

SECTION 230553 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUBMITTAL REQUIREMENTS

- A. Product Data
 - 1. For each type of product indicated.
- B. Shop Drawings
 - 1. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.
- C. Samples
 - 1. For color, letter style, and graphic representation required for each identification material and device.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. General: Subject to compliance with requirements, provide mechanical identification materials of one of the following:
 - 1. Brady (W.H.) Co., Signmark Div.
 - 2. Brimar.
 - 3. Seton Name Plate Corp.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- B. Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.
 - 1. Size: Approximately 4 by 7 inches.
 - 2. Fasteners: Brass grommet and wire.
 - 3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."
 - 4. Color: Yellow background with black lettering.
- C. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

- D. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- E. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- F. Fasteners: Stainless-steel rivets or self-tapping screws.
- G. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- H. Label Content: Include caution and warning information, plus emergency notification instructions.

2.3 EQUIPMENT LABELS

- A. Plastic Labels for Equipment:
 - 1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
 - 2. Letter Color: Black.
 - 3. Background Color: White.
 - 4. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
 - 5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 - 6. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 - 7. Fasteners: Stainless-steel rivets or self-tapping screws.
 - 8. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number.
- C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.4 PIPE LABELS

- A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

- B. For piping less than NPS 6, Provide full-band pipe markers, extending 360 degrees around pipe, fastened by one of the following:
 - 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 $\frac{3}{4}$ " wide; full circle at both ends of pipe marker, tape lapped 1-1/2".
- C. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.
- D. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

2.5 DUCT LABELS

- A. Material and Thickness: Multilayer, multicolor, pre-printed, self-adhesive plastic labels.
- B. Letter Color: White.
- C. Background Color: Blue, red, orange and green.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 inches by 3/4 inch.
- F. Minimum Letter Size: 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- H. Duct Label Contents: Include identification of duct service using same designations or abbreviations as used on Drawings, duct size, and an arrow indicating flow direction.
 - 1. Flow-Direction Arrows: Integral with duct system service lettering to accommodate both directions, or as separate unit on each duct label to indicate flow direction.
 - 2. Lettering Size: At least 1-1/2 inches high.

PART 3 - EXECUTION**3.1 WARNING-TAG INSTALLATION**

- A. Write required message on, and attach warning tags to, equipment and other items where required.

3.2 EQUIPMENT LABEL INSTALLATION

- A. The contractor shall provide labeling for each piece of equipment above the ceiling. Labeling shall be on ceiling grid (not ceiling tile) below the equipment. The label shall match the equipment identification shown on the drawings sheet.
- B. General: Install engraved plastic laminate 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. Fans, blowers, primary balancing dampers, air blenders and mixing boxes.
- C. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

- A. General: Install pipe markers on each system of flow, provide type and temperature identification, and include arrows to show normal direction of flow:
 - 1. Heating (200 degrees F) Supply Return
- B. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:
 - 1. Near each valve and control device.
 - 2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
 - 3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
 - 4. At access doors, manholes, and similar access points that permit view of concealed piping.
 - 5. Near major equipment items and other points of origination and termination.
 - 6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
- C. Pipe Label Color Schedule:
 - 1. Refrigerant Piping:
 - a. Background Color: White.

- b. Letter Color: Brown.
- 2. Air conditioning Condensate Piping
 - a. Background Color: White.
 - b. Letter Color: Green.

3.4 DUCT LABEL INSTALLATION

- A. General: Identify air supply, return, exhaust, intake and relief ductwork with tags and arrows, showing ductwork service and direction of flow.
- B. Install plastic-laminated, self-adhesive duct labels with permanent adhesive on air ducts in the following color codes:
 - 1. Blue: For supply air ducts.
 - 2. Red: For return air ducts.
 - 3. Orange: For outside air ducts
 - 4. Green: For exhaust-, relief-, and mixed-air ducts.
 - 5. ASME A13.1 Colors and Designs: For hazardous material exhaust.
- C. 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. Identification shall be applied only to new work.

END OF SECTION 230553