

SECTION 23 05 53

IDENTIFICATION FOR HVAC

PART 1 GENERAL

1.01 REFERENCES

- A. American National Standards Institute (ANSI).
 - 1. ANSI A13.1: Scheme for the Identification of Piping Systems.
 - 2. ANSI Z53.1: Safety Color Code for Marking Physical Hazards.
- B. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).

1.02 DEFINITIONS (Excerpts from ANSI A13.1-1981)

- A. Materials inherently hazardous:
 - 1. Flammable or explosive: materials which are easily ignited, including materials known as fire producers or those creating an explosive atmosphere.
 - 2. Chemically active or toxic: Materials which are corrosive, or are in themselves toxic or productive of poisonous gases.
 - 3. At temperatures or pressures: Materials which, when released from the piping, would have a potential for inflicting injury, or property damage by burns, impingement, or flashing to vapor state.
- B. Materials of inherently low hazard: Materials which are not hazardous by nature, and are near enough to ambient pressure and temperature that people working on systems carrying these materials run little risk through their release.
- C. Fire quenching materials: This classification includes sprinkler systems and other piped fire fighting or fire protection equipment. Includes water, chemical foam, CO₂, Clean Agent, etc.

PART 2 PRODUCTS

2.01 IDENTIFICATION MATERIALS FOR PIPING AND EQUIPMENT

- A. Metal tags:
 - 1. Round brass discs, minimum 1-1/2" diameter, with edges ground smooth.
 - 2. Each tag punched and provided with brass chain for installation.
- B. Engraved nameplates:
 - 1. Laminated three-layer plastic with engraved black letters on light contrasting background color.
- C. Pressure sensitive markers: Brady Type 350 flexible vinyl film identification markers and tape, with legend, size and color-coding per ANSI A13.1.
- D. Semi-rigid plastic identification pipe markers: Seton Setmark with legend, size and color-coding per ANSI A13.1. Direction-of-flow arrows are to be included on each marker, unless otherwise specified.
 - 1. Diameters 3/4" through 5": Setmark Type SNA markers.
 - 2. Diameters 6" or larger: Setmark Type STR markers.

PART 3 EXECUTION

3.01 IDENTIFICATION OF PIPING AND EQUIPMENT

- A. General:
 - 1. Provide pipe identification, valve tags, stencils, or engraved nameplates to clearly identify the mechanical equipment, piping and controls of the various mechanical systems and direction of flow in piping.
- B. Methods for identification:

1. Metal tags:
 - a) Stamp tags with letter prefixes to indicate service, followed by a number for location in system.
 2. Engraved nameplates:
 - a) Attach nameplates with brass screws.
 - b) Pressure-sensitive embossed labels are not acceptable.
 - c) Nameplates shall bear the same identifying legend used on the Contract Documents.
 3. Pressure-sensitive markers:
 - a) Apply pressure-sensitive markers with complete wrap-around.
 - b) Test marker adhesion for permanence.
 - c) Markers showing dogears, bubbles, or other failings shall be replaced.
 - d) Place markers at all branches and at a maximum of 25' on center.
 4. Semi-rigid plastic identification markers:
 - a) Seton Setmark pre-molded (not pressure-sensitive) identification markers may be used at Contractor's option on service piping which is accessible for maintenance operations (but not on piping in finished spaces).
 - b) This type of marker shall not be installed on bare pipe when surface temperature exceeds 180°F unless a 1" thick insulation band is first provided under marker for protection from the hot pipe.
- C. Classification of hazards of materials, designation of colors and legend.

Classification	Color of Field	District Letters	Legend
Flammable or Explosive:			
Natural Gas	Yellow	Black	NG
Extreme Temperatures or Pressures:			
Heating Water Supply with Glycol	Yellow	Black	HWS/G
Heating Water Return with Glycol	Yellow	Black	HWR/G
Low-Pressure Steam	Yellow	Black	LPS
Low-Pressure Steam Condensate	Yellow	Black	LPSC
High-Pressure Steam	Yellow	Black	HPS
High-Pressure Steam Condensate	Yellow	Black	HPSC
Boiler Feed Water	Yellow	Black	BFW
Refrigerant	Yellow	Black	REF
Liquid or Liquid Admixture:			
Chilled Water Supply with Glycol	Green	White	CWS/G
Chilled Water Return with Glycol	Green	White	CWR/G
Tower Water Supply	Green	White	TWS
Tower Water Return	Green	White	TWR
Gas or Gaseous Admixture:			
Fire Lines	Red	White	FL

- D. Piping:
1. Identify all piping accessible for maintenance in crawl spaces, tunnels, above ceilings, and access spaces, as well as exposed-to-view, utilizing stenciled markings according to the following procedures.

