# PUBLIC WASHROOM DESIGN & TECHNICAL GUIDELINES

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INTRODUCTION

The City of Vancouver is dedicated to the provision of safe, inclusive and accessible public washrooms. The City operates a large portfolio of public washroom amenities located in parks, libraries, community halls and other facilities.

Everyone needs access to public washrooms they can use with ease and dignity. Over the years, the design of City-owned washrooms has evolved to reflect changing needs and attitudes to accessibility, safety, privacy and maintenance. These include the needs of senior citizens, people with disabilities, and members of the Trans and Gender-Variant Community.

The City of Vancouver Public Washroom Design and Technical Guidelines (WDTG) are meant for purpose-built, stand-alone washroom facilities in parks, often referred to as fieldhouses, and washrooms in other public spaces. These guidelines are meant for the design of safe, accessible and durable public washrooms. They are not intended to be prescriptive and should be considered within the context of the project and the particular needs of users.

1.0 DESIGN GUIDELINES

1.1 SCOPE OF DESIGN GUIDELINES

This document is intended as a guide to the design of public washrooms. It is primarily aimed at the design of free-standing facilities that are unsupervised, available to the public and therefore likely to pose security, safety and maintenance challenges. Some of the design principles will also apply to facilities within buildings and/or where access is fully or partially monitored.

These guidelines are intended to assist with satisfying the following objectives:

- Safety Considerations
- Equity of Access
- Environmental Sustainability
- Siting and Site Access
- Building Design: Size and Configuration
- Durability, Ease and Economy of maintenance

In addition to complying with these guidelines, the design shall comply with the regulatory framework set out in the Vancouver Building Bylaw (VBBBL) and the Zoning and Development Bylaw (VZDBBL). The scope of this document excludes specialist amenities such as sports change rooms, outdoor pool and beach change rooms and showers.

1.2 SAFETY CONSIDERATIONS

Public washroom facilities shall be designed in such a manner as to avoid any possibility of the public slipping and falling on, or banging into objects or surfaces that can cause major harm. Additionally, the facility shall not facilitate climbing nor create opportunities where persons can be locked in without a way to escape. Allowing for some sightlines into the washroom vanity areas is desirable, while still protecting stall privacy. Avoid hallways and blind corners; ensure exterior doors are clearly visible. Apply the principles of Crime Prevention Through Environmental Design (CPTED).

Harm Reduction is an approach to reduce harms associated with substance use and sexual health for individuals and communities. Some special facilities may require the following:

- Washrooms within buildings are located close to the front door, allowing easy access for everyone, eliminating the need to walk through a perceived unsafe space.
- Locks are secure and have a safety mechanism that allows staff or emergency responders to open from the outside.
Sharps containers are securely fixed to the wall (beyond normal measures)
- No blue lighting is used (it has not been shown to deter drug use but instead poor lighting leads to more harm for those who do use).
- Washroom and stalls are large enough to allow easy access for emergency responders.
- Washroom and stall doors open outward to allow easy access for emergency responders.
- Washrooms are located in the line of sight of staff, not hidden down hallways, alcoves or recessed areas
- Design eliminates need for an entrance door into a multi-stall washroom or the door can be locked open to allow easy line of sight for washroom monitoring
- Toilet stall doors leave a space between bottom of door and floor to allow others to see if user may be in distress
- Toilets shall be tankless to eliminate space to discard syringes or other items
- Ceiling and wall tiles or panelling, as well as ventilation covers are securely affixed to eliminate spaces to conceal or discard syringes or other items


1.3 EQUITY OF ACCESS

Building for accessibility is an important part of being an inclusive city. Over 15% of Vancouver residents have some form of physical disability or mobility restriction. This includes people using wheelchairs, walkers, canes, and strollers. Together with accompanying family and friends, approximately 50% of Vancouver residents are affected by poor access to buildings.

Access or accessible means that a person with disabilities is, without assistance, able to approach, enter, pass to and from, and make use of an area and its facilities. The accessibility of a building is provided by properly designed entrance and access corridors including door opening widths, adequate space around doors, door handles/opening devices, ramps and handrails.

Reducing Barriers for Trans* and Gender-Variant Community Members
- Washrooms shall have inclusive signage for trans and gender diverse individuals.
- Function-based icons are used on signage, as opposed to gender figures.
- Stall doors shall have minimal gaps on the sides to allow for maximum privacy.
- Refer to Vancouver Board of Parks and Recreation “Building a Path to Parks & Recreation for All: Reducing Barriers for Trans* & Gender Variant Community Members


1.4 ENVIRONMENTAL SUSTAINABILITY

Adapting to climate change to ensure Vancouver remains a livable and resilient City, while improving the environmental performance of our buildings and reducing operational costs over the life of the asset is a key driver of the WDTG.

For more information on the City of Vancouver Climate Change Adaptation Strategy and the Greenest City Action plan, follow the links below:

The following describes the City of Vancouver’s sustainable design criteria for new buildings and shall be considered for the design of public washroom facilities only to the extent of economy and practicality. Many of these facilities are unheated or minimally heated buildings.

To achieve a goal of near zero GHG emissions in new buildings, the following strategies are required to be incorporated into new city owned buildings:

- Public washrooms should be designed to be unheated, if possible, or heated only to prevent freezing.
- Small public washroom buildings that are required to be heated shall use only low carbon fuel sources.
- Larger buildings over 500 square meters in heated floor area must be designed to be certified to the Passive House energy performance standard, or an approved alternative zero emission building standard, and use low carbon fuel sources, in order to minimize energy consumption and GHG emissions.
- LEED® Gold Certification is also required by the City of Vancouver for all public buildings, tenant improvements, and facilities funded by City capital funds, over 500 square meters in floor area. Refer to the most current LEED® Canada NC, CI, or other appropriate LEED category, Guidebook.
- Mechanical and control systems should be designed to be as simple as possible to reduce maintenance costs and the need for specialized maintenance expertise.
- Reducing water consumption through controlled flow and volume of plumbing fixtures. In special/pilot situations, consideration shall be made to use of grey water recycling or rainwater collection systems for toilet flushing.

1.5 SITING AND SITE ACCESS

A host of factors such as safety (including CPTED), maintenance access, relationship to existing uses and other facilities, location of existing utilities, soils, drainage, and topography must be considered when siting a washroom facility within a park. Siting of new facilities within parks must be determined in collaboration with VBPR Planning and/or Park Development staff and will be subject to Park Board approval.

1.6 BUILDING DESIGN: SIZE AND CONFIGURATION

Coordinate program requirements with City staff. Service spaces shall be adequately sized for the particular need of each facility.

