

SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General Conditions, Special Provisions apply to work of this section.
- B. This section is Basic Mechanical Materials and Methods section, and is part of each Division 22 section making reference to identification devices specified herein.

1.2 DESCRIPTION OF WORK

- A. Extent of mechanical identification work required by this section is indicated on drawings and/or specified in other Sections.
- B. Types of identification devices specified in this section include the following:
 - 1. Painted Identification Materials.
 - 2. Plastic Pipe Markers.
 - 3. Plastic Tape.
 - 4. Plastic Duct Markers.
 - 5. Valve Tags.
 - 6. Valve Schedule Frames.
 - 7. Equipment Markers.
 - 8. Tags.
- C. Mechanical identification furnished as part of factory-fabricated equipment, is specified as part of equipment assembly.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Firms regularly engaged in manufacturer of identification devices of types and sizes required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Codes and Standards:
 - 1. ANSI Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification devices.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for each identification material and device required.
- B. Schedules: Submit valve schedule for each piping system, typewritten and reproduced on 8-1/2" x 11" bond paper. Tabulate valve number, piping system,

system abbreviation (as shown on tag), location of valve (room or space), and variations for identification (if any). Mark valves which are intended for emergency shut-off and similar special uses, by special "flags", in margin of schedule. In addition to mounted copies, furnish extra copies for Maintenance Manuals as specified in Division 1.

2.0 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering mechanical identification materials which may be incorporated in the work include; but are not limited to, the following:
1. Allen Systems, Inc.
 2. Brady (W.H.) Co., Signmark Div.
 3. Industrial Safety Supply Co., Inc.
 4. Seton Name Plate Corp.

2.2 MECHANICAL IDENTIFICATION MATERIALS

- A. General: Provide manufacturer's standard products of categories and types required for each application as referenced in other Division-15 sections. Where more than single type is specified for application, selection is Installer's option, but provide single selection for each product category.

2.3 PAINTED IDENTIFICATION MATERIALS

- A. Stencils: Standard fiberboard stencils, prepared for required applications with letter sizes generally 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 of colors indicated below.

PIPE IDENTIFICATION CHART

<u>Symbol</u>		<u>Pipe Color</u>	<u>Marker Background Color</u>
DCW	Domestic Cold Water	Light Green	Green
DHWS	Domestic Hot Water Supply	Orange	Orange
RWL	Rain Water Leader	Brown	Brown
SD	Storm Drainage	Brown	Brown
SW	Sanitary Waste	Brown	White

CD	Condensate Drain	Black	White
VTR	Vent Thru Roof	Beige	White
AIR	Compressed Air-Instrumentation	Yellow	Yellow
F	Fire Protection	Red	Red
SW	Safe Waste	Beige	White
RL	Refrigerant Liquid	Green	Green
RS	Refrigerant Suction	Green	Green
CA	Compressed Air, 100 psi	Blue	White
IW	Indirect Waste	Yellow	Black
P & T	Blow-Off Water Relief	Yellow	Black

2.4 PIPE MARKERS

- A. Stencils: Identification of pipes via paint and stencils.
- B. Lettering: Comply with piping system nomenclature as specified, scheduled or shown, and abbreviate only as necessary for each application length.
 - 1. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions).

2.5 PLASTIC DUCT MARKERS

- A. General: Provide manufacturer's standard laminated plastic, color coded duct markers. Conform to the following color code:
 - 1. Green: Cold air.
 - 2. Blue: Exhaust, outside, return, and mixed air.
 - 3. Yellow/Green: Supply air.
- B. Nomenclature: Include the following:
 - 1. Direction of air flow.
 - 2. Duct service (supply, return, exhaust, etc.).
 - 3. Duct origin (from).
 - 4. Duct destination (to).
 - 5. Design cfm.

2.6 PLASTIC TAPE

- A. General: Provide manufacturer's standard color-coded pressure-sensitive (self-adhesive) vinyl tape, not less than 3 mils thick.
- B. Width: Provide 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.
- C. Color: Comply with ANSI A13.1, except where another color selection is indicated.

2.7 VALVE TAGS

- A. Brass Valve Tags: Provide 19-gage polished non-corrosive 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. Provide 1-1/2" diameter tags, except as otherwise indicated.
- B. Valve Tag Fasteners: Provide manufacturer's standard solid brass chain (wire link or beaded type), or solid brass S-hooks of the sizes required for proper attachment of tags to valves, and manufactured specifically for that purpose.
- C. Access Panel Markers: Provide manufacturer's standard engraved aluminum access panel markers, with abbreviations and numbers corresponding to concealed valve. Include 1/8" center hole to allow attachment.

2.8 VALVE SCHEDULE FRAMES

- A. General: For each page of valve schedule, provide glazed display frame, with screws for removable mounting on masonry walls. Provide frames of finished hardwood or extruded aluminum, with SSB-grade sheet glass.

