

SECTION 230553 - IDENTIFICATION OF PIPING SYSTEMS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary conditions and Division-01 Specification sections, apply to work of this section.

1.2 SCOPE

- A. Provide complete identification of the mechanical systems including piping, valves and equipment as noted herein.

1.3 RELATION TO OTHER WORK

- A. Refer to the section, "General Mechanical Provisions", for related requirements. Refer to other sections of Division 23 and to all other applicable portions of the Drawings and Specifications.
- B. This section directly relates in particular to sections (which may or may not be included in this division) which describe the following:
 - 1. Piping and the interconnected equipment and component items for the following systems:
 - a. Chilled water.
 - b. Condenser water.

1.4 APPLICABLE PIPING AND RELATED ITEMS

- A. Piping and interconnected equipment and component items for the following systems shall be identified. Identification of the following systems shall not preclude the identification of other systems where identification of such other systems may be specified in other sections. Systems requiring identification as work of this section are:
 - 1. Chilled water.
 - 2. Condenser water.

1.5 SHOP DRAWINGS

- A. Refer to Section entitled "General Mechanical Provisions". Provide schedule of colors, lettering, tagging, handling and similar items to clearly identify proposed method of identification for mechanical systems.

1.6 DIMENSIONS

- A. Pipe dimensions as used in this section refer to the total outside dimensions (diameters) of both the pipe and its insulation (if any).

PART 2 - PRODUCTS

2.1 GENERAL

- A. Comply with ANSI A13. 1-1975, "Scheme for Identification of Piping Systems" and OSHA requirements, or as otherwise indicated.
- B. Acceptable Manufacturers: W. H. Brady Co., 2223 West Camden Road, Milwaukee, WI 53201; Seton Name Plate Corporation, 592 Boulevard, New Haven, CT 06505, or equivalent.

2.2 MARKERS, BANDS, TAGS AND LABELS

- A. Markers: Must have approved color coded background, proper color of legend in relation to background color, approved legend letter size, approved length and flow arrow indicator.
 - 1. Pipes 3/4" through 5" O.D.: Seton "Setmark" Type SNA marker or equivalent.
 - 2. Pipes 6" O.D. and Greater: Seton "Setmark" Type STR marker or equivalent.
- B. Bands: Color coded in minimum widths of 2-1/4" for pipe through 12" O.D. and 4" for pipe 14" O.D. and greater. Brady B-500 Vinyl Cloth, B-350 PermaCode or B-946 Outdoor Film or equivalent as applicable.
- C. Valve Tags: Each tag shall designate appropriate service and valve number. Be securely attached with meter seals with 4-ply 0.018 copper smooth wire, or brass "S" hooks, or brass jack chain in a manner to allow easy reading. Provide either of the following types:
 - 1. Brass Type: Minimum 19 gauge polished brass; 1-1/2" min. diameter. Acceptable: Seton Style 250-BL or equivalent.
 - 2. Aluminum Color Coded Type: Anodized aluminum; 2": min. diameter. Acceptable: Seton Style 2070 or equivalent.
 - 3. Aluminum Alloy Type: 16 gauge sheet aluminum: depressed type letters filled with black enamel. Face and periphery of satin finish Alumilite, Alcoa 204A2 or equal, free from burns and scratches. Seton Type 4 or equivalent.
 - 4. Fiber Glass Type: 1/16" thick glass fiber reinforced resin. 2" x 2" size of 2-1/2" x 9" size as necessary to identify item. Brady Series No. 2297 or equivalent.
- D. Labels: Provide either of the following types:
 - 1. Plastic Type: Outdoor grade acrylic plastic to withstand weather, abrasion, grease, acid, chemical and other corrosive conditions; 1/16" min. thickness. Sized 3/4 x 2-1/2, 1 x 2-1/2, 1 x 3 or 1-1/2 x 4 as necessary to identify item. Seton "Setonite" or equivalent.
 - 2. Aluminum Type: Engraved, flexible, 0.020" thick aluminum. Sized 3/4 x 2-1/2, 1 x 3, 1-1/2 x 4 or 3/6 as necessary to identify item. Seton No. 06505 or equivalent.
- E. Provide continuous lengths of magnetic identification tape noting particular system above all underground piping at 12" below grade.

PART 3 - EXECUTION

3.1 GENERAL

- A. Apply only after completion of insulation, painting and cleaning work so that final identification is not disfigured by such other work.
- B. Coordinate with actual composition and operating temperatures of surface on which identification is to be placed so that proper permanent adhesion of markers and labels to surface is obtained.
- C. Locate marking and banding where practical such that groups of pipe are identified at similar location for ease of visual tracking. For example, mark and band parallel runs of pipe which are side-by-side at the same general place.
- D. Small pipes less than 3/4" diameter may be identified with tags similar to those specified for valves.
- E. Adhere or affix all identification items permanently except where removal may be necessary for maintenance or service.

