
PART 1 - GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction /
Demolition Waste Management and Disposal.
- .3 Section 01 78 00 - Closeout Submittals.
- .4 Section 21 05 01 - Mechanical General
Requirements.
- .5 Section 21 07 20 - Thermal Insulation of
Piping.
- .6 Section 22 42 00 - Commercial Plumbing
Fixtures.
- .7 Section 22 42 01 - Plumbing Specialties and
Accessories.
- .8 Section 23 05 01 - Installation of
Pipework.
- .9 Section 23 05 21 - Thermometers and
Pressure Gauges - Piping Systems.
- .10 Section 23 05 29 - Hangers and Supports for
HVAC Piping and Equipment.
- .11 Section 23 05 54 - Mechanical
Identification.
- .12 Section 23 05 93 - Testing, Adjusting and
Balancing for HVAC.

1.2 References

- .1 American National Standards Institute
(ANSI)/American Society of Mechanical
Engineers (ASME):
 - .1 ANSI/ASME B16.15, Cast Bronze Threaded
Fittings, Classes 125 and 250.
 - .2 ANSI/ASME B16.18, Cast Copper Alloy
Solder Joint Pressure Fittings.
 - .3 ANSI/ASME B16.22, Wrought Copper and
Copper Alloy Solder-Joint Pressure
Fittings.
 - .4 ANSI/ASME B16.24, Cast Copper Alloy
Pipe Flanges and Flanged Fittings,

Class 150 and 300.

- .2 American Society for Testing and Materials (ASTM):
 - .1 ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - .2 ASTM B 42, Specification for Seamless Copper Pipe, Standard Sizes
 - .3 ASTM B 88, Specification for Seamless Copper Water Tube.
- .3 Canadian Standards Association (CSA):
 - .1 CSA B242, Groove and Shoulder Type Mechanical Pipe Couplings and General Instructions No.1.
- .4 Manufacturer's Standardization of the Valve and Fittings Industry (MSS):
 - .1 MSS-SP-67, Butterfly Valves.
 - .2 MSS-SP-70, Cast Iron Gate Valves, Flanged and Threaded Ends.
 - .3 MSS-SP-71, Cast Iron Swing Check Valves Flanged and Threaded Ends.
 - .4 MSS-SP-80, Bronze Gate, Globe, Angle and Check Valves.
- .5 National Plumbing Code of Canada - 2015.

1.3 Shop Drawings

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit data for following: Valves.

1.4 Closeout Submittals

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

PART 2 - PRODUCTS

2.1 Piping

- .1 Domestic hot and cold within building.
 - .1 Above ground: copper tube, hard drawn, type L: to ASTM B88.
- .2 Trap primer piping within building:
 - .1 Above floor: Type L copper tube to ASTM B88.

2.2 Fittings

- .1 Bronze pipe flanges and flanged fittings, Class 150 and 300: to ANSI/ASME B16.24.
- .2 Cast bronze threaded fittings, Class 125 and 250: to ANSI/ASME B16.15.
- .3 Cast copper, solder type: to ANSI/ASME B16.18 (lead free).
- .4 Wrought copper and copper alloy, solder type: to ANSI/ASME B16.22.

2.3 Joints

- .1 Rubber gaskets, 1.6 mm thick: to ANSI/AWWA C111/A21.11.
- .2 Bolts, nuts, hex head and washers: to ASTM A 307, heavy series.
- .3 Solder: tin-antimony to ASTM B32 (lead free).
- .4 Teflon tape: for threaded joints.
- .5 Dielectric connections between dissimilar metals: dielectric fitting to ASTM F 492, complete with thermoplastic liner.

2.4 Valves

- .1 All valves shall be one manufacturer and shall have the manufacturer's name and pressure rating clearly marked on the outside of the body.
- .2 The metal bodies, bonnets, yokes and discs of all bronze valves shall conform to ASTM-B-62.

