PART 1 General

1.1 REFERENCES

.1 Plumbing and Drainage Institute (PDI)

.1 PDI-WH201-06, Water Hammer Arresters Standard.

1.2 SUBMITTALS

.1 Submit shop drawings and product data in accordance with Section 21 05 01 - Common Work Results - Mechanical. For product data, indicate dimensions, construction details and materials for items specified herein.

.2 Data to 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.

.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: manufacturers' field reports specified.

PART 2 Products

2.1 CLEANOUTS

.1 50 or 100 mm dia. epoxy coated cast iron bodies with anchor flange reversible membrane clamp, adjustable combined access cover and plug with gasket seal, vandal proof.

.2 Access covers:

.1 Wall access: face or wall type, polished nickel bronze round cover with flush head securing screws, bevelled edge frame complete with anchoring lugs.

.2 Floor access: round cast iron body and frame with adjustable secured nickel bronze top and:

.1 Plugs: bolted bronze with neoprene gasket.

.2 Cover for unfinished concrete floors: nickel bronze round, gasket, and vandal-proof screws.

.3 Cover for terrazzo finish: polished nickel bronze with recessed cover for filling with terrazzo, vandal-proof locking screws.

.4 Cover for tile and linoleum floors: polished nickel bronze with recessed cover for linoleum or tile infill, complete with vandal-proof locking screws.

.5 Cover for carpeted floors: polished nickel bronze with deep flange cover for carpet infill, complete with carpet retainer vandal-proof locking screws.

2.2 WATER HAMMER ARRESTORS

.1 Stainless steel construction, bellows precharged with air type: to PDI-WH201.

2.3 VACUUM BREAKERS

.1 To CSA-B64 Series.

.2 Atmospheric vacuum breaker:

2.4 ELECTRIC INSTANTANEOUS WATER HEATER (DHE)

.1 Instantaneous shall be 3kW rating @120/1 suitable to heat 1.9L/m @ temperature rise of 23°C. Unit shall have ABS UL/ULC 94 VO rated cover. Heater body and element shall be glass reinforced Norly. Element shall be replaceable cartridge insert. Unit shall have replaceable filter in the inlet connector and 1.9L/m constant flow regulator in the outer connector. Element shall be iron free, nickel-chrome material. Heater shall be fitted with 10mm compression nuts and sleeves to eliminate need for soldering. Heater shall be installed upright with water connections on top only. Maximum operating pressure of 1034Kpa, Unit dimension shall be 273(H) x 133(W) x54(D) mm, colour white.

PART 3 Execution

3.1 INSTALLATION

.1 Install in accordance with Canadian Plumbing Code and local authority having jurisdiction.

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

3.2 CLEANOUTS

.1 In addition to those required by code, and as indicated, install at base of soil and waste stacks, and rainwater leaders.

.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.

3.3 WATER HAMMER ARRESTORS

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

3.4 START-UP

.1 General:

.1 In accordance with Section 01 91 00 - Commissioning: 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.

3.5 TESTING AND ADJUSTING

.1 General:

.1 In accordance with Section 01 91 00 - Commissioning: 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 Vacuum breakers:

.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.

.3 Verify visibility of discharge from open ports.

.6 Cleanouts:

.1 Verify covers are gas-tight, secure, yet readily removable.

.7 Water hammer arrestors:

.1 Verify proper installation of correct type of water hammer arrester.

.8 Commissioning Reports:

.1 In accordance with Section 01 91 00 - Commissioning: Reports, supplemented as specified herein.

.9 Training:

.1 In accordance with Division 01 91 00 - Commissioning: Training of O&M Personnel, supplemented as specified herein.

.2 Demonstrate full compliance with Design Criteria.

END OF SECTION