast iron male ferrule with brass screws and threaded brass or bronze plug. Sealing-caulked lead seat or neoprene gasket.
- .2 Access Covers:
  - .1 Floor Access: rectangular round cast iron body and frame with adjustable secured nickel bronze top cast box with anchor lugs and:
    - .1 Plugs: bolted bronze with neoprene gasket.
    - .2 Cover for Unfinished Concrete Floors: cast iron nickel bronze round or square, gasket, vandal-proof screws.

**Part 3 Execution**

**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

**3.2 INSTALLATION**

- .1 Install in accordance with National Plumbing Code of Canada provincial codes, and local authority having jurisdiction or
- .2 Install in accordance with manufacturer's instructions and as specified.

**3.3 CLEANOUTS**

- .1 Install cleanouts at base of soil and waste stacks, and rainwater leaders, at locations required code, and as indicated.
- .2 Bring cleanouts to wall or finished floor unless serviceable from below floor.
- .3 Building drain cleanout and stack base cleanouts: line size to maximum NPS4.

**3.4 TESTING AND ADJUSTING**

- .1 Floor drains:
  - .1 Verify operation of trap seal primer.
  - .2 Prime, using trap primer. Adjust flow rate to suit site conditions.
  - .3 Check operations of flushing features.
  - .4 Check security, accessibility, removeability of strainer.
  - .5 Clean out baskets.
- .2 Roof drains:
  - .1 Check location at low points in roof.
  - .2 Check security, removeability of dome.
  - .3 Adjust weirs to suit actual roof slopes, meet requirements of design.
  - .4 Clean out sumps.
  - .5 Verify provisions for movement of roof systems.
- .3 Cleanouts:
  - .1 Verify covers are gas-tight, secure, yet readily removable.

**END OF SECTION**

**Part 1 General**

**1.1 SUMMARY**

- .1 Section Includes:
  - .1 Materials and installation for large sewer valves and operators.
- .2 Related Sections:
  - .1 Section 01 78 00 - Closeout Submittals.

**1.2 REFERENCES**

- .1 American Society for Testing and Materials International (ASTM).
  - .1 ASTM A126-95(2001), Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
- .2 American Water Works Association (AWWA).
  - .1 C111/A21.11-07: Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
  - .2
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).

**1.3 SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures .
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet for fixtures and equipment.
  - .2 Indicate dimensions, construction details and materials for specified items.
- .3 Shop Drawings:
  - .1 Submit shop drawings to indicate materials, finishes, method of anchorage, number of anchors, dimensions construction and assembly details and accessories.
- .4 Instructions: submit manufacturer's installation instructions.
- .5 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals , include:
  - .1 Description of valves and parts, giving manufacturers name, type, model, year.
  - .2 Details of operation, servicing and maintenance.
  - .3 Recommended spare parts list.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Store and manage hazardous materials in accordance with manufacturer's instructions.

.2 Waste Management and Disposal:

- .1 Separate waste materials for reuse and recycling.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling.
- .4 Divert unused metal materials from landfill to metal recycling facility as approved by Contract Administrator .
- .5 Fold up metal and plastic banding, flatten and place in designated area for recycling.

**Part 2 Products**

**2.1 MATERIALS**

**2.2 Replacement Valves**

.1 Eccentric Plug Valve

- .1 Plug valves shall be of the non-lubricating, eccentric type and shall be designed for a working pressure of 150 psi. Valves shall provide tight shut-off at rated pressure.
- .2 Minimum port area for all valves shall be 80% of corresponding pipe area.
- .3 The plug valve body shall be cast iron ASTM A126 Class B with welded-in overlay of 90% nickel alloy content on all surfaces contacting the face of the plug. Sprayed, plated, nickel welded rings or seats screwed into the body are not acceptable.
- .4 The valve plug shall be cast iron ASTM A126 Class B, with Buna N resilient seating surface to mate with the body seat.
- .5 Valve flanges shall be in strict accordance with ANSI B16.1, Class 125.
- .6 Plug valve shall be furnished with permanently lubricated sleeve type bearings conforming to AWWA C504. Bearings shall be of sintered, oil impregnated type 316 stainless steel ASTM A-743 Grade CF-8M or bronze ASTM B-127.
- .7 Valves shaft seals shall be of the "U" cup type, in accordance with AWWA C504. Seals shall be self adjusting and repackable without moving the bonnet from the valve.
- .8 Acceptable product: Pratt or approved equal in accordance with B6.

**2.3 Valve Actuator**

Cylinder actuator for valve shall be supplied with a compound link and lever arrangement designed to minimize water hammer.

- .1 Each unit shall comply to AWWA C-540 Standard for Power Actuating Devices.
- .2 All wetted parts of the cylinder shall be nonmetallic, except the cylinder rod which shall be chromium plated stainless steel. The rod seals shall be of the nonadjustable, wear compensating type. A rod wiper for removing deposits inside the cylinder shall be provided in addition to an external dirt wiper.
- .3 Actuator to provide open and close functions (non-modulating)
- .4 Actuator to include end limit switches.
- .5 Actuator to be supplied with manual override.

- .6 Actuator to be sized to provide required force based on 90 psig compressed air supply.
- .7 Acceptable product: Pratt MDT with Dura-Cyl power cylinder or approved equal in accordance with B6..

## **2.4 Valve Repairs**

- .1 Knife Gate Valve Repairs
  - .1 Seats to be replaced with nitrile (Buna-N, Hycar, NBR) resilient seat rated for minimum 1.0 MPa (150 psig) non-shock cold water & sewer service.
  - .2 Packings to be reinforced Teflon (PTFE) type material.
- .2 Bolt Replacements
  - .1 Replace specified bolts with equal size and configuration.
  - .2 Fasteners to be in conformance with AWWA C-111
  - .3 Material to be 304 Stainless Steel
- .3 Gaskets
  - .1 Replace all flange gaskets in kind, with material approved for the application.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

### **3.2 INSTALLATION**

- .1 Install in accordance with manufacturer's instructions and as specified.

### **3.3 TESTING AND ADJUSTING**

- .1 Test valves to the manufacturer's rated operating pressure, but not to exceed 150 psig.
- .2 Test that valves open and close smoothly under operating pressure conditions.
- .3 Provide testing plan indicating test procedures and acceptable results.

**END OF SECTION**