

SECTION 15190

MECHANICAL IDENTIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Extent of mechanical identification work required by this section is indicated on drawings or specified in other Division 15 sections, and includes the following:
 - 1. Painted Identification Materials
 - 2. Plastic Pipe Markers
 - 3. Plastic Tape
 - 4. Engraved Plastic Laminate Signs
 - 5. Plastic Equipment Markers
 - 6. Plasticized Tags

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1, apply to work of this Section.
- B. Division 15 Basic Mechanical Materials and Methods sections apply to work of this Section.

1.3 RELATED SECTIONS

- A. This section is part of each Division 15 section making reference to identification devices specified herein.
- B. Mechanical identification furnished as part of factory fabricate equipment, is specified as part of equipment assembly in other Division 15 sections.
- C. Refer to Division 16 for identification requirements of electrical work; not work of this section.
- D. Refer to Division 9, Painting, for color selections of all piping.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical product data and installation instructions for each identification material and device required.
- B. Samples: Submit samples of each color, lettering style and other graphic representation required for each identification material or system.
- C. Maintenance Data: Include product data and schedules in maintenance manuals; in accordance with requirements of Division 1.

1.5 QUALITY ASSURANCE

- A. Codes and Standards:
 - 1. ANSI Standards: Comply with ANSI A13.1 for lettering size, length of color field, colors, and viewing angles of identification device.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide mechanical identification materials of one of the following:
1. Craftmark Identification System.
 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 PLASTIC PIPE MARKERS

- A. Snap-On Type: Provide manufacturer's standard pre-printed, semi-rigid snap-on, color-coded pipe markers, complying with ANSI A13.1.
- B. Pressure Sensitive Type: Provide manufacturer's standard pre-printed, permanent adhesive, color coded, pressure sensitive vinyl pipe markers, complying with ANSI A13.1.
- C. Small Pipes: For external diameters less than 6 inch (including insulation if any), provide full band pipe markers, extending 360 degree around pipe at each location, fastened by one of the following methods:
1. Snap-on application of pre-tensioned semi-rigid plastic pipe marker.
 2. Adhesive lap joint in pipe marker overlap.
 3. Laminated or bonded application of pipe marker to pipe (or insulation).
 4. Taped to pipe (or insulation) with color-coded plastic adhesive tape, not less than $\frac{3}{4}$ inch wide; full circle at both ends of pipe marker, tape lapped 1-1/2 inch.
- E. Large Pipes: For external diameters of 6 inch and larger (including insulation if any), provide either full band or letter height (and of required length), fastened by one of the following methods:
1. Laminated or bonded application of pipe marker to pipe (or insulation).
 2. Taped to pipe with color-coded plastic adhesive tape, not less than 1-1/2 inch wide; full circle at both ends of pipe marker, taped lapped 3 inch.
 3. Strapped to pipe (or insulation) application of semi-rigid type, with manufacturer's standard stainless steel bands.
- F. Lettering: Manufacturer's standard pre-printed nomenclature that best describes piping system in each instance, as selected by Architect/Engineer in cases of variance with names as shown or specified.
1. Arrows: Print each pipe marker with arrows indicating direction of flow, either integrally with piping system service lettering (to accommodate both directions), or as a separate unit of plastic.

2.4 ENGRAVED PLASTIC LAMINATE SIGNS

- A. General: Provide engraving stock melamine plastic laminate, complying with FS L-P-387, in the sizes and thickness indicated, engraved with engraver's standard letter style of the sizes and wording indicated, white with black core (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.
- B. Thickness: 1/16 inch for units up to 20 square inches or 8 inch length, 1/8 inch for larger units.
- C. Fasteners: Self tapping stainless steel screws, except contact type permanent adhesive where screws cannot or should not penetrate the substrate.

2.5 LETTERING AND GRAPHICS

- A. General: Coordinate names, abbreviations and other designations used in mechanical identification work, with corresponding designations shown, specified or scheduled. Provide numbers, lettering and wording as indicated, as recommended by manufacturers or as required for proper identification and operation/maintenance of mechanical systems and equipment.
- B. Multiple Systems: Where multiple systems of same generic name are shown and specified, provide identification which indicates individual system number as well as service (as examples; Boiler No. 3, Air Supply No. 1H, Standpipe F12).

2.6 CEILING TACKS

- A. Steel with 3/4" diameter color-coded head.
- B. Color code as follows:
 - 1. Yellow: HVAC equipment
 - 2. Red: Fire dampers/smoke dampers
 - 3. Green: Plumbing valves
 - 4. Blue: Heating/cooling valves

PART 3 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 ceiling and similar removable concealment.

3.2 DUCTWORK IDENTIFICATION

- A. General: Identify air supply, return, exhaust, intake and relief ductwork with duct markers; 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 foot spacing 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. 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. Locate pipe markers 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 floor/s ceilings, or enter non-accessible to enclosures.
 - 4. At access doors, manholes similar access points which permit view or concealed piping.
 - 5. Near major equipment items and other pints of origination and termination.
 - 6. Spaced intermediately at maximum spacing of 50' along each piping run, except reduce spacing to 25' in congested areas of piping and equipment.
On piping above removable acoustical ceilings, except omit intermediately spaced marks.

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.
- B. Mount valve schedule frames and schedules in machine rooms where indicated or, if not otherwise indicated, where directed by Architect.
- C. Provide ceiling tacks to locate valves or dampers above T-bar type panel ceilings or access panels. Locate in corner of panel closet to equipment.

3.5 MECHANICAL EQUIPMENT IDENTIFICATION

- A. General: Install engraved plastic laminate sign or plastic equipment marker 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 gas outlets.
 - 2. Meters, gages, thermometers and similar units.
 - 3. Fuel burning units including boilers, furnaces, heaters, stills, absorption units.
 - 4. Pumps, compressors, chillers, condensers and similar motor driven units.
 - 5. Heat exchangers, coils, evaporators, cooling towers, heat recovering units and similar equipment.
 - 6. Fans, blowers, primary balancing dampers and mixing boxes.

7. Packaged HVAC central station or zone type units.
 8. Tanks and pressure valves.
 9. Strainers, filters, humidifiers, water treatment systems and similar equipment.
- B. Lettering Size: Minimum 1/4 inch high lettering for name of unit where viewing distance is less than 2'-0", 1/2 inch high for distance up to 6'-0", and proportionately larger lettering for greater distances. Provide secondary lettering of 2/3 to 3/4 of size of the principal lettering.
- C. Test of Signs: In addition to name of identified unit, provide lettering to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

3.6 UNDERGROUND PIPING IDENTIFICATION

- A. General: During back-filling / top-soiling of each exterior underground piping systems, except sanitary sewer and storm drainage install continuous underground type plastic line marker, located directly over buried line at 6 inch to 8 inch below finished grade. Where multiple small lines are buried in common trench and do not exceed overall width of 16 inch, install single line marker.

3.7 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.

END OF SECTION