

230553 Identification for HVAC Piping and Equipment

Sections Included In This Standard:

- 1.1 Codes and Standards
- 1.2 Identification of Underground Piping
- 2.1 Painted Identification Materials
- 2.2 Plastic Pipe Markers
- 2.3 Plastic Tape
- 2.4 Valve Tags
- 2.5 Engraved Plastic Laminate Signs
- 3.1 Installation Requirements

1.1 CODES AND STANDARDS

Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.2 IDENTIFICATION OF UNDERGROUND PIPING

Refer to various 330000 sections for information regarding the identification of underground utilities and piping.

PART 2 - PRODUCTS

2.1 PAINTED IDENTIFICATION MATERIALS

- A. STENCILS: Standard fiberboard stencils, prepared for required applications with letter sizes complying with recommendations of ANSI A13.1 for piping and similar applications but not less than 1-1/4" high letters for ductwork and not less than 3/4" high letters for access door signs and similar operational instructions.
- B. STENCIL PAINT: Standard exterior type stenciling enamel; black, except as otherwise indicated; either brushing grade or pressurized spray-can form and grade.
- C. IDENTIFICATION PAINT: Standard identification enamel.

2.2 PLASTIC PIPE MARKERS

- A. PRESSURE-SENSITIVE TYPE: Manufacturer's standard pre-printed permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers.
 - 1. Lettering: Manufacturer's standard pre-printed nomenclature, which best describes piping system in each instance.
 - 2. Arrows: Each pipe marker shall have arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as separate unit of plastic.
- B. PRE-MANUFACTURED PLASTIC WRAP-AROUND LABELS: Are acceptable with standard lettering and arrows.

1. **WRAP AROUND PIPE MARKERS:** Wrap around pipe markers with arrows shall be made from rigid PVC vinyl and printed with UV resistant inks. These pipe ID markers are available for pipe diameters $\frac{3}{4}$ " thru 6". Use ID markers supplied with $\frac{1}{2}$ " strip of adhesive on piping that has a constant pipe temperature of 120F or more. For pipe diameters of 6" or larger, markers are installed using nylon ties or stainless steel strapping. Comply with ANSI and ASME A13.1 2007 Standards.

2.3 PLASTIC TAPE

- A. **GENERAL:** Manufacturer's standard color-coded pressure-sensitive (self-adhesive) vinyl tape, not less than 3 mils thick.
- B. **WIDTH:** 1-1/2" wide tape markers on pipes with outside diameters (including insulation, if any) of less than 6". 2-1/2" wide tape for larger pipes.

2.4 VALVE TAGS

- A. **BRASS VALVE TAGS:** 19-gage polished brass valve tags with stamp-engraved piping system abbreviation in 1/4" high letters and sequenced valve numbers 1/2" high and with 5/32" hole for fastener. 1-1/2" diameter tags except as otherwise indicated.
- B. **PLASTIC LAMINATE VALVE TAGS:** Manufacturer's standard 3/32" thick engraved plastic laminate valve tags, with piping system abbreviation in 1/4" high letters and sequenced valve numbers 1/2" high, and with 5/32" hole for fastener. 1-1/2" square black tags with white lettering, except as otherwise indicated.

2.5 ENGRAVED PLASTIC-LAMINATE SIGNS

- A. **GENERAL:** Engraving stock melamine plastic laminate, in the sizes and thickness indicated, engraved with engraver's standard letter style of the sizes and wording indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
- B. **THICKNESS:** 1/16" for units up to 20 square inches or 8" length; 1/8" for larger units.
- C. **FASTENERS:** Self-tapping stainless steel screws, except contact-type permanent adhesive where screws cannot or should not penetrate the substrate.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. **COORDINATION:** Where identification is to be applied to surfaces which require insulation, painting or other covering or finish, including valve tags in finished mechanical spaces, provide for installation of identification after completion of covering and painting. Identification shall be installed prior to installation of acoustical ceilings and similar removable concealment.
 - a. When HVAC equipment (valves (control or manual), FCU, VAV or other equipment that needs to be serviced) is located above a drop ceiling the ceiling grid nearest the equipment needs to be labeled. Label shall be black lettering on white or clear

background. At least $\frac{3}{4}$ " tall lettering.