Mechanical and electrical systems and controls are to be accommodated in dedicated spaces separate from public use or janitorial functions.

1.7 DURABILITY, EASE AND ECONOMY OF MAINTENANCE

Durability, ease and economy of maintenance are key to the design of public washrooms. Refer to the Section 2, technical guidelines for details.
1.8 DISCLAIMERS

Any specific products named in this document are not to be taken as the City of Vancouver’s endorsement of that product, but rather as an example of a standard of quality that has proven successful in the past. Any other products that meet this level of quality will be considered for use, but their use is not to proceed without prior discussion and acceptance by the City of Vancouver.
2.0 TECHNICAL GUIDELINES

2.1 GENERAL REQUIREMENTS

.1 Intent
These technical guidelines are:

- To be applied to the design and construction of new or renovation of existing public washroom facilities.
- Notwithstanding the requirements of applicable building and plumbing bylaws, they are meant to clarify the minimum standard required by the City of Vancouver as building owner, for materials, finishes, equipment and other items. Variations from these guidelines may be considered, but are not to proceed without prior discussion and acceptance by the REFM-FPD department of the City of Vancouver.

.2 Regulations and Standards
Consultants shall ensure that all applicable building codes, government acts and health regulations, and City of Vancouver standards herein, are met. These include, but are not limited to the following list below. For any park development or park restoration work associated with any new or redeveloped washroom or building, the VPB Park Development Standards, at a minimum, shall apply, subject to verification for completeness, correctness, and industry best practices.

- The City of Vancouver Building Bylaw (VBBL) (latest edition)
- The City of Vancouver Building Bylaw Plumbing Systems (latest edition)
- The City of Vancouver Zoning and Development Bylaw (latest edition)
- BC Plumbing Code (latest edition)
- BC Fire Code (latest edition)
- Building a Path to Parks & Recreation for All: Reducing Barriers for Trans & Gender Variant Community Members

.3 Submittals
All building shop drawings and samples are to be made available for review by City staff prior to commencement of the work.

Procedures for shop drawing, operation and maintenance manuals, warranty/guarantee submittals shall be as outlined in the construction contract.

2.2 EXISTING CONDITIONS & HAZARDOUS MATERIALS
Appropriate authorities must be notified of intention to carry out operations in the vicinity of a utility or structure prior to the commencement of such operation and obtain approval for access to any operations carried out on adjacent public property.

The City of Vancouver’s Environmental Services shall be consulted on all existing buildings to determine if there are any hazardous materials present. For hazardous materials on site, receive approval of WorkSafeBC procedures from City of Vancouver Environmental Services prior to commencing construction.
2.3 “ACCESSIBILITY” REQUIREMENTS

Notwithstanding the accessibility requirements as required by the VBBL, the following shall also be considered:

**Entrance ramps**
- Grade changes shall be connected via the use of ramps. Stairs are not acceptable.

**Doors and Handles**
- Doors shall be a minimum of 914mm (36”) wide.
- Consider the use of Push-Pull door hardware where appropriate.

2.4 EXTERIOR AND BUILDING CONSTRUCTION

Generally, free-standing washroom buildings shall be designed to be unheated/minimally heated and be constructed of materials that allow for hose-down maintenance. Concrete or concrete block without added cladding would be appropriate for these unheated/minimally buildings. Use building technologies, and consider sun orientation and vegetation, to mediate indoor and outdoor air temperatures. Protect walls with overhangs but do not create loitering opportunities (i.e. depth of overhang shall be sufficient only to protect wall, not provide a gathering space or rain shelter.

Renovations or upgrades to existing wood frame buildings shall reference *Wood Frame Envelopes in the Coastal Climate of British Columbia, Best Practice Guide (CMHC).*

.1 BUILDING ENVELOPE

.1 Walls

Vandalism is a major issue to consider. All new construction must be durable, simply, and robustly detailed using materials such as concrete, concrete block and galvanized steel.
- Extensive use of wood finishes is not recommended for long term maintenance. Use wood as an accent material and/or where protected under eaves and away from direct sunlight. Any wood used should be ACQ not CCA preservative/pressure treated and capable of taking a paint finish.
- Concrete, concrete block, or masonry are the preferred materials for exterior walls of unheated buildings.
- A non-sacrificial anti-graffiti coating must be applied to all exterior masonry, concrete, brick or stucco wall finishes. For paint finishes, use a compatible sealer and paint with an exterior semi-gloss alkyd enamel.

.2 Roof

- Roof design shall be simple, durable and easy to maintain. Adequate overhangs shall be provided. Provide a minimum five (5) year Roofing Contractors Association of British Columbia (RCABC) Guarantee.
- Pitched roofs shall be 4/12 or greater for positive drainage. Asphalt shingles and metal roofing are acceptable finishes.
- Rainwater shall be dealt with on site with landscaped drainage systems.
- Provide roof edge safety barriers, roof anchors, and fall protection in accordance with the VBBL and with Work Safe BC requirements.
  - Specifically, for fall protection, each project should be assessed for where and how often parts of the roof may be accessed. If all or most servicing of roof areas can occur 13 feet from the edge (control zone plus buffer zone distance) there is less need for roof edge safety barriers. If areas needing servicing are located near roof edges, then
the method of fall protection required is to be determined in consultation with CoV OHS, environmental, and maintenance staff.

.3 Exterior Doors and Windows

- All exterior windows, doors and other openings to meet CAN/CSA-A440 standards as outlined in the VBBL.
- Use of windows for daylighting (clerestory or high windows preferable for reduced vandalism) is recommended to reduce the reliance on electricity. Glass block is not acceptable as breakage is difficult to repair.
- Windows in unheated/minimally heated buildings shall be tempered single glazed safety glass in metal frames; in heated buildings to be multiple glazing as per the VBBL’s energy rating, tempered safety glass on the outside lite, in thermally broken metal frames.
- Exterior doors shall be solid core wood or hollow steel. Wood doors shall be exterior paint grade solid core with lumber core, not particle board. Frames shall be painted galvanized 16 Ga steel, thermally broken for heated buildings.
- Doors must be completely weather-stripped and have vinyl top caps. Provide a drip cap above all doors.
- Use heavy duty hardware, stainless steel type 304 with a satin finish. In corrosive conditions such as by the ocean, use corrosion resistant hardware of stainless steel type 316.
- See section 2.5.5 Hardware for door hardware.

.2 STRUCTURAL SYSTEM

- Structural systems of concrete or concrete block may be exposed as a way to reduce the use of added finishing materials.
- Use of timber/heavy timber construction as a low carbon, renewable building material for this region to be considered where appropriate, such as for the roof.

