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**Washroom Buildings Recapitalization  
Buildings 32, 34 & 38  
Newman Sound Campground  
Terra Nova National Park, NL  
Proj. No.: R.079272.001**

Section 22 42 01 – Plumbing Specialties and Accessories

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**PART 1**        **GENERAL**

**1.1**            **SUMMARY**

.1            Section Includes:

- .1            Materials and installation for plumbing specialties and accessories.

**1.2**            **RELATED SECTIONS**

- .1            Section 01 33 00 – Submittal Procedures.
- .2            Section 01 35 28 – Health and Safety Requirements.
- .3            Section 01 45 00 – Quality Control.
- .4            Section 01 78 00 – Closeout Submittals.

**1.3**            **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, Cold Water Meters-Compound Type.

.3            American National Standards Institute (ANSI)

- .1            ANSI Z358.1 Emergency eyewash and shower equipment.

.4            Canadian Standards Association (CSA)

- .1            CSA-B64 Series, Backflow Preventers and Vacuum Breakers.
- .2            CSA-B356, Water Pressure Reducing Valves for Domestic Water Supply Systems.

.5            Health Canada/Workplace Hazardous Materials Information Systems (WHMIS).

- .1            Material Safety Data Sheets (MSDS).

.6            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.

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**1.4 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 in accordance with Section 02 62 00.01 – Hazardous Materials. Indicate VOC's for adhesive and solvents during application and curing.
- .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 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .5 Instructions: submit manufacturer's installation instructions.
- .6 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 manufacturer's name, type, model, year and capacity.
  - .2 Details of operation, servicing and maintenance.
  - .3 Recommended spare parts list.

**1.5 QUALITY ASSURANCE**

- .1 Pre-Installation Meetings:
  - .1 Convene pre-installation meeting one week prior to beginning work of this Section and on-site installations.
    - .1 Verify project requirements.
    - .2 Review installation and substrate conditions.
    - .3 Co-ordination with other building subtrades.
    - .4 Review manufacturer's installation instructions and warranty requirements.
  - .2 Health and Safety:
    - .1 Do construction occupational health and safety in accordance with Section 01 35 28 – Health and Safety Requirements.

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**1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Waste Management and Disposal:
  - .1 Separate waste materials for reuse and recycling in accordance with Division 01.
  - .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 materials in appropriate on-site bins for recycling in accordance with Waste Management Plan.
  - .4 Divert unused metal materials from landfill to metal recycling facility as approved by Owner's Representative.
  - .5 Fold up metal and plastic banding flatten and place in designated area for recycling.

**PART 2      PRODUCTS**

**2.1 FLOOR DRAINS**

- .1 Floor drains and trench drains.
  - .1 Provide floor drains in accordance with "floor drain schedule" shown on drawings.

**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.
  - .1 Acceptable Product: Zurn, Jay R. Smith, MIFAB.
- .2 Access covers:
  - .1 Wall access: face or wall type, or stainless steel square 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.
    - .1 Plugs: bronze with neoprene gasket.
    - .2 Cover for unfinished concrete floors: cast iron round, gasket, vandal-proof screws.
    - .3 Cover for tile and linoleum floors: polished nickel bronze with recessed cover for linoleum or tile infill, complete with vandal-proof locking screws.

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

## **2.3 WATER HAMMER ARRESTORS**

- .1 Stainless steel or copper construction, bellows or piston type: to PDI-WH201.
- .2 Acceptable Product: Zurn, Jay R. Smith, MIFAB, Precision Plumbing Products.

