

## 1.0 **GENERAL**

### 1.1 **Related UBC Guidelines & Documents**

- .1 Section 10 21 13 Toilet Compartments
- .2 Section 20 00 05 Mechanical - General Requirements
- .3 Section 22 00 00 Plumbing (and all subsections)
- .4 All other Tech Guidelines as may be applicable to a given project.

### 1.2 **Related Documents External to UBC**

- .1 BC Plumbing Code and all references contained there within
- .2 BC Building Code and all references contained there within
- .3 Work Safe BC Occupational Health and Safety Regulation
- .4 BC Building Access Handbook
- .5 ANSI Z358.1 Eyewash Standard

### 1.3 **Description**

- .1 The Guidelines apply to all work completed within buildings on both UBC Vancouver and UBC Okanagan campuses unless stated otherwise.
- .2 In instances where conflicts are found between these guidelines and provincial regulations or codes, please notify UBC Mechanical Engineer.
- .3 These guidelines are intended to be read by designers and their content integrated into construction drawings and specifications. Construction documents are not to reference the technical guidelines directly.
- .4 It is the requirement of the mechanical designer to coordinate these requirements with other disciplines.

## 2.0 **MATERIAL AND DESIGN REQUIREMENTS**

These are requirements specific to UBC that may not exist in code or other jurisdictions. Any deviation from these guidelines requires a variance be granted.

### 2.1 **Design Requirements**

- .1 Locking Frost proof hose bibs shall be installed. At least one on each major building face.
- .2 Washroom fixtures:
  - .1 All urinals shall be wall-hung. (Refer also to Section 10 21 13 Toilet Compartments, Sentence 2.1.2.)
  - .2 If 'No-touch' motion detector-activated plumbing fixtures and accessories are used for faucets and urinals then they shall be hard-wired.
  - .3 Waterless urinals are not acceptable
  - .4 Dual flush toilets may be used for residential installations only, not for institutional or public buildings.

- .3 Emergency eye wash stations and showers:
  - .1 Emergency water at all emergency showers and eyewashes supply shall be tempered to comply with *WSBC* and *ANSI Z358.1*. Recirc lines shall be run as close as practically possible to the thermostatic mixing valve.
  - .2 Emergency showers/eye wash stations shall have 'stay open', hand controlled valves.
  - .3 If practical, provide floor drains under all emergency showers and eye wash stations that are prone to spilling on the floor. Alternatively, provide floor drains within the vicinity such that water is unable to build up to a depth which can damage the building and to assist with cleanup. Floor drains should have trap primer.
  - .4 Eye wash shall be specified as eye wash only not face and eye wash combination.
  - .5 Emergency shower/eye wash isolating valves shall not be readily accessible to the user.
  - .6 Shall be compliant with *ANSI Z358.1* Eyewash Standard.
  - .7 Label fixtures as per below abbreviations:
    - EEW Emergency Eye Wash Station
    - EFW Emergency Eye / Face Wash Station
    - ESH Emergency Shower Station
    - ESC Emergency Eye / Face Wash and Shower Combination
    - EDH Emergency Drench Hose Unit
  - .2 [All eye wash stations and showers shall be tested by the projects which install them as part of the commissioning process such that they do not require an annual recertification until one year after project completion.](#)
- .4 Drinking fountains
  - .1 All buildings over 600 gross square meters shall have at least one accessible drinking water fountain, located in a public area.
  - .2 For all new buildings, drinking water fountains shall be located inside buildings at level one entrance lobbies and should be visible from the exterior.
  - .3 Drinking water fountains to be installed on the shortest dead leg possible off of a line that is flowing regularly. This line would preferably be serving a washroom.
  - .4 The drinking water fountain shall NOT be cooled.
  - .5 Drinking water fountains shall NOT have filters and hence no backflow preventers will be required.
  - .6 Drinking water fountains shall feature a water bottle filler. One way to specify this is for a deck mounted one-hole spigot, installed onto the fountain. An appropriate fountain/spigot combination needs to be specified to avoid splashing.
    - .1 Touchless bottle filler stations that require electrical connections and have additional service requirements are NOT preferred.
  - .7 All water fountains must be barrier free and conform to the latest requirements of the Building Access Handbook
- .5 Domestic water dispensing and filtration equipment is not preferred by UBC Facilities. However, it is acceptable provided that the below requirements are met. It is the responsibility of designers to ensure that their clients are aware of their responsibilities for damage as per the below.

