

1.0 GENERAL

1.1 Related UBC Technical Guidelines

- .1 20 00 05 Mechanical - General Requirements
- .2 22 00 00 Plumbing (and all subsections)
- .3 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 CSA B64.10-.17 Selection and Installation of Backflow Preventers / Maintenance and Field Testing of Backflow Preventers

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 There is a cross connection control program in effect at the University and all installations shall be in accordance with the recommendations contained in the latest edition of the BC Plumbing Code.
- .2 RPBP Special Requirements:
 - .1 Provide a drain standpipe or tank below RPBPs relief ports such that discharge does not go onto the floor. The drain must be sized to accommodate the max possible, continuous discharge of the RPBP.
 - .2 RPBPs larger than 1" shall not be installed below the sanitary gravity discharge from the building. RPBPs larger than 1" shall not discharge to sump pumps without receiving an approved variance.

- .3 RPBPs larger than 3" shall be installed above grade, in rooms that are on building exteriors and their discharge shall daylight.
- .3 Water service entry:
 - .1 Two Backflow Prevention Assemblies piped in parallel are required at the water service entry to all buildings, to allow for servicing without having to completely isolate the water supply to the building.
 - .2 Whether a Reduced Pressure Backflow Assembly (RPBA) or alternate type of assembly is required will depend on the hazard category of the building in question.
 - .3 The parallel Backflow Prevention Assemblies must be designed to allow for peak design flow during normal operation and for one unit to be taken off line for servicing while maintaining 50% or greater peak flow.
- .4 Fire Protection Service Connection:
 - .1 A double check valve assembly, (DCVA), is required at Fire Protection service connections per British Columbia Building Code-Plumbing Services (part 7). An additional parallel DCVA is not required.
- .5 Irrigation Systems:
 - .1 A DCVA at the service connection is to be provided in accordance with the usage. Note: where a higher hazard exists (due to chemical injection), additional area protection with an RP Assembly is required.
- .6 Potable Water Systems:
 - .1 Backflow protection is required to be installed in local areas to protect potable water systems in buildings from labs and other hazardous water uses within the building.
- .7 Water Filters:
 - .1 An RPBA shall be installed immediately upstream of all water filters equal to, or greater than 25mm (1").
 - .2 A DCVA shall be installed immediately upstream of all water filters less than 25mm (1").
- .8 Chemical or Detergent Mixing Stations:
 - .1 An RPBA shall be installed immediately upstream of any chemical or detergent mixing station.
 - .2 These are present in most janitor rooms on campus by UBC, post construction. All janitor rooms should have RPBAs (hot and cold piping) as well as other project specific locations.

2.2 Construction and Material Requirements

- .1 All backflow prevention assemblies shall comply with the requirements of CSA B64.10-17

2.3 Testing and Commissioning Requirements

- .1 Following installation, prior to building turnover - a test report completed by a certified tester shall be submitted to the Owner, indicating satisfactory operation of each device.
 - .1 This report shall be included in the O&M manual submitted at the end of each project.
 - .2 The report shall be on UBC's standard format, located at https://technicalguidelines.ubc.ca/Division_22/Ref_materials/Backflow_Test_Form.pdf.

3.0 **LESSONS LEARNED & COMMON MISSES ON UBC PROJECTS**

Items in this section are not specific requirements of UBC but are code or industry best practices which have been missed on past jobs. These items should be considered in mechanical designs at UBC. However, if they're not applicable then a variance is not required.

- .1 RPBPs shall only be used where the building risk analysis deems they're required. Where possible use DCVAs as they are easier to maintain and pose less risk to the building (flooding).

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