	Title: YALE OFFICE OF FACILITIES PROCEDURE MANUAL Chapter: 01 - Yale Design Standard Division: HVAC Standards	Section: <b>23 07 00</b> Identification for Mechanical Systems
		Date: 06/15/16
		Author: Office of Facilities
CC: Project Folder		

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**PART 1 - INTRODUCTION**

1.1 PURPOSE


- A. Identification requirements for tagging equipment, containers, valves, dampers, piping, tubing, and ductwork for building, and utility manhole and tunnel systems. Building system requirements are followed by utility manhole, and tunnel requirements.

**PART 2 - GENERAL DESIGN REQUIREMENTS**

- A. Include in the contract documents to have the contractor provide the following prior to having plates engraved, labels printed, and valve and damper tags stamped:
  1. A complete list of equipment, container, pipe, tubing, and duct labels, and valve and damper tags.
  2. A sample of each type of label showing sizing of letters and material.
  3. Submit a copy of the valve tag chart before installing.
- B. Equipment Identification Plates
  1. Types of services and equipment requiring identification include, but are not necessarily limited to, the following: piping systems, air handling systems, ductwork, valves, dampers, switches, and other control units in piping, wiring systems, and mechanical equipment requiring operational identification; warning, instructional or maintenance signage. Refer to individual unit of work Sections for nominal product or equipment/system identification, for signal/control graphic requirements, and for nameplates, labels, and performance data.

**2.2 MINIMUM PRODUCT REQUIREMENTS**

- A. VALVE AND DAMPER IDENTIFICATION TAGS
  1. General Description: numbered stainless steel discs with stainless steel wire or chain for attachment to the valve or damper.
    - a. Numbering:
      - 1) Manual Valves: Engrave with individual identification numbers shown on the P&IDs. Remainder of valves shall not be tagged. Engrave with numbers corresponding to the identification code shown on the piping

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- drawings (BA-2, CK-3, GA-1, SP-4, etc.).
- 2) Control Valves and Actuated Dampers: Engrave with numbers corresponding to the type and number of the control loop (e.g., TCV-01-AHU-07, XV-01-EXH-02A, XD-01-EXH-01A).
- 3) Components and Devices: Engrave with numbers corresponding to the identification shown on the Drawings, note equipment identification must be approved by Yale Operations. (e.g., PSV-25-1, PRV-14-2).

**B. VALVE TAG CHART**


- 1. Assemble a valve tag chart indicating valve tag number, location of valve, service, and normal operating position of valve (open or closed).
- 2. Mount the chart in a suitable frame with a glass cover and present to the Owner.

**C. PIPING AND DUCTWORK IDENTIFICATION LABELS**

- 1. Acceptable Manufacturers:
  - a. H. Brady Company
  - b. Or equal
- 2. General Description:
  - a. Vinyl or vinyl cloth with permanent, pressure-sensitive adhesive.
  - b. Provide labels and adhesives of long lasting materials, resistant to moisture, oils, solvents, and weathering.
  - c. Label color, lettering color, and lettering height: in conformance with ANSI A13.1 and OSHA requirements.
  - d. Provide separate flow directional arrows that conform with the above criteria.
- 3. Piping Labels: Include the full service identifier as specified in the label information column of the Service Index.
- 4. Separate Chemical Gas and Bulk Chemical Piping Source and Destination Labels: Identify the source and destination with the numbers corresponding to the identification shown on the Drawings (e.g., VMB-23-G2 to ILD-01).

**D. CHEMICAL CONTAINER IDENTIFICATION**

- 1. Label chemical storage tanks and containers and secondary containers in accordance with OSHA Hazardous Communications Standard 1910.1200 (F1-10) and NFPA 704.
- 2. Detail the following information on the original manufacturer containers and secondary containers:

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- a. Chemical name per MSDS.
  - b. Chemical health hazard(s) per MSDS.
  - c. Chemical concentration, if applicable.
3. Secondary containers are exempt from color coding requirements.

**E. VALVE AND DAMPER TAGS**

1. Attach tags to valve handle or yoke with stainless steel wire or chain, or nylon ties.
2. Attach tags to damper handle or actuator with stainless steel wire or chain, or nylon ties.

**F. PIPING IDENTIFICATION LABELS**

1. Utilize vinyl labels within the cleanroom environment.
2. Installation:
  - a. Attach labels on horizontal runs to lower quarter of piping and round ducts and on bottom of rectangular ducts. Labels are to be visible when viewed from below.
  - b. Install separate flow directional arrows with each label. Point flow indicator arrows away from labels.
  - c. Identify piping where it is not permanently concealed by the structure:
    - 1) At each valve.
    - 2) On both sides of wall, floor, and ceiling penetrations.
    - 3) At roof penetrations.
    - 4) On each riser.
    - 5) On each leg of a tee.
    - 6) At connections to equipment.
    - 7) At least every 30-feet along continuous runs of exposed piping. and piping in ceiling spaces that are accessible through ceiling tiles shall be identified every 10 feet. The distance shall be measured center to center.
    - 8) At least every 20-feet along continuous runs of compressed gas piping systems. Compressed gas piping systems in ceiling spaces that are accessible through ceiling tiles shall be identified every 10 feet. The distance measured shall be center to center.
3. Identify chemical gas and bulk chemical pipes at locations identified in this document and:
  - a. At both ends of continuous pipe runs.
  - b. At each change in direction unless a label is within 5 feet of the change in

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- direction.
- c. Attach source and destination label adjacent to piping label.

## 2.3 PAINTING, PIPING IDENTIFICATION, AND VALVE IDENTIFICATION FOR UTILITY MANHOLE AND TUNNEL SYSTEMS

### A. PAINTING

1. Locations and Style
  - a. Manholes: Paint vent pipes on the outside of the manhole with color as stated in
  - b. Manholes section. Paint style shall be full-gloss alkyd enamel.
2. Tunnels: Paint all steel and supports.

### B. PIPING IDENTIFICATION

1. Provide pipe labels as listed below or paint stencils on piping identifying the service. Identify pipe every 30 feet and in all manholes and mechanical equipment rooms. Include directional arrow. Use identification of systems per the piping specifications with pressures indicated, i.e. HPS250, HPS150, LPC10, PC, CHS, etc.

### C. VALVE TAGS

1. Provide brass valve tags for all manual isolation valves and provide a valve chart for each building, tunnel, and manhole. Valve tags shall begin with the letters of the building or project name, then have the service, and then the number, i.e. SML-HPS-001. Consult with Yale Utilities prior to beginning numbering to ensure that numbers are not repeated.

END OF SECTION