

1 General

1.1 REFERENCES

- .1 American Society for Testing and Materials International (ASTM).
 - .1 ASTM A126, Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
 - .2 ASTM B62, Specification for Composition Bronze or Ounce Metal Castings.
- .2 American Water Works Association (AWWA).
 - .1 AWWA C700, Cold Water Meters-Displacement Type, Bronze Main Case.
 - .2 AWWA C701, Cold Water Meters-Turbine Type for Customer Service.
 - .3 AWWA C702-1, Cold Water Meters-Compound Type.
- .3 Canadian Standards Association (CSA International).
 - .1 CSA-B64 Series, Backflow Preventers and Vacuum Breakers.
 - .2 CSA-B79, Floor, Area and Shower Drains, and Cleanouts for Residential Construction.
 - .3 CSA-B356, 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, Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data.
 - .2 PDI-WH201, Water Hammer Arresters Standard.

1.2 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 Submit WHMIS MSDS material safety data sheets. Indicate VOC's for adhesive and solvents during application and curing.
- .3 Instructions: submit manufacturer's installation instructions.
- .4 Manufacturers' Field Reports: manufacturers' field reports specified.
- .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.

1.3 QUALITY ASSURANCE

- .1 Health and Safety:
 - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse in accordance with Section 01 74 00 - Cleaning.
 - .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
 - .3 Collect and separate for disposal paper packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
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- .4 Divert unused metal materials from landfill to metal recycling facility as approved by Departmental Representative.
- .5 Fold up metal banding, flatten and place in designated area for recycling.

2 Products

2.1 BACK FLOW PREVENTERS

- .1 Preventers: to CSA-B64 Series, application as indicated.
 - .1 Reduced Pressure Principle Type: up to NPS 10 (DN 250) complete with isolation valves on inlet and outlet, two independent check valves, test cocks, internal relief valve, access cover, inlet strainer and air gap drain.
- .2 Double Check Valve Assembly: up to NPS 12 c/w isolation valves on inlet and outlet, two independent check valves, test cocks and inlet strainer.

2.2 VACUUM BREAKERS

- .1 Breakers: to CSA-B64 Series, vacuum breaker atmospheric.

2.3 PRESSURE REGULATORS

- .1 Capacity: as indicated.
- .2 Up to NPS1-1/2 (DN 25 to DN 40) bronze bodies, screwed: to ASTM B62.
- .3 Semi-steel spring chambers with bronze trim.

2.4 HOSE BIBBS

- .1 Bronze construction complete with integral hose connection vacuum breaker, hose thread spout, replaceable composition disc, and chrome plated in finished areas.

2.5 WATER MAKE-UP ASSEMBLY

- .1 Complete with backflow preventer, pressure gauge on inlet and outlet, pressure reducing valve to CSA B356, pressure relief valve on low pressure side, strainer on inlet and gate valves on inlet and outlet.

2.6 STRAINERS

- .1 860 kPa (125 psi), Y type with 20 mesh, monel, bronze or stainless steel removable screen.
- .2 NPS2 (DN 50) and under, bronze body, screwed ends, with brass cap, tapped blow-off connection and plug.

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

3.3 BACK FLOW PREVENTORS

- .1 Install in accordance with CSA-B64 Series, where indicated and elsewhere as required by code or the Authority Having Jurisdiction.
 - .1 Reduced pressure type where backflow would constitute health hazard.
 - .2 Double check type where backflow would constitute a nuisance or be

aesthetically objectionable or material which would not constitute a health hazard.

- .2 Pipe discharge to terminate over nearest drain and/or service sink.

3.4 STRAINERS

- .1 Install with sufficient room to remove basket.

3.5 WATER MAKE-UP ASSEMBLY

- .1 Install on valved bypass.
- .2 Pipe discharge from relief valve to nearest floor drain.

3.6 START-UP

- .1 General:
 - .1 In accordance with Section 01 91 13 - General Commissioning Requirements: 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 In accordance with Section 01 91 13 - General Commissioning Requirements: 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: +/- 70kPa (10 psi).
 - .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 Vacuum breakers, backflow preventers:
 - .1 Test tightness, accessibility for O&M of cover and of valve.
 - .2 Simulate reverse flow and back-pressure conditions to test operation of vacuum breakers, backflow preventers.
 - .3 Verify visibility of discharge from open ports.
- .6 Pressure regulators, PRV assemblies:
 - .1 Adjust settings to suit locations, flow rates, pressure conditions.
- .7 Strainers:
 - .1 Clean out repeatedly until clear.
 - .2 Verify accessibility of cleanout plug and basket.
 - .3 Verify that cleanout plug does not leak.
- .8 Hydronic system water Make-up Assembly:
 - .1 Verify operation.
- .9 Commissioning Reports:
 - .1 In accordance with Section 01 91 13 - General Commissioning Requirements:

- Reports, supplemented as specified.
- .10 Training:
 - .1 In accordance with Section 01 91 13 - General Commissioning Requirements:
Training of O&M Personnel, supplemented as specified.
 - .2 Demonstrate full compliance with Design Criteria.

END OF SECTION