3.2 MARKERS AND BANDS

- A. Provide on piping as follows:
 - 1. Pipe Concealed in Inaccessible Locations (e.g., Chases, Underground): No identification required.
 - 2. Pipe Concealed in Accessible Locations (e.g., Ceiling Plenums):
 - a. Markers every 20 feet of pipe length. Bands every 15 feet of pipe length.
 - 3. Pipe Exposed in Equipment Rooms:
 - a. Markers every 15 feet of pipe length for pipe through 12 inches O.D. and every 30 feet for pipe 14 inches O.D. and greater.
 - 4. Bands every 10' of pipe length for pipe through 12" O.D. and every 25' for pipe 14" O.D. and greater.
 - 5. Exterior Pipe, Exposed: No identification required unless otherwise indicated.

3.3 VALVE TAGS

- A. Valve tags shall be installed on the following items:
 - 1. All motorized valves (except those valves associated with direct control of flow to air handling apparatus whereby the valve may be identified by reference to the item of equipment it serves).
 - 2. All fire protection system valves located in mains and branches (except those valves in fire hose cabinets).
 - 3. All manual valves which perform functions other than isolation of an equipment item for servicing. This includes, but is not limited to, valves in valve stations, remote locations where use is not evident due to proximity of equipment or other piping, and similar locations.

4. Small piping (other than domestic water) where markers are impractical.
5. Small but critical equipment items on which it is impractical to install labels.

3.4 VALVE TAG LISTS

- A. Prior to substantial completion, provide a complete list of all valves having tags. Indicate the following on such list:
 1. Valve size.
 2. Valve location.
 3. Valve type.
 4. Service application.
 5. Valve manufacturer and model number.
 6. Pressure class and allowable working pressure.

3.5 LABELS

- A. Provide labels of proper size on mechanical system equipment including but not limited to, pumps, chillers, tanks, major piping components such as air separators, air handling equipment, fans, control panels, terminal units, flow stations, reheat coils and similar items.

3.6 COLORS

- A. Colors for piping systems and equipment which are required to be painted shall be as follows for those systems which may be applicable to this project:
 1. Domestic Cold Water: Medium green enamel with domestic cold water legend.
 2. Domestic Hot Water and Domestic Hot Water Recirculation: White insulation with yellow tape or metal bands with domestic hot water (domestic hot water recirculation) legend.
 3. Chilled Water Piping: Blue mastic with blue tape or bands with chilled water supply (or return) legend.
 4. Heating Hot Water Piping: Burnt orange with heating hot water supply (or return) legend.
 5. Gas Piping: Yellow with gas legend.
 6. Compressed Air Piping: Light grey with compressed air legend.
 7. Fire Protection Piping: Red with fire line legend.
 8. Sprinkler Piping: Red with sprinkler legend.
 9. Condenser Water Piping: Tan with condenser water supply (or return) legend.
 10. Roof Drainage Piping: Light green with storm water legend.
 11. Compressed Air Piping: Black with compressed air legend.
 12. Natural or L.P. Gas Piping: Yellow with gas legend.
 13. High (or Medium or Low) Pressure Steam Supply Piping: White insulation jacket or aluminum jacket with yellow tape or bands with HP (MP, L.P.) steam legend.
 14. High (or Medium or Low) Pressure Steam Condensate Piping: White insulation or aluminum jacket with yellow tape or bands with HP (MP, LP) steam legend.
 15. Equipment Hot Vent Piping (Below 100°F): Light brown with vent legend.
 16. Equipment Hot Vent Piping (Above 100°F): Light brown tape or bands over insulation or metal jacket with vent legend.
 17. Vacuum (Housekeeping): Light olive green with vacuum legend.
 18. Fuel Oil (Supply, Return, Vent) Piping: Yellow with fuel oil legend.
 19. Generator Exhaust Piping:
 - a. Insulated: White insulation with yellow tape or band with generator exhaust legend.
 - b. Bare Pipe and Fittings: Silver (suitable for extra high temperature application).

- 20. Sanitary Sewer and Vent Piping: Brown with sanitary sewer (vent) legend.
- 21. Electrical conduit (not specified as painted in other divisions of these specifications): Silver.

B. Identification: Coordinate colors and finishes with pipe identification.

END OF SECTION 230553