.3 MECHANICAL SYSTEM

- Use simple proven systems selected with consideration for maintenance, operation and availability of spare parts, and vandal-resistant. System and equipment shall be fail-safe and of a quality consistent with anticipated building life.
- Design systems to use a minimum amount of energy consistent with the required energy performance standard approved for the project. Use only low carbon fuel sources.
- Consolidate mechanical layouts using minimum space consistent with maintenance, service requirements and accessibility.
- Avoid the use of roof top mounted heating and ventilating units as they are a maintenance problem and have shorter life spans than equipment housed inside a building.
- All hydronic systems shall be frost protected.

.1 HVAC

- HVAC system to be designed to suit spaces with operable windows and optimized natural ventilation. Ideally, washroom buildings shall be unheated/minimally heated and mechanically ventilated for the removal of odours only.
- All rooms to be adequately ventilated to remove odours (to meet the latest edition of ASHRAE Standard 62, Ventilation for Acceptable Indoor Air Quality).
- All air intakes to be located away from sources of fumes or dust, including parking and/or loading areas.
- For spaces where heating is provided, low carbon electric heating systems such as recessed electric wall cabinets, electric unit heaters, radiant ceiling panels, or air source heat pump
forced air heating systems are required. Baseboard radiators are not acceptable for reasons of vandalism.

- Equipment to be easily accessible for maintenance. For example, filters and remote condensing units shall be accessible without the use of temporary scaffolding or Genie Lift type equipment.
- Better than average exhaust ventilation shall be provided for Washrooms. Exhaust fan must be rated for continuous operation with a sone rating of less than 3.5.
- Consider passive solar heating where appropriate.

.2 Plumbing

- Make allowances in system design to accommodate loads for future requirements as set forth in the building program.
- Locate tanks close to point of application to minimize hot water and recirculation water requirements. Hot water recirculation to be provided for distribution systems over 15m from heater. Large hot water storage tanks shall be concrete lined - small tanks shall be glass lined. Seismic restraints must be specified
- Plumbing systems must be provided with sufficient shut-off valves to permit localized repairs without need to shut down complete systems.
- Domestic hot water systems should be capable of maintaining 42°C. Hot water supply lines must be designed to recirculate the water or be heat traced to maintain the temperature in the lines in locations where there is low flow to prevent the development of bacteria i.e. Legionnaires's disease. Where higher temperature is required, IE: for commercial dishwashers, provide local re-heaters.
- Domestic hot water systems should be provided by electric heat pump or other electric hot water system to reduce GHG emissions. Consider the use of instantaneous on-demand electric water heaters for locations with a small demand.
- As built drawings shall indicate locations and depths of pipes at regular intervals, all changes of direction, inverts, tie-in points etc.
- Locate exterior frost proof hose bibs c/w isolation valves and backflow preventers around the perimeter of the building to permit watering of all landscaped areas with a standard 30 m (100 ft.) hose.
- Provide a tamper proof hose bib underneath the vanity c/w backflow preventer and activated by a sill cock key. Hose bibs to be:
  - Frost-free with a vacuum breaker.
  - Vandal proof when they occur at grade or at any location that is accessible to the public.
- Hot water shall be temperature adjustable.
- All hot water tanks to:
  - Be seismically secured
  - Have drain/leak pans installed and piped to drain.
  - To be set at 60°C (140°F) minimum.

.3 Fire Protection

- Shall be designed to conform to the VBBL.

.4 ELECTRICAL SYSTEM

Power

- A weather-proof outlet to be provided at any roof-top or exterior-located mechanical equipment conforming to the VBBL.
- Appropriate power provisions to be made for:
  - Hand dryer
• Janitorial equipment
  All power in Change Rooms, Shower areas, and Washrooms must be G.F.I., on individual circuit breakers and have stainless steel cover plates.

Lighting
  • Lighting shall be vandal-resistant LED type. For renovations, existing non-LED lighting shall be changed to LED.
  • Minimize the number of fixture types and lamp types; no more than two (2) fixture types for indoor use. No more than two (2) fixture types for exterior uses.
  • Use vapour proof and rust resistant light fixtures in Change Rooms, Showers and Washrooms.
  • Consider the use of solar photovoltaics for lighting power where there is good sun exposure and if it makes economic sense.
  • Emergency lighting conforming to the VBBL.

Lighting Controls
  • Occupancy sensor switches shall be provided to control lighting for new and retrofit situations.
  • Exterior lighting shall be dimmable, operate with motion sensors and have photocell control to shut off during daylight hours.
  • Occupancy sensors shall be hard wired.

.5 METERING AND CONTROLS
  • Facilities to have dedicated, electricity and water metering and/or sub-metering.
  • Where a Facility occurs in a mixed-use building, meters and/or sub-meters are to be located in service rooms that are easily accessible to the staff of the Facility.
  • Confirm control types needed in each facility.

.6 COMMUNICATIONS SYSTEM
  Section reserved.

.7 SERVICE & CUSTODIAL SPACES
  • Provide a separate lockable janitor room with floor sink, space for storing bucket, mops, brooms, vacuum, ladder, supplies for cleaning, shelves for paper products, light bulbs, etc. This requirement may vary based on the facility. Confirm with CoV project manager.
  • Provide separate, lockable mechanical and electrical rooms to safely accommodate items such as hot water tanks, sprinkler trees, electrical panels, data, telephone and security equipment panels, gas, water or hydro meters and any other mechanical or electrical equipment that needs to be accommodated within the facility. Access to these rooms should not be from within the washroom.

.8 LIFE SAFETY AND SECURITY

Fire Alarm, where required by building and fire codes:
  • Coordinate set-up of fire alarm monitoring with the monitoring company of the City’s choice - to be confirmed for each Facility.

Fire and Life Safety Plans
  • Fire safety plans where required, to be reviewed with the Operator prior to submitting to the Fire Department at Occupancy.
- Ensure a copy is provided to the City of Vancouver with the operations and Maintenance Manuals.

Security
- Security requirements shall vary and be confirmed for each facility with the Project Manager.

2.5 INTERIOR CONSTRUCTION

Note: All references to acceptable manufacturers/products are open to consideration of approved alternatives.

