

Approved: 2012-12-31

**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1        Section

**1.2            REFERENCE STANDARDS**

- .1        ASTM International (ASTM)
  - .1        ASTM A126-04 (2009), Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
  - .2        ASTM B62-09, Standard Specification for Composition Bronze or Ounce Metal Castings.
- .2        CSA Group (CSA)
  - .1        CSA B79-08, Commercial and Residential Drains and Cleanouts.
- .3        Efficiency Valuation Organization (EVO)
  - .1        International Performance Measurement and Verification Protocol (IPMVP).
    - .1        IPMVP 2007 Version.
- .4        National Research Council Canada (NRC)
  - .1        National Plumbing Code of Canada 2015 (NPC).
- .5        Plumbing and Drainage Institute (PDI)
  - .1        PDI-WH201-R2010, Water Hammer Arresters Standard.

**1.3            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with division 1:
  - .1        Submit manufacturer s instructions, printed product literature and data sheets for plumbing products and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2        Submit 2 copies of WHMIS SDS in accordance with division 1.
- .2        Shop Drawings:
  - .1        Submit drawings stamped and signed by professional engineer registered or licensed in Ontario Canada.
  - .2        Indicate on drawings to indicate method of anchorage, number of anchors, construction and assembly details, materials, dimensions, finishes, accessories.
- .3        Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .4        Instructions: submit manufacturer s installation instructions.
- .5        Manufacturers Field Reports: manufacturer's field reports specified.

#### **1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with division 1.
- .2 Operation and Maintenance Data: submit operation and maintenance data for plumbing specialties and accessories for incorporation into manual.
  - .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.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with division 1.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer s name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer s recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect plumbing materials from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

### **Part 2 Products**

#### **2.1 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 Wall Access: face or wall type, polished nickel bronze round stainless steel cover with flush head securing screws, bevelled edge frame, complete with anchoring lugs.

#### **2.2 WATER HAMMER ARRESTORS**

- .1 Copper construction, piston type: to PDI-WH201.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for plumbing specialties and accessories installation in accordance with manufacturer s written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.

- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 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.

### **3.3 INSTALLATION**

- .1 Install in accordance with National Plumbing Code of Canada (NPC).
- .2 Install in accordance with manufacturer s instructions and as specified.

### **3.4 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 NPS 4.

### **3.5 WATER HAMMER ARRESTORS**

- .1 Install on branch supplies to fixtures or group of fixtures.

### **3.6 START-UP**

- .1 General:
  - .1 In accordance with division 1: General Requirements, supplemented as specified herein.
- .2 Timing: start-up only after:
  - .1 Pressure tests have been completed.
  - .2 Disinfection procedures have been completed.
  - .3 Certificate of static completion has been issued.
  - .4 Water treatment systems operational.
- .3 Provide continuous supervision during start-up.

### **3.7 TESTING AND ADJUSTING**

- .1 General:
  - .1 Test and adjust plumbing specialties and accessories in accordance with division 1: General Requirements, supplemented as specified.
- .2 Timing:
  - .1 After start-up deficiencies rectified.

- .2 After certificate of completion has been issued by authority having jurisdiction.
- .3 Application tolerances:
  - .1 Pressure at fixtures: +/- 70 kPa.
  - .2 Flow rate at fixtures: +/- 20%.
- .4 Adjustments:
  - .1 Verify that flow rate and pressure meet design criteria.
  - .2 Make adjustments while flow rate or withdrawal is (1) maximum and (2) 25% of maximum and while pressure is (1) maximum and (2) minimum.
- .5 Cleanouts:
  - .1 Verify covers are gas-tight, secure, yet readily removable.

### **3.8 CLOSEOUT ACTIVITIES**

- .1 Commissioning Reports: in accordance with division 1: reports, supplemented as specified.
- .2 Training: provide training in accordance with division 1: Training of O M Personnel, supplemented as specified.

### **3.9 CLEANING**

- .1 Progress Cleaning: clean in accordance with division 1.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with division 1.

### **3.10 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by plumbing specialties and accessories installation.

**END OF SECTION**