PART 3 - EXECUTION

3.1 Installation

- .1 Install in accordance with Section 21 05 01, National Plumbing Code, and the authority having jurisdiction.
- .2 Assemble piping using fittings manufactured to ANSI standards.
- .3 Install cold water piping below and away from hot water and hot water recirculation and other hot piping to maintain temperature of cold water as low as possible. Insulate all piping. Install close to building structure to minimize furring and maximize headroom and space. Group exposed pipes and run parallel to building grid lines.
- .4 Connect to fixtures and equipment in accordance with manufacturer's written instructions unless otherwise indicated.

3.2 Valves

- .1 Isolate equipment, fixtures, and branches with ball valves up to pipes 50mm diameter.

3.3 Pressure Tests

- .1 Test at the greater of 1.5 times maximum system operating pressure or 862 kPa for four (4) hours without loss of pressure.

3.4 Flushing and Cleaning

- .1 Flush entire system for eight (8) hours. Ensure outlets flushed for two (2) hours. Let stand for 24 hours, then draw one sample off longest run. Submit to testing laboratory to verify that system is clean. Let system flush for additional two (2) hours, then draw off another sample for testing. Bear all costs associated with collection and testing.
- .2 Upon completion, provide laboratory test

reports on water quality for the
Departmental Representative's approval.

3.5 Pre-Start-up Inspections

- .1 Systems to be complete, prior to flushing, testing and start-up.
- .2 Verify that system can be completely drained.
 - .1 Ensure that air chambers, expansion compensators are installed properly and are functioning.

3.6 Start-up

- .1 Timing: Start up after:
 - .1 Pressure tests have been completed.
 - .2 Disinfection procedures have been completed.
 - .3 Certificate of static completion has been issued.
- .2 Provide continuous supervision during start-up.
- .3 Start-up procedures:
 - .1 Establish circulation and ensure that air is eliminated.
 - .2 Check pressurization to ensure proper operation and to prevent water hammer, flashing and/or cavitation.
 - .3 Monitor piping domestic water piping systems for freedom of movement, pipe expansion as designed.
 - .4 Check control, limit, safety devices for normal and safe operation.
- .4 Rectify start-up deficiencies.
- .5 Exposed plumbing water piping shall be triple chromium plated.

END OF SECTION

PART 1 - GENERAL

1.1 References

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM B 32, Specification for Solder Metal.
 - .2 ASTM B 306, Specification for Copper Drainage Tube (DWV).
 - .3 ASTM C 564, Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- .2 Canadian Standards Association (CSA).
- .3 CSA B67, Lead Service Pipe, Waste Pipe, Traps, Bends and Accessories.
- .4 CAN/CSA-B70, Cast Iron Soil Pipe, Fittings and Means of Joining.
- .5 CAN/CSA-B125, Plumbing Fittings.
- .6 ULC-S115 Standard Method of Fire Tests of Firestop Systems.

1.2 Related Sections

- .1 Section 21 05 01 - Mechanical General Requirements.
- .2 Section 23 05 01 - Installation of Pipework.

PART 2 - PRODUCTS

2.1 Copper Tube and Fittings

- .1 Above ground sanitary, condensate, and sanitary vent (50mm and smaller): Type DWV to: ASTM B 306.
 - .1 Fittings.
 - .1 Cast brass: to CAN/CSA-B125.
 - .2 Wrought copper: to CAN/CSA-B125.
 - .2 Solder: lead free, tin- Antimony 95:5 to ASTM B32, Type 50A.

2.2 Cast Iron
Piping and Fittings

- .1 Above ground sanitary and vent (over 50mm): to CAN/CSA-B70.
 - .1 Joints:
 - .1 Mechanical joints:
 - .1 Neoprene or butyl rubber compression gaskets with stainless steel clamps.

