



# Section 226700

# Processed Water Systems for

# Laboratory

## DESIGN GUIDE

## 1 General

### 1.1 General

- A. When required for program, water quality shall be documented in the specifications (ASTM type 1 or ASTM Type 2)

### 1.2 Qualifications

- A. Treatment manufacturer and installer shall have minimum 5 years' experience with manufacturer and service of equipment with similar characteristics and size within central or eastern Washington.

### 1.3 Maintenance Materials

- A. For piping systems that require special tools for installation of joints and fittings, review tooling requirements with CWU Mechanical Piping Manager to determine if CWU has tools for repairs in their stock. If not, specialty tools will be required to be provided with the contract and incorporated in the project documents.

### 1.4 Related Sections

- A. Section 223000 – Plumbing Equipment (Water Softeners)



## 2 Materials

### 2.1 Pure Water Systems

- A. Some processes in facilities (primarily laboratory facilities), may require Pure Water (RO/DI-Reverse Osmosis/Deionized Water systems).
- B. Pure Water Systems:
  - 1. Design systems with continuous flow (no dead ends) with fully recirculating piping up to the point of use with zero-static valves at each point of use. Return water shall circulate to the storage tank for continuous treatment of system water with circulated velocities in the 3-6 feet per second range for scouring of pipe.
  - 2. Treatment equipment: Consist of skid mounted treatment equipment that includes piping, valves, flow meters, RO units, carbon filters, deionized tanks, pumps, storage tanks, monitor lights, UV lights, conductivity meters, after filters, float and level switches. Equipment shall be arranged to allow for access and change out of DI tanks as well as components.
  - 3. Polishing units. Some spaces may require ultra-high purity. These zones may be equipped with a water purification unit that is serviced from the house pure water system. Water purification unit (water polishers) provided in Division 11 or Owner furnished.
- C. Piping: High purity polypropylene (or PVDF in return air plenums)

## 3 Execution

### 3.1 Testing

- A. Install piping with continuous channel support below piping (V or C channel).
- B. Clean and flush piping. Hydrostatically test of piping to 125 psig.
- C. Consider capture and re-use of wastewater from pure water treatment skids.



## **3.2 Start Up-Treatment Equipment**

- A. Contractor shall include factory authorized/warranted start-up.
- B. Submit start-up certificate with the O&M manuals.
- C. Provide one year service contract for first year of operation.

# **4 Appendix**

## **4.1 Reserved for future.**

