



Division 230553

Identification of HVAC and

Equipment

DESIGN GUIDE

1 General

1.1 General

- A. CWU is in the process of developing of an RFID equipment labeling plan (August 2022). Consult with mechanical plumbing manager on status of labeling plan and incorporate into project when available.
- B. All numbering designation must correspond to CWU preventative maintenance program. CWU is in the process of creating a numbering and RFID tagging system (August 2022). Consult with the mechanical Plumbing and HVAC managers on status of program for your project and incorporate when requirements are developed.

2 Materials

2.1 Valve Tags

- A. Brass or aluminum with stamped letters. Minimum 1.5" diameter. ¼" letters or ½" sequenced numbers.

2.2 Name Plates

- A. Laminated three-layer plastic with engraved white letters on black background.



2.3 Pipe/Conduit/Duct Markers

- A. Above Ground
 - 1. Factory fabricated, preformed plastic, to fit around pipe or pipe covering or flexible vinyl tape with pressure sensitive adhesive backing.
 - 2. Identify service, supply return, pipe size, and direction of flow.
 - 3. Flow arrow bands shall have background color in accordance with item 3.2. If stated color is not commercially available, incorporate arrows into the label and provide color coded bands without arrows.
 - 4. For liquid piping systems, indicate supply or return piping as applicable.
 - 5. Indicate pressures on all steam lines with pressure greater than 20 psig.
 - 6. Bright colored continuously printed plastic ribbon tape; minimum 6 inch wide by 4 mil thick; manufactured for direct burial service. Imbed tracer metallic strip in tape when pipe is not metallic.

2.4 Tag Chart

- A. Typed, in aluminum frame, plastic laminated.

3 Execution

3.1 Valve Tags

- A. Identify each valve with a brass tag permanently attached with a non-corroding metal chain.
- B. The tag must be clearly visible and stamped with a number matching the valve schedule.



3.2 Laminated Diagrams

- A. Prepare a laminated piping diagram for mounting in each mechanical room and placement in the Operation and Maintenance Manuals. This piping diagram must be documented on a reduced floor plan, updated as required, showing all piping and valves location with valve identification as referred to in item 3.1 above. Piping shall be color-coded or otherwise identified by type (potable water, natural gas, steam, etc.).

1. Piping Color Coding Requirements

| | |
|---------------------------|--|
| a. High Pressure Steam | Red Orange |
| b. Low Pressure Steam | Yellow Orange |
| c. Steam and Return Traps | Yellow |
| d. Cold Water (Domestic) | Light Blue |
| e. Hot Water (Domestic) | Dark Blue |
| f. Waste and Vent | Dark Brown |
| g. Equipment and Ducts | Gray |
| h. Controls | Yellow |
| i. Electrical Conduit | Vermillion with white strips every 10' |
| j. Fire Lines | Vermillion |
| k. Chilled Water | Gray with light blue stripes |
| l. Heating Water | Gray with dark blue stripes |
| m. Compressed Air Centers | Black with white band at 10'-0" |
| n. Gas | Light Green |
| o. Condenser Water | Dark Green |
| p. Condensate | Black |
| q. Process Water | Light Brown |



- B. Laminated Diagram-Control Cabinets
 - 1. Provide laminated in control panels associated with major equipment.
 - 2. Control panel wiring diagrams shall be laminated and permanently affixed to the inside of each control panel furnished by the Building Automation System even if paper size needs to be reduced to accommodate piping diagram.
 - a. Exclusion: terminal unit control panels such as those associated with fan coil and vav terminal units.

3.3 Tag Chart

- A. Prepare a complete list or schedule of all valves and trap primers separated by system, giving the number of the valve, its function, location and the rooms or area(s) controlled by it.
- B. Mount in aluminum frame chart in mechanical room.
- C. Include copy in Operation and Maintenance Manual.

3.4 Name Plates

- A. Identify all equipment with plastic nameplates. Small devices may be identified with tags.
- B. Identify control panels and major control components.
- C. Identify closed loop hydronic system volume with tag that indicates system volume at the make-up water connection to the system. Affix with non-corroding metal chain similar to valve tags.

3.5 Markers

- A. Provide markers for all piping, conduit and ductwork. This includes overflow from automatic air vents and relief valves.
- B. Include identification of piping content in same designations used on the drawings.
- C. Lettering shall be large enough to read from the floor.



- D. Locate identification every 20 feet, on either side of walls or obstructions, adjacent to each tee, valve and change in direction.
- E. For below grade pipe, install underground pipe markers consisting of plastic ribbon tape 6 to 8" below finished grade, directly above pipe but no less than 12" above main lines that are 4" or greater. Include tracer wire in plastic ribbon for non-metallic pipe.

3.6 Ceiling and Access Panel Identification

- A. All equipment above the ceiling requiring access and/or periodic services shall be labeled on the ceiling grid or access panel with nameplates sized to suit ceiling grid. Ideal label sizes are 0.75"x1.5" but may need to be adjusted for tee widths. Labels shall be laminated plastic with engraved white letters on a black background. Coordinate with Division 8 or existing conditions.
- B. Located in tee closest to equipment location.
- C. All valves concealed above a ceiling shall be labeled on the ceiling grid. Equipment isolation valves associated with terminal unit equipment that is already labeled on the grid do not need to be labeled if accessed from the same ceiling tile.
- D. For special ceilings such as wood or metal panel, the engineer shall provide proposed labeling for these finishes and obtain approval from the Project Architect and the Capital Planning Project Manager.

3.7 Controls and Instrumentation

- A. See preceding information in this section for labeling of panels, equipment and valves.
- B. All junction boxes are to be painted yellow. Conduit must be tagged or marked with at least four inches (4") long yellow sections at twenty feet (20') maximum intervals.

4 Appendix

4.1 Reserved for future.

