1. **GENERAL**
	1. **Summary**
		1. Provide plumbing piping and accessories for a complete system.
	2. **References and Related BCIT Standards**
		1. American Society of Plumbing Engineers Design Guides.
		2. BC Building Code, Latest Edition (BCBC).
		3. BC Plumbing Code, Latest Edition.
		4. Burnaby Plumbing Bylaw and other plumbing bylaws that serve the other campuses besides Burnaby area.
	3. **Coordination Requirements**
		1. Coordinate work of this Section with BCIT Facilities Services and Project Services.
	4. **Submittals**
		1. Submit in accordance with Division 1 Requirements. Submit manufacturer’s product data sheets.
	5. **Quality Assurance**
		1. Perform work to Province of BC Plumbing Code, latest edition.
		2. Welding Materials and Procedures:
			1. Conform to ASME SEC IX and applicable provincial labour regulations.
		3. Conform to applicable latest local Code for installation of backflow prevention devices.
2. **PRODUCT AND DESIGN REQUIREMENTS**
	1. **Prohibited Materials**
		1. Do not use plastic drainage piping in the following locations:
			1. For underground sanitary, storm drainage if steam or condensate is drained to these systems, or can be drained into them in the future. (i.e. Commercial kitchen dishwasher discharge drainage).
		2. Do not use cellular ABS or PVC pipe under traffic areas with less than 750 mm cover.
		3. Do not use flexible (similar to Big O type) drainage piping.
	2. **General**
		1. Backflow/Cross Connection Controls:
			1. Include adequately sized local floor drains or catch basins required for the rated flow from the backflow prevention device.
		2. Specify floor drains for public washrooms where flushometers are used. Provide air dryers on compressed air systems. Specify auto-drain valves.
		3. Specify dual PRV's for services larger than 50 mm diameter, complete with a low flow PRV on a bypass pipe.
		4. Strainers:
			1. Provide fine stainless steel mesh strainers for domestic water systems in piping upstream of pressure reducing valves, backflow preventers and meters.
		5. Above Ground Storm and Sewer Piping: Provide cast iron pipe.
		6. Housekeeping Pads and Curbs: Provide 100 mm high curbs and 100 mm high pads under equipment and around pipe penetrations in mechanical rooms.
		7. Sanitary sumps within buildings must have gas tight covers and be individually vented to outdoors.
		8. Valves:
			1. Manufacturer's name and pressure rating marked on valve body.
		9. Domestic Hot Water Recirculation:
			1. Size system recirculation pumps as per American Society of Plumbing Engineers Design Guides. Maximum piping flow velocity shall not exceed 1 m/s.
		10. Domestic Hot Water Heating:
			1. Install non slam check valves in all cold water connections to domestic water heaters.
		11. Gas Shut-Off:
			1. Seismic shut off valve is required for all building main gas supply except with gas supply to emergency power supply generator supporting life safety facilities.
			2. Manual shut-off valve (easily accessible) is required for all laboratory gas installations.
	3. **Plumbing Piping**
		1. Potable Water Plastic Piping:
			1. Provide plastic piping for all domestic cold, hot water, and recirculated hot water systems conforming to ULC 102.2 Flame and Smoke Spread ratings. Acceptable products:
				1. IPEX AquaRise.
				2. Uponor AquaPEX.
				3. HeatLink PureLink PEXa.
				4. Viega PureFlo.
				5. Rehau RauPex Everloc.
				6. Aquatherm GreenPipe.
		2. Where practical, acid waste piping material such as polypropylene (Fuseal), Pegas or Zurn brand polypropylene corrosive waste piping is acceptable.
3. **EXECUTION**
	1. **Water Meters**
		1. Install make-up water connections to mechanical systems complete with water metering stations. Install water metering station into each piping connection to major building expansion and/or new building. Design of metering stations shall not include any by-pass around the stations.
	2. **Delivery, Storage, and Handling**
		1. Do not store PEX pipes outdoors.
		2. Mechanical Fitting System: Install PEX Piping connections in accordance with manufacturer’s recommendations and instructions. Ensure fittings are marked by a certified third-party agency such as NSF, IAPMO, CSA, ICC, UL or other third-party testing and listing agency.
	3. **Field Quality Control and Testing**
		1. Tests, correction of deficiencies, and retests are responsibility of Contractor. Perform after system installation has been completed and prior to system being put into continuous operation.
		2. Provide 48 hours’ notice to Consultant in advance of each set of tests, indicating in writing:
			1. Testing agency, schedule of tests, testing procedure, and type of measuring equipment.
			2. Obtain written approval prior to conducting tests, submitting detailed test reports to Consultant within seven (7) days of completion of test.
		3. Domestic water piping shall be pre-flushed, chlorinated and flushed again in accordance with AWWA C-601. Submit completion certificate from the testing firm to the Consultant.

\*\*\* END OF **PLUMBING PIPING** SECTION \*\*\*