PART 3 - EXECUTION

3.1 Installation

- .1 Install in accordance with National Plumbing Code of Canada and local authority having jurisdiction.
- .2 Install deep seal trap on duct plenums and duct drains. Run DWV Copper pipe from trap to floor drains or other designated places. Drain lines running below ducts may be supported from supports of ducts they drain. Co-ordinate scope of work with other trades.
- .3 Install piping parallel and close to walls to conserve headroom and space, and grade as indicated.
- .4 Install buried pipe on 150mm bed of clean washed sand, shaped to accommodate fittings to line and grade (slope) as indicated. Backfill with minimum 150mm of clean washed sand and upper 150mm of rock free soil backfill.

3.2 Testing

- .1 Hydraulically test to verify grades and freedom from obstructions.
- .2 Pressure test buried systems before backfilling.

3.3 Performance
Verification

- .1 Cleanouts:
 - .1 Ensure accessible and that access doors are correctly located.
 - .2 Open, cover with linseed oil and re-seal.
 - .3 Verify that cleanout rods can probe as far as the next cleanout, at least.
- .2 Test to ensure traps are fully and permanently primed.
- .3 Ensure that fixtures are properly anchored, connected to system and effectively vented.
- .4 Affix applicable label sanitary, vent, condensate etc. complete with directional arrows every 4.57m.

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

- .1 Section 21 05 01 - Mechanical General Requirements.
- .2 Section 23 05 01 - Installation of Pipework.

1.2 References

- 1. American Society for Testing and Materials (ASTM):
 - .1 ASTM D 2564, Specification for Solvent Cements for Poly Vinyl-Chloride (PVC) Plastic Piping Systems.
- 2. Canadian Standards Association (CSA):
 - .1 CSA-B181.2, PVC Drain, Waste and Vent Pipe and Pipe Fittings.
 - .2 CSA-B182.1, Plastic Drain and Sewer Pipe and Pipe Fittings.
- 3. National Building Code of Canada - 2015.
- 4. National Plumbing Code of Canada - 2015.

1.3 Shop Drawings

- .1 Include installation instructions with shop drawings. Submit in accordance with Section 01 33 00 - Submittal Procedures.

PART 2 - PRODUCTS

2.1 Piping

- .1 Piping and Fittings-building Sanitary Drainage Piping (Underground Piping Only).
- .2 For buried DWV piping to:
 - .1 CSA-B181.2.
 - .2 CSA-B182.1.
 - .3 Fittings to be same material as pipe and joints to be solvent welded.

- .3 PVC pipe and fittings to have flame spread rating less than 25 and smoke development rating less than 50.
- .4 Store materials to avoid shock and damage. Do not use chains or cables through the pipe bore. Store gaskets away from the sunlight and away from petroleum products.
- .5 Below Grade Sanitary Plastic Piping:
 - .1 Drainage and vent piping shall be PVC Type DWV with flame spread rating of not greater than 25 and a smoke development rating not greater than 50.
 - .2 Fittings: Same as pipe.
 - .3 Joints: To be solvent weld joints to ASTM D2564.

PART 3 - EXECUTION

3.1 Installation

- .1 In accordance with Section 23 05 01 - Installation of Pipework.
- .2 Identification of piping in accordance with Section 23 05 54 - Mechanical Identification.
- .3 Install in accordance with National Plumbing Code of Canada and local authority having jurisdiction.
- .4 A cleanout easily accessible shall be provided to each alternate change in direction in main soil or waste pipe and at the base of each stack. All cleanouts shall be of the same nominal size as the pipes up to 100mm and not less than 100mm for larger pipes. The distance between cleanouts in horizontal soil and waste lines shall not exceed 15m in pipe 100mm and smaller and 26m in pipe 150mm and larger.
- .5 Lay and join pipe and fittings as specified in this section and according to manufacturer's published

instructions.