.1 WALLS
- Walls in wet areas: To be painted/sealed concrete and/or concrete block, or some other durable waterproof material. Frame walls are acceptable if constructed of steel studs on a 200mm (8”) concrete or concrete block upstand. Frame walls shall be sheathed with cement board, not moisture resistant gypsum wallboard, and clad with a durable and washable finish such as ceramic/porcelain tile. Use a dark colored epoxy grout.
- Walls in showers shall have a porcelain tile finish, floor to ceiling, on concrete block or cement board. Use a dark colored epoxy grout.
- A non-sacrificial anti-graffiti coating must be applied to all concrete, concrete block, brick or tile finish walls.
- In non-wet areas, where use of wood frame walls is the best solution, these walls to be constructed on a minimum 200mm (8”) concrete or concrete block upstand wall. Gypsum wall board shall not be used as a finish below 1200mm (4’-0”). Stainless steel or some other durable hard wearing material such as porcelain tile or masonry shall be used. Standard gypsum based products are not acceptable. All wall board products shall be mould and impact resistant (heavy duty applications).
- All walls in public washroom areas including concrete and masonry to have a durable and washable finish.
  Gloss levels:
  - Walls and ceilings to be G5 (semi-gloss) for washability.
- Tile: porcelain tile installation to be in accordance with the recommendations of the Terrazzo Tile and Marble Association of Canada.
- Concrete or masonry walls shall be painted with graffiti resistant paint.
- Provide adequate blocking in walls at all plumbing, millwork, washroom accessory and other locations as necessary to securely anchor and support the loads of the fixture or fitting.
.2 FLOORS

- Use hard wearing, durable materials that are easily maintained in public areas. All finish materials shall be non-slip, hard wearing and durable as well as easily maintained. Acceptable finishes include exposed sealed concrete, sheet rubber, non-slip quarry or porcelain/quarry tile, and terrazzo. All resilient flooring must have heat welded seams. Use dark coloured epoxy grout in tile floors.
- Concrete finished floors shall be placed on a waterproof membrane running a minimum of four (4) feet up the walls.
- Floors to be sloped to drain with a minimum slope of 2% (1/4” per foot). The entire perimeter of the floor must be at a constant elevation with all slopes directed towards drains located away from foot traffic. This allows the floor finish to continue up the walls to a common datum.
- Consider the use of Portland Limestone Cement, a product that has similar performance as Ordinary Portland Cement but with lower CO2 emissions in its production.
- Integral cove base is required for all finish floor materials to a minimum height of 150mm (6”). Concrete finished floors shall have concrete cove base not rubber base.
- A non-sacrificial anti-graffiti coating may be applied to concrete or tile finish floors as suitable for the washroom type. The coating must not create a slip hazard.
- Use dark colored epoxy grout in porcelain/quarry tile floors.
- Floor finishes of non-slip porcelain/quarry tile shall have porcelain/quarry tile integral baseboard, not rubber base, to a minimum of 150mm (6”) AFF. Provide multiple 150mm (6”) drains as required.
- Locate floor drains away from the path of travel in locations where people have to walk or stand, such as under toilet partitions and vanities.
- For floor drains, use drains with a 200mm body and collar assembly to clamp the waterproof membrane in place. Extend the water proof membrane 600mm beyond all sides of the drain.
- Floor drain strainers to be polished nickel bronze type with bronze tamper-resistant screws. Cast iron strainers can be used in service areas such as janitor closet and mechanical rooms. All drains to have a primer line. Ensure proper access to the trap primer lines by installing lockable access doors.
- Use adhesives and sealants that have low VOC levels per LEED® requirements listed under credit 4.1 “Low-Emitting Materials, Adhesives and Sealants”.

.3 CEILINGS

- All washrooms to have ceiling finishes that are washable.
- Do not use moisture resistant gypsum board in shower ceilings. Use cement board or other appropriate waterproof backerboard ceiling material. Exposed sealed concrete is also acceptable. Slope the ceiling a minimum of 1% to allow condensation to run off.
- Do not use T-bar ceiling. Expose ceiling structure (such as wood decking or concrete) only when aesthetically pleasing or use moisture resistant 16mm (5/8”) gypsum board. Ceilings should be as high as practical.
- Painted ceilings shall be of low VOC alkyd enamel paint.
- Exposed wood ceilings shall be finished with water-based oil-modified polyurethane or paint.

.4 DOORS

- Wood doors to meet AWMAC requirements for millwork (refer to 3.4 Architectural Millwork).
- Interior room doors shall be constructed of 1 3/4” solid wood core, not particle board core, paint grade in pressed steel frames.
Doors in wet areas shall be hollow metal doors and frames galvanized using the G90 process. Wipe coat galvanizing is not acceptable.

In extremely wet or corrosive conditions use stainless steel doors, frames and hardware.

.5 HARDWARE

- All hardware to be commercial grade, heavy duty.
- All hardware to meet accessibility requirements.
- Door Handles:
  - Main door of interior washrooms: Push and pull hardware
  - Main door of exterior washrooms: Push and pull hardware with deadbolt lockable with key only both sides.
  - Toilet rooms: Push and pull hardware with deadbolt, lockable with thumb turn on the inside, key outside.
  - Coordinate required level of extra security with end user.
- Hinges: Stanley/ Monthard/ Hager/ McKinney (Doors over 7 ft. shall have a minimum of 4 hinges.) Swing away hinges are an acceptable way to increase existing doorway widths. Hinges shall be ball bearing-type or continuous hinge for strength and durability.
- Door Closers: commercial heavy duty by LCN / Sargent / Corbin / Norton; shall be provided for all washrooms and toilet rooms; hold-open device for main washroom doors
- Electronic door control: Automatic opener. Acceptable manufacturer: Camden Door Controls
- Locks shall be mechanical, not electronic with Best Standard cores or approved alternative.
- Lock Cylinders: Best Standard (ME603) or approved alternative
- Deadbolts: Best T Series Tubular Deadbolts (Best 83 - ME603) or approved alternative.
- Punch code locks shall be KABA Commercial: mechanical pushbutton mortise lock Simplex 8100 or approved alternative.
- Janitor and service rooms to have “storeroom” function.
- Door Stops, Swings and Holders: Install overhead stops, wall stops and floor stops where required to prevent damage to walls, etc. from door contact. Confirm with FPD or Parks project manager.
- Kick plates and push plates are required on the push side of all doors with closers and at all storage room doors.

.6 MILLWORK

Construction / Quality:

- For woodwork, to be in accordance with the latest edition of the “Quality Standards for Architectural Woodwork” as published by AWMAC (Architectural Woodwork Manufacturers Association of Canada), for wet applications, except as noted below.
- All materials to be formaldehyde free.
- Use wood certified in accordance with the Forest Stewardship Council’s Principles and Criteria if it is competitively priced with non-certified wood.
- Use adhesives and sealants that have low VOC levels per the LEED® requirements listed under credit 4.1 “Low-Emitting Materials, Adhesives and Sealants”.