B. DUCTWORK IDENTIFICATION

1. General: Identification of air supply, return, exhaust, intake, and relief ductwork with stenciled signs and arrows, showing ductwork service and direction of flow, in black and white, and to indicate from what unit the ductwork either comes from or goes to.
2. Locations: In each space where ductwork is exposed, or concealed only by removable ceiling system, provide signs near points where ductwork originates or continues into concealed enclosures, and at 50' intervals along exposed runs.
3. Access points: Stenciled or printed labels on each access door in ductwork and housings, indicating purpose of access (to what equipment).

C. PIPING SYSTEM IDENTIFICATION

1. General: Pipe markers of one of the following types on each system indicated to receive identification, and include arrows to show normal direction of flow:
 - a) Plastic pipe markers with application system as indicated under "Materials" in this section. Install on pipe insulation segment where required for hot non-insulated pipes.
 - b) Stenciled markers, black or white for best contrast, wherever continuous color-coded painting of piping is provided.
2. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces and exterior non-concealed locations.
 - a) Near each valve and control device.
 - b) Near each branch, excluding short take-offs for fixtures and terminal units, mark each pipe at branch, where there could be question of flow pattern.
 - c) Near locations where pipes pass through walls, floors, ceilings, or enter non-accessible enclosures.
 - d) At access doors, manholes and similar access points, which permit view of, concealed piping.
 - e) Near major equipment items and other points of origination and termination.
 - f) Spaced intermediately at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.
 - g) On piping above removable acoustical ceilings, except omit intermediately spaced markers.
3. The following piping shall be color-coded (not banded or striped) in exposed locations by completely painting the piping with the indicated color. Use standard identification methods in concealed areas.

- a) Fire protection piping - RED
 - b) Gas piping - YELLOW
- D. VALVE IDENTIFICATION: Valve tags on every valve cock and control device in each piping system; exclude check valves, valves within factory-fabricated equipment units, plumbing fixture faucets, convenience and lawn-watering hose bibs, shut-off valves at plumbing fixtures, HVAC terminal devices and similar rough-in connections of end-use fixtures and units.
- E. MECHANICAL EQUIPMENT IDENTIFICATION: Engraved plastic laminate sign on or near each major item of new mechanical equipment and each operational device and shall indicate to what area that equipment serves by zone(s) or room number(s). What should label say? Signs for the following general categories of equipment and operational devices:
- 1. Main control and operating valves, including safety devices.
 - 2. Meters, gauges, thermometers and similar units.
 - 3. Fuel-burning units including boilers, furnaces, and heaters.
 - 4. Pumps, compressors, chillers, condensers and similar motor-driven units.
 - 5. Heat exchangers, coils, evaporators, cooling towers, heat recovery units and similar equipment.
 - 6. Exhaust fans, fans, blowers, primary balancing dampers and VAV boxes.
 - 7. HVAC central-station and zone-type units.
 - 8. Tanks and pressure vessels.
 - 9. Air conditioning indoor and outdoor units.
 - 10. VFD's and transmitters and Control Boxes.
 - 11. Other items as required.
- F. FIELD CONTROL DEVICES: Provide for small (2" x 3/4") engraved plastic laminate tags, white with black letters, for all field control devices.
- 1. Tag shall be engraved with the name of the device as described in the BAS software. For example "211-TMP" for the temperature element in Room 211.
 - 2. For exposed devices, tag shall be located on or near the device.
 - 3. For concealed devices, tag shall be affixed in an exposed location to allow UF personnel to determine the location of the device without removing the concealing material. If several small devices are located on one concealed unit, only the main unit need be identified with an exposed tag.

4. The following devices shall be so labeled:

Temperature Elements	XXX-TMP
VAV Boxes	XXX-VAV
VAV Controllers (if remote from box)	XXX-VAV Cont
Static Pressure Transmitters	AHU-XX SP
Discharge Air Temp Transmitters	AHU-XX Zone ZZ DAT
Any other Field Mounted Control Devices	

END OF SECTION