1.0 GENERAL

1.1 Related UBC Guidelines & Documents

.1 Section 23 00 00 HVAC (and all subsections)
.2 Section 20 00 00 Mechanical - General Requirements
.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

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 All condensate receivers shall have an overflow, piped to drain through a condensate cooler/quench tank.

.2 All condensate receivers and quench tanks shall be vented outside the building.

.3 Autoclaves
.1 Preference is for autoclaves that have unitary electric steam generators with automatic blow down to quench tanks.
.2 Central steam boilers shall only be considered in buildings with a very high density of equipment that requires process steam.

.4 This point and all sub-bullets for UBC Vancouver Only: Humidification shall only be provided where it has research impacts; for example some labs such as animal care have specific humidity requirements or areas that house art or rare books.
.1 In general, humidification shall not be provided for occupant comfort because Vancouver’s mild climate does not justify the added cost, complexity and energy.
2.2 Construction and Material Requirements

.1 Acceptable piping systems
   .1 Steam (treated with amines)
      .1 Schedule 80 Carbon Steel
      .2 Schedule 40 Carbon Steel
   .2 Condensate Return (treated with amines)
      .1 Schedule 80 Carbon Steel
   .3 Steam (clean, untreated)
      .1 304 Stainless steel
   .4 Condensate Return (treated with amines)
      .1 304 Stainless steel

.2 Insulation
   .1 Indoor piping
      .1 Insulation shall have paper wrap (even in existing mech rooms which have canvas)
      .2 Pre-formed PVC elbows

.3 No brass or bronze valves shall be used on steam systems.

.4 All steam systems shall include provisions for “double block and bleed” isolation. UBC Staff are unable to work on steam systems unless a double block and bleed isolation is in place.

.5 Unions shall be provided at regular spacing throughout steam systems so that any piece of equipment or valve can be replaced without having to substantially dismantle the system.

2.3 Testing and Commissioning Requirements

.1 *This point and all sub-bullets for UBC Vancouver Only:* This UBC Building Official shall be invited to witness all tests that are required by code or the tech guidelines.

.2 Hydraulically test steam and hydronic piping systems at 1-1/2 times system operating pressure.
   .1 Maintain test pressure without loss for 48hr.

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 Where central steam boilers are installed for process loads, the steam is typically treated with neutralizing amine chemicals to prevent damage to the condensate return lines. However, the use of amines may be un-acceptable in live steam humidification systems. As a result, consider separate systems for humidification and for process loads. Steam system designs need to indicate which boilers should be treated with amines.

***END OF SECTION***