Vanity Countertops:

- To be moisture resistant 19mm (3/4”) exterior grade plywood, with heavy duty plastic laminate or other solid surfacing material. Particle boards are not acceptable.
- Countertops to be post-formed with 150mm (6”) backsplash and rounded edges; provide intermittent bracket support under unsupported spans over 914mm.
- Exposed 90 degree corners to be rounded, all edges shall be eased.
- Acceptable materials: plastic laminate (post-formed edges), solid surface material or other (confirm requirements for each Facility).
- Wood shall not be used for counter top edges.
• Vanities must be enclosed below the counter top to protect the plumbing, infrared controls, soap dispensers etc. The enclosure must be easily removed for maintenance. Leg room for wheelchair accessibility must be provided as required by the VBBL.
• Alternative if budget allows: fully integrated stainless steel countertop with molded backsplash and continuous sink, supported by 3/4” exterior grade plywood sub-structure.

Backsplashes:
• All counters with sinks shall have minimum 100 mm (4") backsplashes and sidesplashes,
• Gypsum board with paint finish or vinyl wall covering is not acceptable.
• Acceptable materials: plastic laminate (post-formed), porcelain/quarry tile, glass or other (confirm requirements for each Facility).

.7 PLUMBING FIXTURES

• Plumbing fixtures shall generally be heavy duty, commercial grade, durable and have parts readily available for ease of maintenance.
• Each plumbing fixture to have its own shut-off valve
• Plumbing fixtures and fittings to be water saver low consumption.
• Access doors of an adequate size shall be installed for all valves, clean-outs, etc. and be readily accessible. Use stainless steel doors when adjacent to floor finish, and all other moisture laden areas. Locate access doors so that they are easily accessible for maintenance. Do not locate them under fixtures. Use one large access door rather than several smaller access doors in locations with multiple access points.
• Isolation valves to be provided to isolate fixtures and separate washrooms.
• Plumbing fixtures shall have the following flow rates and flush cycles:

<table>
<thead>
<tr>
<th>Fixture</th>
<th>Flow Rate</th>
<th>Flush Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavoratory Faucet</td>
<td>1.9 L/min</td>
<td>Water Closet (tank) 4.8 L/flush</td>
</tr>
<tr>
<td>Shower Head</td>
<td>7.6 L/min</td>
<td>Urinal (tank) 1.9 L/flush</td>
</tr>
</tbody>
</table>

These standards exceed those as outlined in the 2014 VBBL.

• See Appendix B for samples of acceptable product fixtures. Consultants shall review and confirm the availability of products. Alternative products shall be submitted to the Project Manager for approval.

Faucets
• Use touchless infrared or manual automatic shut-off metering water saver faucets. Manual palm operated metering faucets meeting “accessible” requirements are preferable for low volume use in fieldhouses. Touchless infrared faucets are the preferred option in high volume use washrooms such as swimming pools and community centres.
• Infrared faucets shall be hard wired or solar re-charge battery operated.
• All faucets to have aerators for water conservation.
• Acceptable manufacturers: Delta, Sloan, Moen

Lavatories/Sinks
• Lavatories shall generally be vanity mounted, not wall hung, except in dedicated accessible washrooms for people with disabilities. (Wall hung sinks are subject to vandalism.)
• If wall hung lavatories are used in low vandalism areas then use an offset drain and concealed arm carrier with insulated supply and drain lines when required by the VBBL.
• In high vandalism or heavy use areas use stainless steel sinks.
• Exposed traps and drains shall be chrome plated steel with matching escutcheon plates on each water and drain line where they enter the wall. Black plastic drain assemblies are not acceptable.
• Continuous integral vanity/stainless steel sink shall be considered if budget allows. To be mounted on 3/4” exterior grade plywood sub-structure. Do not use particle board.
Acceptable manufacturers: American Standard, Kohler; for stainless steel, Kindred, Franke

Toilets
- Toilets to meet a Maximum Performance (MaP) Test of 1000g or better. Dual flush toilets have not performed well in public washrooms and are therefore not recommended.
- Maximum throat sizes shall be specified for all toilets.
- Floor mount type toilets are preferred in fieldhouses; wall hung toilets in high volume use facilities and where cleanliness is of particular importance such as swimming pools.
- All toilets shall have open seats.
- Generally flush valves are to be used unless there is an insufficient water supply. Manual flush shall be used in fieldhouses. Infrared flush valves shall be used in high volume use facilities. Electronic type flush valves shall be hard wired at 24V or be self-charging (disposable battery powered types not allowed).
- If a tank type water closet is used, specify a bolt down lid and pressure assisted tank.
- Installation of low-flush/high efficiency toilets with extremely long drainage distances may require evaluation on a site-by-site basis, especially if no supplemental flows (e.g., from Showers or baths) are available.


Urinals
- Use wall mounted urinals.
- One urinal in every set of urinals should be mounted at 500mm from the lip to the floor for use by children. The other urinals should be mounted at 600mm to the lip from the floor.
- Waterless urinals are not recommended. They have not performed well in institutional or public applications.

Utility Sink
- Provide a floor-mounted mop sink in each Janitor room, complete with approved backflow preventer valve.

.8 WASHROOM ACCESSORIES

The following list of surface mounted accessories shall be by Owner but shall be shown on the architectural drawings to establish location:
- Toilet tissue dispensers
- Soap dispensers
- Sanitary napkin dispensers
- Locking Sharps Container Cabinet will be supplied and managed by Vancouver Coastal Health (VCH). Locate as recommended by VCH (away from sink vanity and toilet stalls but be highly visible, mounted as recommended by manufacturer to prevent access by children).

No paper towel nor waste receptacles will be used. See section .9 Equipment and Specialties for hand dryer.

The following list of accessories is not necessarily required for all washroom facilities. Confirm with Project Manager. Accessories shall generally be robust (constructed of stainless steel) and securely mounted on solid (wood) backing.
- Grab bar: Use 32mm (1 ¼") diameter, 18 gauge stainless steel bars with a satin finish, grab areas should have a knurled finish. Provide appropriate substrate wall backing to support grab bar load. Sizes and locations as per VBBL.
- Shower rod, curtain and rings: Rod - 32mm (1-1/4") dia. satin stainless steel, 18 Ga.; Curtain - Opaque matt white vinyl .2mm thick with nickel plated grommets along one edge at 150mm o/c; Curtain hooks - stainless steel
- Shower Soap dishes: stainless steel with bright polished finish, recessed mounting.
- Shower seats: Hinged fold-up seat of type 304 stainless steel frame with self-locking mechanism and leg support; 1/2" thick solid phenolic seat; capable of carrying 900lbs of static load. Approved product: Bradley 958 Bench-Style Bariatric Shower Seat.
- Mirrors: In types A and B washrooms, shall be shatter-proof stainless steel instead of glass. To be securely anchored to solid backing in the walls or as recommended by the manufacturer. All fasteners shall be hidden or vandal-resistant.
- Mirrors: In type C washrooms, for large wall mirrors, use 6mm (¼") thick mirror (wall to wall over vanities). For small mirrors use 450 x 760mm (18" x 30") mirrors in a stainless steel frame. At least one mirror shall be mounted in such a manner to be usable by a person in a wheelchair.
- Provide a baby change table in one of each male, female and universal washroom. It may be a prefabricated item or a countertop with post-formed upturn edges. Acceptable product: Koala Kare surface mounted change station that supports static loads up to 200 lbs complete with child protection straps. Or pre-approved alternate.
- Provide appropriate substrate wall backing to support change table loads.
- Coat hooks shall be provided for toilet rooms.
- Confirm any other requirements for each Facility.
- Acceptable manufacturers: Bobrick, Georgia-Pacific Professional