- .1 The installation of water dispensing/filtration equipment for office and kitchenette type areas is acceptable provided that a UBC Plumbing permit is obtained. An approved backflow device must be installed as per Section 22 11 18 Backflow/Cross Connection Control to prevent water from being drawn out of the filter system back into the water supply line.
  - .2 The installation costs of a domestic water filtration/dispensing device and the associated recurring maintenance such as sanitization and filter changes are the sole responsibility of the client and should be managed with an outside service provider.
  - .3 Property damage resulting from equipment failure and/or auxiliary supply lines installed by a vendor downstream of a UBC domestic cold water isolation valve will be the sole responsibility of the client and/or service provider.
  - .4 All water filtration and dispensing devices must be CSA approved and meet all requirements of the BC plumbing Code.
  - .5 Saddle style valves are not permitted to be installed on UBC water services by outside service providers. On a client funded basis, UBC Building Operations may install a domestic cold water tie in location and isolation valve for the purpose of supplying water to a filtration/dispensing device.
  - .6 Canister style water filter units must be of metallic constructions and units that consist of multiple filter elements be either homogenous in their design or interconnected with brass NPT pipe nipples (e.g. EverPure). Interconnection of filter housings using plastic tubing and fittings is not acceptable.
  - .7 Piping downstream of a UBC supplied shutoff valve to a filtration/dispensing device must be connected with FIP or MIP style fittings. Other flexible supply lines may be considered (see Auxiliary Supply Lines).
  - .8 Auxiliary supply lines connecting a filtration/dispensing to a UBC shut off valve device are to be soldered copper, Uponor or flexible copper furnished with brass compression style fittings. Plastic tubing and plastic quick connect fittings are not acceptable. Auxiliary supply lines should NOT exceed 5 feet in length and routing is not permitted in wall cavities, ceiling spaces or areas susceptible to abrasion and or mechanical damage.
- .6 Roof drains
    - .1 Provide minimum of two (2) roof drains to all major roof areas (>800sqft) as insurance against clogging and flooding (e.g., 2 at 75 mm diameter preferred even if 1 at 100 mm diameter will do). This does not negate the BCBC requirement for scuppers.
  - .7 Mechanical room floor drains
    - .1 Specify drains large enough to receive indirect equipment drains into their bodies such as “floor sinks” or “hub drains”. In many cases on campus, indirect drains open-end above regular floor drains or simple funnel drains and as a result they splash or discharge over the floor leading to leaking floors and mechanical rooms which are in poor condition.

## 2.2 Construction and Material Requirements

- .1 New or replacement fixtures shall meet water efficiency performance requirements in Table 1.0. The table also shows comparative reference points in other standards and codes.
- .2 Flush tank toilets shall have an MaP score  $\geq 350$  as tested by IAPMO R&T (map-testing.com).



**Table 1.0. Fixture Water Efficiency Requirements**

The table below is based on the current National Plumbing Code. In some cases, these flow rates are more stringent than what is in the current BC Plumbing Code. These rates are minimums and higher performance fixtures are acceptable depending on project requirements (i.e. LEED).

<b>Fixture</b>	<b>Requirement (Maximum Volume or Flow Rate)</b>	<b>Notes</b>
Residential toilets	4.8 litres/flush or dual flush at 6.0/4.1 litres/flush	
ICI Toilets	6.0 litres/flush	Lower flush rates will be accepted when they are required by LEED as a mandatory requirement only.
Urinals	1.9 litres/flush	
Shower head	5.7 litres/minute	
Kitchen Faucet (except ICI)	6.8 litres/minute	
Lavatory Faucet – private	1.9 litres/minute	
Lavatory Faucet – public	1.9 litres/minute	Must have auto-shutoff

**\*\*\*END OF SECTION\*\*\***