2.9 EQUIPMENT MARKERS

- A. General: Provide manufacturer's standard aluminum nameplate with black enamel background, with etched or engraved natural aluminum lettering 1" high.
- B. Nomenclature: Include the following, matching terminology on schedules as closely as possible:
 1. Name and number (coordinate City numbering system).
 2. Equipment service.
 3. Area of service.
- C. Size: Provide approximate 2-1/2" x 4" markers for starters, control devices, dampers, and valves; and 4-1/2" x 6" for equipment.

2.10 LETTERING AND GRAPHICS

- A. General: Coordinate identification numbers, names, abbreviations and other designations used in mechanical identification work with Engineering. Provide numbers, lettering and wording as instructed by Engineering.
 1. Multiple Systems: Where multiple systems of same generic name are shown and specified, provide identification which indicates individual system number as well as service.

3.0 EXECUTION

3.1 GENERAL 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, install identification after completion of covering and painting. Install identification prior to installation of acoustical ceilings and similar removable concealment.

3.2 DUCTWORK IDENTIFICATION

- A. General: Identify air supply, return, exhaust, intake and relief ductwork with duct markers; or provide stenciled signs and arrows, showing ductwork service and direction of flow, in black or white (whichever provides most contrast with ductwork color).
- B. Location: In each space where ductwork is exposed, or concealed only by removable ceiling system, locate signs near points where ductwork originates or continues into concealed enclosures (shaft, underground or similar concealment), and at 50' spacings along exposed runs.
- C. Access Doors: Provide duct markers or stenciled signs on each access door in ductwork and housings, indicating purpose of access (to what equipment) and other maintenance and operating instructions, and appropriate safety and procedural information.

3.3 PIPING SYSTEM IDENTIFICATION

- A. General: Install pipe markers of one of the following types on each system indicated to receive identification, and include arrows to show normal direction of flow:
 - 1. Stenciled markers, including color-coded background band or rectangle, and contrasting lettering of black or white. Extend color band or rectangle 2" beyond ends of lettering.
 - 2. Stenciled markers, with lettering color complying with ANSI A13.1.
- B. All piping must be painted and identification must follow City Guidelines' color scheme. Refer to pipe identification chart in this section.
- C. Locate pipe markers and color bands as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.
 - 1. Near each valve and control device.
 - 2. 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.
 - 3. Near locations where pipes pass through walls or floors/ceilings, or enter non-accessible enclosures.
 - 4. At access doors, manholes and similar access points which permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.
 - 6. Spaced intermediately at maximum spacing of 20' along each piping run, except locate markers on each side of wall and floor penetrations.
 - 7. On piping above removable acoustical ceilings.

3.4 VALVE IDENTIFICATION

- A. General: Provide valve tag 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, and shut-off valves at plumbing fixtures, HVAC terminal devices and similar rough-in connections of end-use fixtures and units. List each tagged valve in valve schedule for each piping system. Coordinate identification numbers with Engineering.

- B. Mount valve schedule frames and schedules in machine rooms where indicated or, if not otherwise indicated, where directed by Architect/Engineer.
- C. Provide valve schedules for all mechanical rooms where work covered by this contract occurs. Where valve schedules already exist, upgrade to show added equipment and remount for an "as new" appearance.

3.5 MECHANICAL EQUIPMENT IDENTIFICATION

- A. General: Install aluminum sign on or near each major item of mechanical equipment and each operational device, as specified herein if not otherwise specified for each item or device. Provide signs for the following general categories of equipment and operational devices:
 - 1. Main control and operating valves, including safety devices and hazardous units such as fuel outlets.
 - 2. Meters, gages, thermometers and similar units.
 - 3. Fans, blowers, and similar motor-driven units.
 - 4. Primary balancing dampers and mixing boxes.
 - 5. Packaged HVAC central-station and zone-type units.
 - 6. Strainers, filters, and similar equipment.
 - 7. Motor starters, variable frequency drives, relays and switches controlling motor driven equipment.

3.6 ADJUSTING AND CLEANING

- A. Adjusting: Relocate any mechanical identification device which has become visually blocked by work of this division or other divisions.
- B. Cleaning: Clean face of identification devices, and glass frames of valve charts.
- C. Cleaning: Clean floors, equipment, walls, which may have been surfaced when painting pipes.

3.7 EXTRA STOCK

- A. Furnish minimum of 5% extra stock of each mechanical identification material required, including additional numbered valve tags (not less than 3) for each piping system, additional piping system identification markers, and additional (5%) aluminum engraving blanks of all sizes used throughout project.
 - 1. Where stenciled markers are provided, clean and retain stencils after completion of stenciling and include used stencils in extra stock, along with required stock of stenciling paints and applicators.

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