.9 EQUIPMENT AND SPECIALITIES

Toilet partitions:
- Toilet partitions are particularly susceptible to vandalism and must be carefully selected. Do not use metal toilet stalls or urinal screens.
- For type C washrooms, use high pressure laminate on high density particle board; acceptable product: Bobrick 1040 series or pre-approved alternate.
- For type A and B washrooms, use solid phenolic or other solid composite material; acceptable product: Bobrick 1080/1180 series or pre-approved alternate.
- Use floor mounted overhead braced partitions.
- Hardware: shall be equipped with emergency release hardware allowing first responders to lift the doors off its hinges; heavy duty stainless steel with tamper-proof screws, concealed.
- Provide coat hook on doors.

Signage:
- Exterior signage to conform to the City of Vancouver Sign By-Law.
- Signage shall be provided for the following:
  - To identify the Facility
  - At entries
  - At service rooms
  - Other as required by specific facility
- Washroom and change room signage to conform to the City of Vancouver's standard signage for universal, functions-based designation
- Multilingual signs may be required (confirm requirements for each facility).
- Service rooms shall have “AUTHORIZED PERSONNEL ONLY” signs.
- Provide signage required by Building Code, including Fire and Life Safety Evacuation Plans.

Hand Dryer:
- Surface mounted, air powered, no heat, all metal construction. Acceptable product: Dyson Airblade V.
2.6 GARBAGE AND RECYCLING

- No garbage nor recycling shall be provided within washrooms. Any garbage and recycling will be accommodated either outside or within other areas of associated buildings.

3.0 APPENDICES

3.1 APPENDIX A: WASHROOM TYPES

- The following is a table outlining the types of washrooms that are to be considered when choosing construction materials and methods.
### APPENDIX A: WASHROOM TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Walls</th>
<th>Floor</th>
<th>Plumbing Fixtures</th>
<th>Other Fixtures/Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type A</strong> High Abuse-resistant/Vandal-proof Eg. Oppenheimer Park</td>
<td>graffiti-resistant finish on concrete or concrete block</td>
<td>graffiti-resistant finish on concrete</td>
<td>‘security’ grade fixtures; no wall hung fixtures; no electronic infrared fixtures</td>
<td>‘security’ grade fixtures and accessories: no use of glass mirrors</td>
</tr>
<tr>
<td></td>
<td>This washroom type must be constructed of very robust materials and fixtures; and must withstand ‘hose-down’ daily maintenance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type B</strong> Seasonal/Low-Medium Use Eg. Fieldhouses; beachhouses</td>
<td>graffiti-resistant finish on concrete or concrete block is preferred; other acceptable finishes: hose-downable stainless steel or other suitable finish, over waterproof membrane for frame walls, minimum of 4 feet above the floor; painted or ceramic/porcelain tile above 4 feet acceptable</td>
<td>graffiti-resistant finish on concrete</td>
<td>heavy duty commercial grade; toilets to be wall or floor mounted; no electronic infrared fixtures</td>
<td>heavy duty commercial grade; no use of glass mirrors</td>
</tr>
<tr>
<td></td>
<td>This type of washroom opens directly to the outside; needs to be vandal-resistant and made of materials that require minimal maintenance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type C</strong> Conventional Use: Washrooms within other buildings and accessed from within the building. Eg. QE Bloedel Conservatory</td>
<td>washable finishes on waterproof frame walls are acceptable such as ceramic/porcelain tile, stainless steel or other metal panel, cement panels, a minimum of 4 feet above the floor;</td>
<td>graffiti-resistant finish on concrete; heavy duty resilient flooring, porcelain/quarry tile, terrazzo flooring are acceptable</td>
<td>heavy duty commercial grade; wall mounted toilets are preferable</td>
<td>heavy duty commercial grade; glass mirrors can be used</td>
</tr>
<tr>
<td>Type</td>
<td>Walls</td>
<td>Floor</td>
<td>Plumbing Fixtures</td>
<td>Other Fixtures/Accessories</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>--------------------</td>
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<tr>
<td></td>
<td>painted GWB above 4 feet acceptable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type D</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unique Situations/Temporary Use</td>
<td>special construction/pre-fab</td>
<td>special construction/pre-fab</td>
<td>special construction/pre-fab</td>
<td>special construction/pre-fab</td>
</tr>
</tbody>
</table>

Innovative solutions are needed for situations where there is limited or no access to water/sewer systems; for temporary use.

Please note that all requirements in the table above shall be confirmed with the City’s representative and/or project manager for specific projects.
3.2 APPENDIX B: SAMPLE ACCEPTABLE PLUMBING PRODUCTS
AFWALL® MILLENIUM™ FloWise® ELONGATED FLUSHOMETER TOILET

- Wall-mounted flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 0.9 gpf to 1.3 gpf (4.2 - 6.0 Lpf)
- Meets definition of HET (High Efficiency Toilet) when used with a high efficiency flush valve (0.9 gpf - 1.3 gpf or 1.07/0.9 gpf dual flush)
- Maximum Performance (MaP) score of 1,000 grams at 0.9 gpf - 1.3 gpf (4.2 - 6.0 Lpf)
- Permanent EverClean® antimicrobial surface inhibits the growth of stain- and odor-causing bacteria, mold, and mildew on the surface
- Condensation channel
- Concealed trapway design
- Elongated bowl
- Powerful direct-fed siphon jet action
- 1-1/2” (38mm) inlet spud
- Fully glazed 2-1/8” (54mm) trapway
- 10” x 12” (254 x 305mm) water surface area
- Static weight load of 1,000 lbs* (454 kg)
- 100% factory flush tested

(Flushometer valve & seat shown not included)

- Elongated bowl only, top spud
- Elongated bowl only, top spud with slotted rim for bedpan holding
- Elongated bowl only, back spud
- Elongated bowl only, back spud with slotted rim for bedpan holding

System MaP* Score:
- 1,000 grams of miso @ 0.9 gpf to 1.3 gpf (4.2-6.0 Lpf) when used with an American Standard flush valve

* Maximum Performance (MaP) testing performed by IAPMO R&T Lab. MaP Report conducted by Veritec Consulting, Inc. and Koeller and Company.