## **2.4 BACK FLOW PREVENTERS**

- .1 To CSA-B64 Series.
- .2 Application: domestic service entrance and fire protection system service entrance.
  - .1 Domestic water:
    - .1 Reduced pressure principle type consisting of a pressure differential relief valve located between two independently operated spring-loaded centre guided check valves.
    - .2 Ductile iron construction with FDA approved fusion epoxy coat inside and out.
    - .3 Compound check.
    - .4 Single access cover.
    - .5 Maximum temperature range: 0.5°C to 60°C.
    - .6 Maximum pressure: 1205 kPa.
    - .7 CSA certified.
    - .8 Acceptable Product: Wilkins Model 375L, Watts, Zurn.
  - .2 Fire protection water:
    - .1 Same as above except without compound check and with FM and ULC approval for fire protection service.
    - .2 Acceptable Product: Wilkins Model 975L, Watts, Zurn.
- .3 Application: install on domestic cold water supply to electrode steam humidifier.
  - .1 Bronze body construction.
  - .2 Internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs.
  - .3 Seats and discs replaceable in both check modules and the relief valve.
  - .4 Assembly to include two resilient seated isolation valves, four resilient seated test cocks, protective wye strainer with 20 mesh screen, union end connections and an air gap drain fitting.

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- .5 Reduced pressure zone type backflow preventer.
- .6 Acceptable Product: Watts Series U-009QT-S complete with Watts Series 909AG air gap, Wilkins, Zurn.
- .4 Provide backflow preventer test kit as follows:
  - .1 Maximum working pressure: 1205 kPa.
  - .2 Maximum working temperature: 98.8°C.
  - .3 0-103 kPa and 0-15 psig dual scale pressure gauge with 114 mm diameter face,  $\pm 2\%$  accuracy.
  - .4 Test valves: two (2) ball valves and one (1) needle valve.
  - .5 Hoses: three (3) one (1) metre test hoses with female threaded swivel coupling.
  - .6 Adapters:
    - .1 Three (3) NPS  $\frac{1}{4}$  threaded coupling adapters.
    - .2 Three (3) NPS  $\frac{1}{2}$  x NPS  $\frac{1}{4}$  bushings.
    - .3 Three (3) NPS  $\frac{3}{4}$  x NPS  $\frac{1}{4}$  bushings.
  - .7 400 mm long securing strap.
  - .8 Moisture resistant instruction guide.
  - .9 Light weight, shock resistant molded plastic case with foam inserts.
  - .10 Acceptable Product: Watts No. TK-9A Backflow Preventer Test Kit, Precisions Plumbing Products, MIFAB.

## **2.5 VACUUM BREAKERS**

- .1 To CSA-B64 Series.
- .2 Atmospheric vacuum breaker (inlet to domestic hot water tanks):
  - .1 Plain brass body with silicone disc.
  - .2 Suitable for temperatures up to 82°C.
  - .3 Maximum operating pressure: 860 kPa.
  - .4 Size: NPS  $\frac{3}{4}$ .
  - .5 Acceptable Product: Watts Series 288a, Wilkins, Jay R. Smith, MIFAB.
- .3 Hose connection vacuum breaker:
  - .1 NPS  $\frac{3}{4}$  female hose thread inlet, NPS  $\frac{3}{4}$  male hose thread outlet, brass finish.

## **2.6 HOSE BIBBS AND SEDIMENT FAUCETS**

- .1 Bronze construction complete with integral back flow preventer, hose thread spout, replaceable composition disc, and chrome plated in finished areas.

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**2.7 TRAP SEAL PRIMERS**

- .1 Pressure drop actuated:
  - .1 Brass body construction with inlet opening of ½ male NPT and outlet opening of female ½ NPT.
  - .2 Provide complete with four-hole view built-in air gap to prevent any backflow from trap being fed into the water supply.
  - .3 Provide removable inlet filter screen.
  - .4 Capacity to serve up to four (4) floor drains.
  - .5 Provide complete with trap seal primer distribution unit as follows:
    - .1 Brass body construction.
    - .2 ½ NPT inlet connection.
    - .3 Four (4) 3/8 FPT brass nipple outlet connections.
    - .4 Four (4) 6 mm diameter vent holes in lid to provide air gap and backflow protection.
  - .6 Acceptable Product: MIFAB MR-500 trap seal primer complete with MIFAB MI-DU series distribution unit, Precision Plumbing Products, Zurn.
- .2 Up to 12 floor drains: Electronic trap priming manifold with:
  - .1 Vacuum breaker
  - .2 Pre-set 24 hour time clock
  - .3 Manual override switch
  - .4 120V solenoid valve
  - .5 120V or 3 wire connection.
  - .6 NPS ¾ inlet connection.
  - .7 Calibrated manifold.
  - .8 Water hammer arrestor
  - .9 Mounted in steel cabinet
  - .10 Compression outlet fittings
  - .11 Inlet shut off valve
  - .12 Supplies minimum 59 ml @ 138 kPa.