- a) Use an arrow marker for each pipe-content legend. The arrow shall always point away from the pipe legend and in the direction of flow. Color and height of arrow shall be same as content legend lettering.
 - b) If flow can be in both directions, use a double-headed arrow indication.
 - c) Apply pipe legend and arrow indication at every point of pipe entry or exit where line goes through wall or ceiling cut.
 - d) Apply pipe legend and arrow indication within three feet of each valve to show proper identification of pipe contents and direction of flow.
 - e) The legend shall be applied to the pipe so that lettering is in the most legible position. For overhead piping, apply legend on the lower half of the pipe where view is unobstructed, so that legend can be read at a glance from floor level.
 - f) For pipes under ¾" O.D., fasten brass tags securely at specified legend locations.
 - g) Legends on steam piping, condensate return, compressed air, gas, and vacuum systems shall include working pressure or vacuum.
- E. Valves:
- 1. System service valves, including fire protection, gas, vacuum and special service valves located inside the building shall be tagged and identified as to type of service.
 - 2. Valves or cocks controlling branch mains or risers to various portions of the building shall be tagged and identified as to service and location number.
- F. Controls:
- 1. Magnetic starters and relays shall have engraved nameplates to identify connecting or controlled equipment.
 - 2. Manual operating switches, fused disconnect switches and thermal overload switches which have not been specified as furnished with indexed faceplates shall also have nameplates or be stenciled as to "connected" or "controlled" equipment.
 - 3. Automatic controls, control panels, zone valves, pressure electric, electric pressure switches, relays, and starters shall be clearly identified.
- G. Pumps:
- 1. Pumps shall be identified as to service and zones served.
 - 2. Base-mounted pumps shall be stenciled or have system served nameplates.
 - 3. Brass tags secured by tie wires may be used on small inline pumps.
- H. Storage tanks, water treatment equipment and heaters:
- 1. Tanks and heaters shall be stenciled as to service.
 - 2. The connecting pipes to each shall be identified and the service temperature entering and leaving the tank or heater shall be indicated.
- I. Fans:
- 1. Supply and exhaust fans, air handling units, and connecting ductwork supplying one or more areas from an equipment room or isolated crawl or furred space shall have nameplate or be stenciled as to plan code number, service and areas of zones served.
- J. Air conditioning equipment:
- 1. Equipment such as chillers, pumps, condensers, and rooftop equipment shall be identified by system nameplates.
 - 2. Labels of remote equipment shall also indicate the space(s) being served and the location of their electrical breaker (panel ID, room number and circuit).

3. Refrigeration equipment shall be labeled with the type and approximate quantity of refrigerant.

K. Access doors:

1. Provide engraved nameplates to identify concealed valves, controls, dampers or other similar concealed mechanical equipment. Use the following colors for specified nameplates or labels.
 - a) Red for fire-protection devices, including dampers.
 - b) Blue for air-handling devices.
 - c) Green for plumbing devices and piping.

L. Lift-out ceilings:

1. Provide adhesive labels on ceiling grid to identify concealed valves, filters, fire/smoke dampers or similar concealed mechanical equipment that is directly above nameplate in the ceiling space. Use the following colors for specified labels.
 - a) Red for fire-protection devices, including dampers.
 - b) Blue for air-handling devices.
 - c) Green for plumbing devices and piping.
2. Equipment, including motors, shall be stenciled with the proper class-subclass code and correct unit identification, using a contrasting color.
3. The location of fire dampers above accessible ceilings shall be identified by a red circular dot at least $\frac{3}{4}$ " in diameter or embossed tape adhered to the nearest ceiling grid member.
4. Locations of air-handling devices which have filters and are above accessible ceilings shall be identified by a blue circular dot at least $\frac{3}{4}$ " in diameter or embossed tape adhered to the nearest the nearest ceiling grid member.

M. Terminal units>

1. Identify units with unique numbers corresponding to the drawings, and indicate the space being served.

N. Motors controlled by energy management system>

1. The District may furnish the following self-adhering signs which the Contractor shall install as indicated:

CAUTION

**THIS EQUIPMENT IS
UNDER COMPUTER
CONTROL AND MAY
CYCLE AT ANY TIME.
BEFORE WORKING ON IT,
DISCONNECT THE
ELECTRICAL POWER
AND CONTACT THE
DISTRICT SERVICE
DESK AT 720-423-4020.**

END OF SECTION 23 05 53