Component Parts:
- Inlet spud (furnished with bowl) 047007-0070A

Nominal Dimensions:
660 x 356 x 381mm (26" x 14" x 15")
Fixture only, less seat and flushometer valve
Recommended working pressure-between 25 psi at valve when flushing and 80 psi static.

Meets or Exceeds the Following Specifications: Compliance Certifications -
- ASME A112.19.2M for Vitreous China Fixtures
- CAN/CSA International B45.1

* This product is not recommended for bariatric use.

To Be Specified:
- Colour: White
- Seat:
  - American Standard #5905100 Extra heavy duty open front less cover with stainless steel check hinge
  - #5905110 Same as above, with EverClean® surface
- Flushometer Valve for Top Spud:
  - 1.3 gpf (6.0 Lpf) American Standard:
    - Sensor-Operated Selectronic®:
      - DC Power #6065161.002, AC Power #6067161.002
      - Manual: #6047161.002
  - 1.07 gpf (4.8 Lpf) American Standard:
    - Sensor-Operated Selectronic®:
      - DC Power #6065121.002, AC Power #6067121.002
      - Manual: #6047121.002
  - 1.3 / 0.9 gpf (6.0/4.2 Lpf) Dual Flush American Standard:
    - Sensor-Operated Selectronic®:
      - DC Power #6065761.002, AC Power #6067761.002
    - DC Power #6065721.002, AC Power #6067721.002
- Flushometer Valve for Back Spud:
  - 1.3 gpf (6.0 Lpf) American Standard Rear Access:
    - DC Power #6065262.007, AC Power #6067262.007
  - 1.3 gpf (6.0 Lpf) American Standard Front Access:
    - DC Power #60652362.007, AC Power #6067326.007
  - 1.07 gpf (4.8 Lpf) American Standard Rear Access:
    - DC Power #6065222.007, AC Power #6067222.007
  - 1.07 gpf (4.8 Lpf) American Standard Front Access:
    - DC Power #60652322.007, AC Power #6067322.007

NOTE: Roughing-in information shown on reverse side of page
AFWALL® MILLENNIUM™ FloWise®
ELONGATED FLUSHOMETER TOILET
VITREOUS CHINA with EVERCLEAN®

3351 101/3352 101

NOTES:
● Toilet designed to meet Barrier Free B651.12 accessibility standards with seat height set at 432 to 483mm (17" to 19") from finished floor.

PRODUCT 3351 101 SHOWN, 3352 101 SAME AS EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.
PRODUCT 3353 101 SHOWN, 3354 101 SAME AS EXCEPT WITH SLOTTED RIM FOR BED PAN HOLDING.

Waste outlet seal ring must be neoprene or graphite-felt (wax ring not recommended).

Suggested 2mm (1/16") clearance between face of wall and back of bowl.

To comply with area code governing the height of vacuum breaker on the flushometer valve, the plumber must verify dimensions shown for supply roughing.

Flushometer valve not included with fixture and must be ordered separately.

Carrier as required to be furnished by others.

Provide suitable reinforcement for all wall support.

Important: Dimensions of fixtures are nominal and may vary within the range of tolerance established by ANSI Standard A112.19.2

These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.
WASHBROOK™ FloWise® UNIVERSAL URINAL

- Vitreous china
- Ultra High Efficiency, Low Consumption operates in the range of 0.10 to 0.8 gpf (0.5 to 3.8 Lpf)
- Flushing rim
- Elongated 14-1/8" (360mm) rim from finished wall
- Washout flush action
- Extended sides for privacy
- 3/4" inlet spud
- Outlet connection threaded 2" inside (NPTF)
- 2 Wall hangers
- Fixture only, (Flush valve shown not included)
- Meets ANSI flush requirements at 0.10 to 0.8 gpf (0.5 to 3.8 Lpf)

6590 001 Universal Top Spud
6515 001 Universal Back Spud

Nominal Dimensions:
480 x 360 x 664mm
(18-7/8" x 14-1/8" x 26-1/8")

Recommended working pressure--between 20 psi at valve when flushing and 80 psi static.

Meets or Exceeds the Following Specifications:
Compliance Certifications -
- ASME A112.19.2-2008/CSA B45.1-08 for Vitreous China Fixtures

To Be Specified
- Colour: White
- White
- Bone
- 0.8 gpf/3.8 Lpf Flush Valve: Sensor-Operated:
  - Selectronic® 6063101.002 DC Power (Top Spud)
  - Selectronic® 6062310.007 AC Power (Back Spud)
- 0.8 gpf/3.8 Lpf Flush Valve: Manual-Operated:
  - 6045101.002
- 0.4 gpf/1.9 Lpf Flush Valve: Sensor-Operated:
  - Selectronic® 6063051.002 DC Power (Top Spud)
  - Selectronic® 6062305.007 AC Power (Back Spud)
- 0.4 gpf/1.9 Lpf Flush Valve: Manual-Operated:
  - 6045051.002
- 0.10 gpf/0.5 Lpf Flush Valve: Sensor-Operated:
  - Selectronic® 6063013.002 DC Power (Top Spud)
  - Selectronic® 6062301.007 AC Power (Back Spud)
- 0.10 gpf/0.5 Lpf Flush Valve: Manual-Operated:
  - 6045013.002
- Stainless Steel Strainer: 047068-0070A

NOTES:
FLUSH VALVE NOT INCLUDED AND MUST BE ORDERED SEPARATELY.
PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

When installed so top of rim is 387mm (15-1/4") from finished floor. MEETS THE AMERICAN DISABILITIES ACT GUIDELINES AND ANSI A117.1 ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES - CHECK LOCAL CODES.

COM-210
© 2011 American Standard
MODEL #  COLOR #

1950/1950SS  ____________

DESCRIPTION:
Open front with cover, elongated, heavy-duty, injection molded solid plastic toilet seat. Features four molded-in bumpers, color-matched Top-Tite® hinges with non-corrosive, top-tightening Hex-Tite™ bolts and wing nuts (1950) or non-corrosive 300 Series stainless steel self-sustaining hinges (1950SS). This seat complies with IAPMO/ANSI Z124.5-2013 Plastic Toilet Seats as a class Commercial Heavy Duty.

