

1.0 **GENERAL**

1.1 **Related UBC Guidelines & Documents**

- .1 Section 20 00 05 Mechanical - General Requirements
- .2 Section 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 Z -305.1. Non-Flammable Medical Gas Piping Systems.

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 Where specialty piping systems serve specific labs or research groups they shall generally be the lab user's responsibility. It shall be the responsibility of the lab, faculty or department to setup a maintenance contract with the appropriate, qualified contractor or setup a maintenance contract with UBC Facilities. These systems do not fall within the standard scope of UBC Facilities of core building systems. It is the responsibility of the designer to inform their clients of this and coordinate the delineation of scope and demarcation points with UBC Facilities and the clients such that all parties' expectations are in line, prior to construction.
- .2 For specialty water systems, local generating systems shall be used. Large central sources shall only be used with an approved variance. This includes but is not limited to distilled water, reverse osmosis, filtered water, de-ionized water, salt water.

2.2 **Construction and Material Requirements**

- .1 Acceptable Piping Systems
 - .1 Piping systems shall be selected suitable to the specific application. Care shall be taken to avoid proprietary piping systems wherever possible.

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 Local process loops. Some labs have local process loops separated from the base building system by heat exchangers or chillers. These loops may not be chemically treated and as a result appropriate piping systems need to be selected. This needs to be coordinated with the lab users as this equipment is typically maintained by the users.
- .2 In lab buildings it has been observed that appliances such as humidifiers, glass washers and ice makers are commonly connected to RO or DI water. In some cases, this may be appropriate but challenges that have been observed are:
 - .1 Sometimes the water is too pure for the appliances connected which can cause damage since ultrapure water is corrosive.
 - .2 Connecting to the specialized water systems subjects this equipment to additional shutdowns – RO and DI systems typically will have bi-annual shutdowns that are a few days long for system sanitization.
 - .3 Appropriate model of humidifier needs to be selected to match the purity water provided (level control in some devices isn't compatible with pure water... or even Vancouver city water it too pure in some cases).

Please avoid connecting to RO/DI water unless it's required. Also note that 2.1.2 of this guideline prohibits the use of central RO/DI systems so these should not be installed without a variance/consultation with Building Operations.

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