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 CSA B52 describes signage requirements for machinery rooms. At UBC these signage requirements shall be extended to all mechanical rooms with central chillers. In addition to the information required by CSA B52, the signage shall include the following: "For assistance contact UBC Building Operations Service Centre: 604-822-2173".

.2 Refrigerant leak detector requirements are:
  .1 Visual and audible alarm inside the mechanical room and outside each door.
  .2 Refrigerant PPM display outside the mechanical room.
  .3 Signage on the door(s) indicating the equipment type, refrigerant type and quantity per TSBC Reqs.
  .4 Manual override button for the exhaust fan.
  .5 BMS to monitor the refrigerant detector alarm as well as the fan status.

2.2 Equipment Requirements

.1 See section 23 21 00 – Hydronic Systems for building level chiller requirements

.2 Use of domestic water cooled condensing units (i.e. once through cooling) is not permitted. This includes HVAC equipment as well as specialty lab equipment, cold rooms, ice makers and other similar devices.

.3 When VRF systems are used, the expectation is that they will generally have a standalone control system. Provide a manufacturer supported bacnet gateway and integrate into the Building Automation System for monitoring and alarms.

.1 If VRF systems are providing cooling to a critical space then provide a temperature sensor connected to the BMS for alarms only.

.4 VRF systems are not acceptable as a building wide solution for new buildings.

2.3 Construction and Material Requirements

.1 Brazed joints are required for all field installed refrigeration joints. Compression couplings aren't acceptable.

.2 All exterior refrigerant piping insulation shall have aluminum hard covers to protect the insulation from UV and birds.

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 Unitary refrigerant equipment such as terminal heatpumps, split systems and especially VRF systems often have higher maintenance cost and lower reliability compared to chilled water systems. These systems should only be used for targeted cooling or special applications such as retrofitting cooling on a relatively small scale.

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