SECTION 23 05 53
SYSTEMS IDENTIFICATION FOR HVAC

PART 1 – GENERAL

1.01 WORK INCLUDED

A. The work of this Section shall include, but is not limited to, the following:

1. Valves, automatic control valves, dampers (including smoke and combination fire/smoke dampers) and automatic control dampers identification
2. Equipment identification
3. Piping and ductwork identification
4. Signage

1.02 RELATED DOCUMENTS

A. Section 23 05 01 – HVAC General Provisions

B. Section 23 05 50 – Access Doors in General Construction for HVAC

C. Section 23 09 23 – Building Management System (BMS)

D. Section 23 23 00 – Refrigerant Piping and Accessories

1.03 REFERENCE STANDARDS

Published specifications standards, tests or recommended methods of trade, industry or governmental organizations apply to work in this Section where cited below:

A. ASME – American Society of Mechanical Engineers

1. ASME A13.1 Scheme for the Identification of Piping Systems

B. ASTM – American Society for Testing and Materials

1. ASTM D709-17 Standard Specification for Laminated Thermosetting Materials

C. APWA – American Public Works Association

1. Recommended Marking Guidelines for Underground Utilities

1.04 QUALITY ASSURANCE

A. Above ground piping identification shall comply with ASME Standard A13.1.

1.05 SUBMITTALS

A. Submit the following:

1. Valve identification chart
2. Automatic control valve identification chart (obtain from the contractor for

inclusion with this submittal)
3. Damper identification chart (including smoke and combination fire/smoke dampers)
4. Automatic control damper identification chart (obtain chart from the contractor for inclusion with this submittal)
5. Lists of pipe and equipment to be labeled
6. Color chart

B. Product Data: Manufacturer's latest published data for materials, equipment and installation, including samples of valve and damper tags, equipment identification and piping identification.

C. Maintenance Manuals: Provide valve and damper tag schedules for inclusion in maintenance manuals.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Seton

B. Stranco

C. Kolbi

2.02 VALVE AND DAMPER IDENTIFICATION

A. All tagged components shall be in accordance with ASME A13.1.

B. For valves, smoke and combination fire/smoke dampers and automatic control dampers, use metal tags 2-inch minimum diameter, fabricated of 19-gauge polished brass, stainless steel or aluminum.

1. Attach tags with jack chain "S"-hook or split ring of same materials.
2. Provide engraved/stamped tags with black ink-filled ¼-inch high letters and ½-inch high numbers.
3. Provide minimum $^{5}/_{32}$-inch hole for fastener.

2.03 PIPE IDENTIFICATION

A. Pipe markers shall have 1¼-inch high letters and integral directional flow arrows. Smaller letters may be used only when space does not permit 1¼-inch high lettering.

B. For piping up to 5-inch diameter, use pre-formed snap-on markers.

C. For piping 6-inch diameter and up, use pre-formed strap-on markers with nylon straps.

D. Material: Semi-rigid colored vinyl; 15 gauge up to 1-inch pipe, 30 gauge for all other pipe sizes.

E. Seton "Setmark" or equal.

F. Pressure-sensitive tapes are unacceptable.

G. Exterior Underground Pipe Markers:

1. Material shall be detectable tape, nominal 5-mil thick, minimum 3 inches wide with aluminum backing.
2. Tape color, size and depth to be in accordance with APWA standards with black lettering and appropriate warning message.

2.04 EQUIPMENT IDENTIFICATION

A. Mechanical equipment shall be identified by means of nameplates permanently screw-fastened to the equipment. Nameplates shall be black surface, white core laminated bakelite with engraved letters. Plates shall be a minimum of 3-inch long by 1-inch wide with white letters ⅜-inch high.

B. Identification of Automatic Controls: Refer to Section 23 09 23 – Building Management System (BMS) for identification requirements.

C. Terminal equipment installed in ceiling spaces such as variable volume terminals, fan coil units, heat pumps, etc., shall have identifying number stenciled on bottom of unit so that it is visible from below.

2.05 SIGNAGE

A. Provide engraving stock melamine plastic laminate, complying with ASTM D709, in sizes and thicknesses indicated, engraved with engraver's standard letter style of sizes and wording indicated, black with white core (letter color) except as otherwise indicated, punched for mechanical fastening except where adhesive mounting is necessary because of substrate.

1. Thickness: $^{1}/_{16}$-inch for signs up to 20 square inches or 8-inch length; ⅛-inch for larger signs.
2. Fasteners: Self-tapping stainless steel screws, except contact type permanent adhesive where screws cannot or should not penetrate substrate.

PART 3 – EXECUTION

3.01 VALVE AND AUTOMATIC DAMPER IDENTIFICATION

A. Do not identify valves where the use is obvious, such as equipment isolation valves.

B. Provide schedules of all valves showing identification number, size, type and service of each valve. Provide separate list for each separate type of system. Incorporate in maintenance manuals.

C. Tag automatic dampers including smoke and combination fire/smoke dampers with identical letters or numbers as shown on the Drawings.

3.02 EQUIPMENT IDENTIFICATION

A. Identify equipment with identical letter and/or number as used on the Drawings. Where space is available, use full name of equipment. Attach nameplates in a permanent manner in a location that will be clearly visible after installation is complete. Writing equiptment info in with marker is not acceptable.

B. Controls identification shall be specified in Section 23 09 23 – Building Management System (BMS) for HVAC. Also identify controls not included in Section 23 09 23 such as float switches, alarms, remote push-button switches with ¼-inch high lettering and laminated plastic plates screwed or chained to equipment.

3.03 PIPING IDENTIFICATION

A. Piping identification shall be in conformance with the ASME A13.1.

B. Identify piping systems with color-coded bands, sharply contrasting with background. Locate bands near strategic points, such as valves, items of equipment, changes in direction, wall penetrations, capped stub-out for future connection and every 40 feet of straight runs. If necessary, paint a strip background of black or white to obtain contrast.

C. Apply bands where they can be easily read. Provide bands with backgrounds of different colors.

D. Drain piping serving mechanical equipment items for which the drain discharge is not visible from the equipment shall be marked near the point of discharge indicating the item of equipment served.

3.04 ACCESS IDENTIFICATION

A. Identify service, damper, duct access door, piping and equipment behind all architectural access doors.

B. Removable ceiling tile shall be marked by small color markings at corner of tile or door in accordance with the following color assignments:

1. HVAC Cooling: Green
2. HVAC Heating: Yellow
3. HVAC Heating/Cooling: Yellow/Green
4. HVAC (other): Blue

3.05 INSTALLATION OF IDENTIFICATION

A. 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.

END OF SECTION 23 05 53