- .6 Start laying at outlet and proceed in upstream direction with bell ends of pipe facing upgrade.
- .7 Prevent entry of foreign material, water or other foreign matter into pipe. Use temporary watertight bulkheads when pipe laying is not in progress.
- .8 Install gaskets in accordance with manufacturer's published instructions. During cold weather store gaskets in heated area to assure flexibility.
- .9 Align pipe carefully before joining. Do not use excessive force to join pipe sections.
- .10 Support pipes as required to assure concentricity until joint is properly completed.
- .11 Keep pipe joints free from mud, silt, gravel, or other foreign matter.
- .12 Avoid displacing gasket or contaminating with dirt, petroleum products, or other foreign material. Remove, clean, re-install, and lubricate gaskets so disturbed.
- .13 Where deflection at joint is permitted, deflect only after joint is completed. Do not exceed maximum joint deflection recommended by the manufacturer.
- .14 Complete each joint before laying next length of pipe.
- .15 Apply sufficient pressure in making joints to ensure that joint is completed to manufacturer's recommendations. Minimize deflection after joint has been made to avoid damage.

3.2 Testing

- .1 Pressure test buried systems before backfilling.
- .2 Hydraulically test to verify grades and freedom from obstructions.

END OF SECTION

PART 1 - GENERAL

1.1 Related Section

- .1 Section 21 05 01 - Mechanical General Requirements.

1.2 References

- .1 Canadian Standards Association (CSA):
 - .1 CAN/CSA-B45 Series, Plumbing Fixtures.
 - .2 CAN/CSA-B125, Plumbing Fittings.
 - .3 CAN/CSA-B651, Barrier-Free Design.

1.3 Submittals

- .1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures and Section 21 05 01 - Mechanical General Requirements.

1.4 Waste Management and Disposal

- .1 Refer to specification Section 01 74 21 - Construction / Demolition Waste Management and Disposal

PART 2 - PRODUCTS

2.1 Manufactured Units

- .1 Fixtures: Manufacture in accordance with CAN/CSA B45 Series.
- .2 Trim & Fittings: Manufacture in accordance with CAN/CSA B125. All fixture shut-off valves/stops shall be lead-free with threaded connections and no-braided supplies.
- .3 Exposed plumbing brass, pipes, and stops shall be triple chrome plated.
- .4 Report any plumbing fixture location/quantity discrepancies between architectural and mechanical drawings to the Consultant prior to installation. Number & locations: Architectural drawings to govern.

- .5 Common Manufacturers:
 - .1 All vitreous china/porcelain fixtures shall be the product of one single manufacturer. All fixtures to be white unless specified otherwise.
 - .2 All stainless-steel fixtures shall be the product of a single manufacturer.
 - .3 All acrylic fixtures shall be the product of a single manufacturer.
 - .4 All trim shall be the product of one (1) manufacturer.

- .6 Materials:
 - .1 Vitreous china to CSA B45.10.
 - .2 Stainless-steel fixtures to CSA B45.4 Class II, Type 302 in accordance with CSA G110.6 unless otherwise stated; Class 1, Type 316 in accordance with CSA B110.6.
 - .3 Plumbing Fittings to CSA B125.
 - .4 Brass P-Trap with cleanout on each fixture not having integral trap.

- .7 Provide factory manufactured floor mounted carrier systems (fixed type) for all wall mounted fixtures.

- .8 Service Sinks:
 - .1 Provide Vacuum Breaker, rim guard for all exposed sides, and stainless-steel splash guard for all walls at sink.

2.2 Schedule A
- Plumbing Fixtures

- .1 WC1 - Water Closet: Barrier-Free, Vitreous china, two-piece, floor mounted, elongated bowl, fully glazed trap way, siphon jet action, chrome plated metal handle, bolt caps, insulated tank, white open elongated front seat with cover and stainless-steel check hinges, 6L/flush; complete with stop and rigid closet riser.