**2.8 STRAINERS**

- .1 860 kPa, Y type with 20 mesh, monel, bronze or stainless steel removable screen.
- .2 NPS2 and under, bronze body, screwed ends, with brass cap, tapped blowoff and plug.
- .3 NPS2½ and over, cast iron body, flanged ends, with bolted cap, tapped blow off connection with bronze ball valve.

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**2.9 PIPE WALL AND FLOOR PENETRATION SEAL**

- .1 Application:
  - .1 Pipes penetrating exterior concrete walls below grade and concrete floors on grade.
- .2 Seal material to be EPDM.
- .3 Pressure plates to be glass-reinforced plastic.
- .4 Bolts and nuts to be stainless steel 18-8.
- .5 Suitable temperature range to be -40°C to 121°C.
- .6 Wall sleeves to be Schedule 40 black iron pipe. Sleeves in exterior walls to be galvanized.
- .7 Acceptable Product: Metraseal MS Series, Link Seal.

**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 Canadian Plumbing Code, and local authority having jurisdiction.
- .2 Install in accordance with manufacturer's instructions and as specified.

**3.3 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.

**3.4 WATER HAMMER ARRESTORS**

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

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**3.5 BACK FLOW PREVENTORS**

- .1 Install in accordance with CSA-B64 Series, where indicated and elsewhere as required by code.
  - .1 Reduced pressure type where backflow would constitute a 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.

**3.6 HOSE BIBBS AND SEDIMENT FAUCETS**

- .1 Install at bottom of risers, at low points to drain systems, and as indicated.

**3.7 TRAP SEAL PRIMERS**

- .1 Install for floor drains and elsewhere, as indicated.
- .2 Install on cold water supply to nearest frequently used plumbing fixture, in concealed space, to approval of Owner's Representative.
- .3 Install Type K soft copper tubing to floor drain.

**3.8 STRAINERS**

- .1 Install with sufficient room to remove basket.

**3.9 START-UP AND COMMISSIONING**

- .1 General:
  - .1 In accordance with Division 01.
- .2 Timing: Start-up only after:
  - .1 Pressure tests have been completed.
  - .2 Disinfection procedures have been completed.
  - .3 Water treatment systems operational.
- .3 Provide continuous supervision during start-up.

**3.10 TESTING AND ADJUSTING**

- .1 General:
  - .1 In accordance with Division 01.



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- .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 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.
- .6 Vacuum breakers, backflow preventers, backwater valves:
  - .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.
- .7 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.
- .8 Access doors:
  - .1 Verify size and location relative to items to be accessed.
- .9 Cleanouts:
  - .1 Verify covers are gas-tight, secure, yet readily removable.
- .10 Water hammer arrestors:

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- .1 Verify proper installation of correct type of water hammer arrester.
- .11 Wall, Ground hydrants:
  - .1 Verify complete drainage, freeze protection.
  - .2 Verify operation of vacuum breakers.
- .12 Pressure regulators, PRV assemblies:
  - .1 Adjust settings to suit locations, flow rates, pressure conditions.
- .13 Strainers:
  - .1 Clean out repeatedly until clear.
  - .2 Verify accessibility of cleanout plug and basket.
  - .3 Verify that cleanout plug does not leak.
- .14 Hose bibbs, sediment faucets:
  - .1 Verify operation and at all low points.
- .15 Commissioning Reports:
  - .1 In accordance with Division 01.
- .16 Training:
  - .1 In accordance with Division 01.
  - .2 Demonstrate full compliance with Design Criteria.