SPECIFICATIONS:
Size: Elongated
Material: Plastic
Style: Open Front with Cover
Bumpers: Four
Hinges: Plastic Top-Tite® (1950) or 300 Series Stainless Steel Self-Sustaining (1950SS)
Fastening System: Non-Corrosive Hex-Tite™ Bolts and Wing Nuts (1950) or 300 Series Stainless Steel Hardware (1950SS)

FEATURES:
Top-Tite® (1950) or 300 Series Stainless Steel Self Sustaining (1950SS) Hinges
Non-Corrosive Hex-Tite™ Bolts and Wing Nuts (1950) or 300 Series Stainless Steel Hardware (1950SS)

DIMENSIONS:

![Dimensions Diagram](image)
**MODEL #** | **COLOR #**
---|---
1055/1055SSC | 

**DESCRIPTION:**
Open front less cover, elongated, heavy-duty, injection molded solid plastic toilet seat. Features two molded-in bumpers, non self-sustaining (1055) or self-sustaining (1055SSC) check hinges with non-corrosive 300 Series stainless steel posts, pintles and hardware. This seat complies with IAPMO/ANSI Z124.5-2013 Plastic Toilet Seats as a class Commercial Heavy Duty.

**SPECIFICATIONS:**
- **Size:** Elongated
- **Material:** Plastic
- **Style:** Open Front less Cover
- **Bumpers:** Two
- **Hinges:** Plastic Non Self-Sustaining (1055) or Self-Sustaining (1055SSC) with 300 Series Stainless Steel Posts and Pintles
- **Fastening System:** Non-Corrosive 300 Series Stainless Steel Nuts

**FEATURES:**
Non-Corrosive 300 Series Stainless Steel Posts, Pintles and Nuts

**DIMENSIONS:**

---

![Diagram of the seat dimensions](image)
Model No: 86T1153

**COMPLIES WITH:**
- CSA certified
- Complies to ASME A112.18.1/CSA B125.1
- Indicates compliance to ICC/ANSI A117.1
- Verified compliant with 0.25% weighted average Pb content regulations
- (Contact Delta Representative for State and/or Local Approvals)

**SPECIFICATION:**
- Heavy duty 4" cast mixing metering centerset
- No pop-up hole
- Two handle
- Vandal resistant colour coded tip action lever handles
- Vandal resistant handle actuator and spout outlet
- Total flow not to exceed 0.25 gallons per handle activation
- Polished chrome plate finish
- Delta® slow close cartridge
- Note: Run time affected by water pressure and temperature
- Use of Check Valves or check stops recommended to prevent possible cross-flow
- Less Pop-up

**OPERATION:**
- Not Available

*(Dimensional drawing on following page)*
INLET FOR 3/8" 1/2" FLEXIBLE RISER OR 1/2-14 NPSM COUPLING NUT (NOT SUPPLIED)
Regal® XL Model OPTIMA®
Sensor Activated Flushometers
186-0.5 XL ES-S

► Code Number
3582654

► Description
Exposed, Sensor Activated Regal® XL Model Urinal Flushometer, for ¾" top spud urinals.

► Flush Cycle
☐ 0.5 gpf/1.9 Lpf

► Specifications
● Chrome Plated Exposed Flushometer Parts
● Spud Coupling and Flange for ¾" Top Spud
● Control Stop Plug
● Vacuum Breaker Flush Connection
● Low Consumption flush accuracy controlled by Para-Flo™ Technology
● Quiet, Exposed, Diaphragm Type, Chrome Plated Urinal Flushometer for either left or right hand supply with the following features:
  ● OPTIMA® EL-1500 Self-Adaptive Infrared Sensor with Indicator Light
  ● 13 1⁄2" x 13 1⁄2" Wall Box with Stainless Steel Access Panel and Vandal Resistant Screws
  ● 13” x 17” EASY ACCESS® Wall Box with Stainless Steel Access Panel and Vandal Resistant Screws
  ● Stop Seat and Vacuum Breaker molded from PERMEX® Rubber Compound for Chloramine Resistance

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037 and ANSI/ASME 112.19.2.

● 3/4” L.P.S. Wheel Handle Bak-Chek® Angle Stop

► Automatic Operation
Sloan OPTIMA® equipped Flushometers provide the ultimate in sanitary protection and automatic operation. There are no handles to trip or buttons to push. The Flushometer operates by means of an infrared sensor that adapts to its surrounding. Once the user enters the sensor’s effective range and then steps away, the Flushometer Solenoid initiates the flushing cycle to flush the fixture.

► Hygienic
User makes no physical contact with the Flushometer surface except to initiate the Override Button when required. Helps control the spread of infectious diseases.

► Economical
Automatic operation provides water usage savings over other flushing devices. Reduces maintenance and operation costs.

► Practical
Solid state electronic circuitry assures years of dependable, trouble-free operation. The operational components of the Flushometer are identical to a handle operated Regal® XL Flushometer.

► Compliance & Certifications

This space for Architect/Engineer Approval

SLOAN 10500 SEYMOUR AVE. ● FRANKLIN PARK, ● IL. 60131
Ph: 1-800-9-VALVE-9 or 1-847-671-4300 ● Fax: 1-800-447-8329 or 1-847-671-4380 ● http://www.sloan.com

2018-11-01
**Control Circuit**
- Solid State
- 8 Second Arming Delay
- 24 VAC Input
- 24 VAC Output

**Solenoid Operator**
24 VAC, 50/60 Hz

**Sensor Range**
Nominal 15”-30” (381 mm-762 mm), adjustable ± 8” (203 mm)

**OPERATION**

1. A continuous, invisible light beam is emitted from the OPTIMA® Sensor.

2. As the user enters the beam’s effective range (15” to 30”) the beam is reflected into the OPTIMA® Scanner Window and transformed into a low voltage electrical circuit. Once activated, the Output Circuit continues in a “hold” mode for as long as the user remains within the effective range of the Sensor.

3. When the user steps away from the OPTIMA® Sensor, the circuit immediately initiates an electrical “onetime” signal that operates the Solenoid. This initiates the flushing cycle to flush the fixture. The Circuit then automatically resets and is ready for the next user.

**ROUGH-IN**

**ELECTRICAL BOX INSTALLATION**

Failure to properly position the electrical boxes to the plumbing rough-in will result in improper installation and impair product performance. All tradesmen (plumbers, electricians, tile setters, etc.) involved with the installation of this product must coordinate their work to assure proper product installation. Installation Template furnished with Flushometer.

To ensure a perfect rough-in, Sloan recommends the use of the EL-485-A Flushometer Electrical Box Positioning and Support Kit. Specify and order the EL 485-A Kit separately. Consult factory for installation details.

**WIRING DIAGRAM**

One Transformer serves up to ten (10) OPTIMA Closet/Urinal Flushometers. Specify number of transformers required accordingly.