- .2 WC2 - Water Closet: Vitreous china, two-piece, floor mounted, elongated bowl, fully glazed trap way, siphon jet action, chrome plated metal handle, bolt caps, insulated tank, white open elongated front seat with cover and stainless-steel check hinges, 6L/flush; complete with stop and rigid closet riser.
- .3 L1 - Lavatory:
- .4 L2 - Lavatory:
- .5 L3 - Lavatory:
- .6 SH1 - Shower:
- .7 SH2 - Shower:
- .8 JS1 - Janitor Sink: One-piece, precast terrazzo made with marble chips in portland cement with a compression strength of 20.7MPa; terrazzo surface shall be ground and polished; 300mm high walls; stainless steel drain body integrally cast; stainless steel strainer; stainless steel caps on curbs; mop service basin fitting; hose and hose bracket; stainless steel wall guards; Sink dimensions 610x610x305mm.
- .9 CW - Clothes Washer Trim: 20ga. steel washing machine outlet box, 50mm drain opening, two (2) support brackets, removable knockouts, screw-on 18 ga. Faceplate; ¼ turn brass lead-free ball valves.

PART 3 - EXECUTION

3.1 Manufacturer's Instructions

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage, and installation instructions, and datasheets.

3.2 Installation

- .1 Locate flush valve handle or flush valve on access side of all toilets unless specifically shown otherwise on the drawings.
- .2 Each fixture shall be separately trapped.
- .3 Provide supports necessary to set square and level.
- .4 Provide lock shield stops on the hot and cold water supply to each fixture.
- .5 Provide check valves on supplies to mixing faucets and thermostatically controlled mixing valves.
- .6 Fixtures mounted on glazed tile surfaces shall have ground faces to finished surface.
- .7 Seal between the base of the water closet and the floor (or wall); between wall hung lavatories and the wall; between the urinal and wall; and between the top of the tanks and wall on tank type water closets with mildew resistant sealant.
- .8 Mounting Heights:
 - .1 Standard: to comply with manufacturer's recommendations unless otherwise indicated or specified below.
 - .2 Wall hung fixtures: As indicated measured from finished floor.
 - .3 Barrier-Free: To comply with most stringent of either NBCC or CAN/CSA B651.

.4 As indicated below:

Plumbing Fixture	Height (AFF)	Barrier-Free Height (AFF)
Water Closet	381mm to top of bowl rim	432mm to top of bowl rim
Wall Hung Lavatory	See Architectural	864mm max to top of rim
Hose Bibb	914mm	-

END OF SECTION

PART 1 - GENERAL

1.1 Related Sections

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction / Demolition Waste Management and Disposal.

1.2 References

- .1 American Society for Testing and Materials (ASTM):
 - .1 ASTM A 126, Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings.
 - .2 ASTM B 62, Specification for Composition Bronze or Ounce Metal Castings.
- .2 Canadian Standards Association (CSA):
 - .1 CSA-B64 Series-01, 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.
- .3 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.

1.3 Submittals

- .1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.

1.4 Closeout Submittals

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.
- .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.

1.5 Waste Management and Disposal

- .1 Refer to specification Section 01 74 21
- Construction / Demolition Waste
Management and Disposal

PART 2 - PRODUCTS

2.1 Floor Drains

- .1 Floor drains: to CSA B79.
- .2 Heavy Duty Floor Drain (FD1) (Use for
mechanical rooms): Cast iron body, heavy
duty non-tilting or hinged lacquered
cast iron grate, integral seepage pan,
sediment basket, clamping collar, and
trap seal primer connection where
required.
- .3 Standard Floor Drain (FD2) (Use for all
finished areas): General duty, cast iron
body, round, adjustable head, sediment
basket nickel bronze strainer, integral
seepage pans, clamping collar, and trap
primer connection.
- .4 Funnel Floor Drain (FFD): combination
funnel floor drain; cast iron body,
integral seepage pan, clamping collar,
nickel-bronze adjustable head strainer
with integral oval funnel, sediment
basket and trap primer connection.

2.2 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, seal plug,
and securing screws.
- .2 Access covers:
 - .1 Wall access: face or wall type,
stainless steel, square or round

cover with flush head vandal proof screws, bevelled edge frame complete with anchoring lugs.

