

## PART 1 – GENERAL

### 1.1 RELATED DOCUMENTS

- A. Drawings and Divisions 00 and 01, apply to this Section.
- B. Related Sections:
  - 1. Division 09.

### 1.2 SUMMARY

- A. This Section includes the following mechanical identification materials and their installation:
  - 1. Equipment nameplates.
  - 2. Equipment markers.
  - 3. Pipe markers.
  - 4. Duct markers.
  - 5. Valve tags.
  - 6. Valve schedules.
  - 7. Warning tags.

### 1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
  - 1. Equipment nameplates.
  - 2. Equipment markers.
  - 3. Pipe markers.
  - 4. Duct markers.
  - 5. Valve tags.
  - 6. Warning tags.
  - 7. Valve Schedules: For each piping system. Furnish extra copies (in addition to mounted copies) to include in the operation and maintenance manuals.

### 1.4 CODES AND STANDARDS

- A. Codes and Standards shall be the current version adopted by the Authority Having Jurisdiction.

### 1.5 QUALITY ASSURANCE

- A. ASME Compliance: Comply with ASME A13.1, "Scheme for the Identification of Piping Systems," for letter size, length of color field, colors, and viewing angles of identification devices for piping.
- B. Reduction of Lead in Drinking Water Act of 2011. This act redefines "lead free" as "not containing more than 0.2 percent lead when used with respect to solder and flux and not more than a weighted average of 0.25 percent lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures". Products required to be "lead free" shall have NSF 61-G or NSF 372 certification.

## 1.6 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with location of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.

## PART 2 – PRODUCTS

### 2.1 EQUIPMENT IDENTIFICATION DEVICES

- A. Equipment Nameplates: Metal, with data engraved or stamped, for permanent attachment on equipment.
  - 1. Data:
    - a. Manufacturer, product name, model number, and serial number.
    - b. Capacity, operating and power characteristics, and essential data.
    - c. Labels of tested compliances.
  - 2. Location: Accessible and visible.
  - 3. Fasteners: As required to mount on equipment.
- B. Equipment Markers: Two-ply engraved black plastic with lettering cut through to white background. Include contact-type, permanent adhesive.
  - 1. Terminology: Match mark numbers on equipment schedules as closely as possible.
  - 2. Size: Minimum 1-1/2 by 4 inches.
  - 3. Thickness: 1/16-inch.

### 2.2 PIPING IDENTIFICATION DEVICES

- A. Self-Adhesive Pipe Markers: Vinyl with pressure-sensitive, permanent type, self-adhesive back. Preprinted, color-coded, with lettering indicating service, and showing direction of flow.
  - 1. Colors: Comply with ASME A13.1, unless otherwise indicated.
  - 2. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
  - 3. Full-band pipe markers extending 360 degrees around pipe at each location.
  - 4. Arrows: Integral with piping system service lettering to accommodate both directions; or as separate unit on each pipe marker to indicate direction of flow.

### 2.3 DUCT IDENTIFICATION DEVICES

- A. Self Adhesive Duct Markers: Vinyl with pressure-sensitive, permanent-type, self-adhesive back. Preprinted, color-coded, with lettering indicating service, and showing direction of flow.
  - 1. Colors: Comply with ASME A13.1, unless otherwise indicated.
  - 2. Lettering: Use HVAC system terms and abbreviate only as necessary for each application length.

3. Arrows: Integral with HVAC system service lettering to accommodate both directions; or as separate unit on each duct marker to indicate direction of flow.

## 2.4 VALVE TAGS

- A. Valve Tags - Service and Number Identification: Two-ply engraved black plastic with lettering cut through to white background.
  1. Data: Service and identification number.
  2. 2-inch round, 1/16-inch thick, with 3/16-inch hole.
  3. Fastener: Brass chain or S-hook.
- B. Valve Tags – Lead Free Identification: Two-ply engraved white plastic with lettering cut through to black background.
  1. Data: LF
  2. 2-inch round, 1/16-inch thick, with 3/16-inch hole.
  3. Fastener: Brass chain or S-hook.

## 2.5 WARNING TAGS

- A. Warning Tags: Preprinted plasticized card stock with matte finish.
  1. Size: 4 by 7 inches.
  2. Fasteners: Brass grommet and chain.
  3. Nomenclature: Large-size primary caption such as CAUTION: NONPOTABLE WATER, DO NOT DRINK.
  4. Color: Yellow background with 1/2-inch black lettering.

## 2.6 VALVE SCHEDULES

- A. Valve Schedules: For each piping system, on standard-size bond paper. Assign and tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
  1. Valve Schedule Frame: Mount valve schedule in frame with clear plastic cover, include mounting screws.

## PART 3 – EXECUTION

### 3.1 APPLICATIONS, GENERAL

- A. Products specified are for applications referenced in other Division 23 Sections.

### 3.2 EQUIPMENT IDENTIFICATION

- A. Nameplate Installation: Install and permanently fasten equipment nameplates on each major item of mechanical equipment that does not have nameplate or has nameplate that is damaged or located where not easily visible. Locate nameplates where accessible and visible. Include nameplates for the following general categories of equipment:
  1. Fuel-burning units, including boilers, furnaces, and heaters.

2. Pumps, compressors, chillers, condensers, and similar motor-driven units.
  3. Heat exchangers, electric coils, evaporators, cooling towers, heat recovery units, and similar equipment.
  4. Fans, blowers and air terminals.
  5. Air handling units.
  6. Packaged units.
- B. Equipment Marker Installation: Install with permanent adhesive on or near each major item of mechanical equipment. Data required for markers may be included on signs, and markers may be omitted if both are indicated.
1. Letter Size: Minimum 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
  2. Locate markers where accessible and visible. Include markers for all scheduled equipment.

### 3.3 PIPING IDENTIFICATION

- A. Install manufactured pipe markers indicating service on each piping system. Install with flow indication arrows completely around pipe showing direction of flow. Apply to clean surface.
- B. Locate pipe markers where piping is exposed in finished spaces, mechanical spaces; accessible maintenance spaces such as removable accessible ceilings, shafts, tunnels, and plenums; and exterior nonconcealed locations as follows:
1. Near each valve and control device.
  2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
  3. Near penetrations through walls, floors, ceilings, and nonaccessible enclosures.
  4. At access doors, manholes, and similar access points that permit view of concealed piping.
  5. Near major equipment items and other points of origination and termination.
  6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
  7. On piping above removable acoustical ceilings. Omit intermediately spaced markers, minimum one in each space.

### 3.4 DUCT IDENTIFICATION

- A. Install manufactured duct markers indicating service on each duct system. Install with flow arrows showing direction of flow.
- B. Locate markers near points where ducts enter into concealed spaces and at maximum intervals of 50 feet in each space where ducts are exposed or concealed by removable ceiling system.

### 3.5 VALVE TAG INSTALLATION

- A. Service and Number Identification: Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; plumbing fixture supply stops; shutoff valves; faucets; convenience and lawn-watering hose connections; and

air terminal devices and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.

- B. Lead Free Identification: Install lead free identifiers on all valves scheduled to be Lead Free certified in the Application Schedule of Section General-Duty Valves for Mechanical Piping.

### 3.6 VALVE SCHEDULE INSTALLATION

- A. Mount valve schedule on wall in accessible location in each major equipment room.

### 3.7 WARNING TAG INSTALLATION

- A. Attach warning tags to equipment and other items where required.

### 3.8 ADJUSTING

- A. Relocate mechanical identification materials and devices that have become visually blocked by other work.

### 3.9 CLEANING

- A. Clean faces of mechanical identification devices.

**END OF SECTION**