.1 See also Section 21 05 01 for additional specifications regarding types and finishes of access covers.

.2 Provide fire rated access covers to maintain the integrity of fire rated construction.

.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, vandal-proof screws, cast iron, epoxy coated for lab area.

2.3 Encased Non-Freeze Wall Hydrants (NFWH'S)

.1 Recessed with integral vacuum breaker, 19mm hose outlet, brass exterior parts, removable operating key. Polished bronze finish, adjustable wall flange. Provide one extra key.

.2 Wall opening: 145mm x 145mm.

2.4 Water Hammer Arrestors

.1 Stainless steel or copper construction, bellows type: to PDI-WH201.

2.5 Backflow Preventers

.1 To CSA-B64 Series.

.2 Application: as indicated.

.3 Reduced pressure principle type complete with strainer, full port, 1/4 turn shut-off ball valves, air gap fitting piped to FFD.

2.6 Vacuum Breakers

- .1 To CSA-B64 Series.

2.7 Pressure Regulators

- .1 Up to 63mm bronze bodies, screwed: to ASTM B 62, 861 kPa complete with thermal bypass and strainer.
- .2 75mm and over, semi-steel bodies, Class 125, flanged: to ASTM A 126, Class B, complete with strainer.

2.8 Trap Seal Primers

- .1 Electronic, 24V solenoid with ball valve complete with water hammer arrestor, controls transformer, single point power connection, manual override, controlled by building EMCS. Provide wall access door (fire rated where required).

2.9 Strainers

- .1 861kPa, Y type with 20 mesh, monel, bronze or stainless steel removable screen.
 - .1 50mm and under, bronze body, screwed ends, with brass cap.
- .2 861kPa, Y type with 20 mesh, monel, bronze or stainless steel removable screen.
 - .1 63mm and over, cast iron body, flanged ends, with bolted cap, 25mm minimum blowdown valve to 150mm.

2.10 Deep Seal Traps
and Running Traps

- .1 Cast iron body, piping connections to suit piping size, minimum seal equal to 125mm.

2.11 Thermostatic
Mixing Valve

- .1 Thermostatic controller with swivel action check stops, removable cartridge with strainer, stainless steel piston, and liquid fill thermal motor with bellows element mounted out of water.

- .2 Valve complete with safety to shut down flow when there is DHW or DCW supply, or thermal motor failure.
- .3 30°C to 49°C field setting range.

2.12 Water Meters

- .1 Turbine type to AWWA C701.
- .2 Capacity: as indicated.
- .3 Accessories: remote readout device.

PART 3 - EXECUTION

3.1 Installation

- .1 Install in accordance with the National Plumbing Code of Canada, provincial codes, 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 For sinks and lavatory basins, provide cleanout in branch waste/stack or provide removable trap dip.
- .4 Provide common cleanout in stack which serves two sinks or lavatory basins by using a double sanitary tee.
- .5 Building drain cleanout and stack base cleanouts: line size to maximum 100mm.

3.3 Encased Non-Freeze Wall Hydrants

- .1 Install 600mm above finished grade

unless otherwise indicated.

3.4 Water
Hammer Arrestors

- .1 Install on branch supplies to individual fixtures or group of fixtures and where indicated.

3.5 Backflow Preventers

- .1 Install in accordance with CSA-B64 Series, where indicated and elsewhere as required by code.
- .2 Pipe discharge to terminate over nearest funnel floor drain.

3.6 Trap Seal Primers

- .1 Install for floor drains and elsewhere, as indicated.
- .2 Install on cold water supply to nearest plumbing, refer to plans.

3.7 Strainers

- .1 Install with sufficient room to remove basket. Remove start-up basket and install permanent one prior to project turnover.

3.8 Vacuum Breakers

- .1 Install where indicated on domestic water systems.

3.9 Start-Up

- .1 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.

END OF SECTION