

SECTION 23 05 53 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Equipment labels.
2. Warning signs and labels.
3. Warning tape.
4. Duct labels.
5. Warning tags.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Equipment-Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032-inch or stainless steel, 0.025-inch minimum thickness, with predrilled or stamped holes for attachment hardware.
2. Letter and Background Color: As indicated for specific application under Part 3.
3. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
4. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances of 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.
5. Fasteners: Stainless steel rivets or self-tapping screws.
6. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Plastic Labels for Equipment:

1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, with predrilled holes for attachment hardware.
2. Letter and Background Color: As indicated for specific application under Part 3.
3. Maximum Temperature: Able to withstand temperatures of up to 160 deg F.
4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

- 5. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances of 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.
 - 6. Fasteners: Stainless steel rivets or self-tapping screws.
 - 7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- C. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), and the Specification Section number and title where equipment is specified.

2.2 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, with predrilled holes for attachment hardware.
- B. Letter and Background Color: As indicated for specific application under Part 3.
- C. Maximum Temperature: Able to withstand temperatures of 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 of 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-taping screws.
- G. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- H. Arc-Flash Warning Signs: Provide arc-flash warning signs in locations and with content in accordance with requirements of OSHA and NFPA70E and other applicable codes and standards.
- I. Label Content: Include caution and warning information plus emergency notification instructions.

2.3 WARNING TAPE

- A. Material: Vinyl.
- B. Minimum Thickness: 0.005 inch.
- C. Letter, Pattern, and Background Color: As indicated for specific application under Part 3.
- D. Waterproof Adhesive Backing: Suitable for indoor or outdoor use.
- E. Maximum Temperature: 160 deg F.
- F. Minimum Width: 2 inches.

2.4 DUCT LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8 inch thick, and having predrilled holes for attachment hardware.
- B. Letter and Background Color: As indicated for specific application under Part 3.
- 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 of 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. Duct Label Contents: Include identification of duct service using same designations or abbreviations as used on Drawings. Also include the following:
 - 1. Duct size.
 - 2. Flow-Direction Arrows: Include flow-direction arrows on distribution ducts. Arrows may be either integral with label or may be applied separately.
 - 3. Lettering Size: Size letters in accordance with ASME A13.1 for piping.

2.5 STENCILS

- A. Stencils for Ducts:
 - 1. Lettering Size: Minimum letter height of 1-1/4 inches for viewing distances of up to 15 ft. and proportionately larger lettering for greater viewing distances.
 - 2. Identification Paint: Exterior, acrylic enamel . Paint may be in pressurized spray-can form.
 - 3. Letter and Background Color: Color as indicated for specific application under Part 3.

2.6 WARNING TAGS

- A. Description: Preprinted or partially preprinted accident-prevention tags of plasticized card stock with matte finish suitable for writing.
 - 1. Size: 3 by 5-1/4 inches minimum.
 - 2. Fasteners: Brass grommet and wire.
 - 3. Nomenclature: Large-size primary caption, such as "DANGER," "CAUTION," or "DO NOT OPERATE."
 - 4. Letter and Background Color: As indicated for specific application under Part 3.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean piping and equipment surfaces of incompatible primers, paints, and encapsulants, as well as dirt, oil, grease, release agents, and other substances that could impair bond of identification devices.

3.2 INSTALLATION, GENERAL REQUIREMENTS

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with locations of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.
- D. Locate identifying devices so that they are readily visible from the point of normal approach.

3.3 INSTALLATION OF EQUIPMENT LABELS, WARNING SIGNS, AND LABELS

- A. Permanently fasten labels on each item of mechanical equipment.
- B. Sign and Label Colors:
 - 1. Non-emergency powered equipment: White letters on a black background.
 - 2. Emergency powered equipment: White letters on a black background.
- C. Locate equipment labels where accessible and visible.
- D. Provide plastic labels on equipment with surface temperatures less than 150 degrees F.
- E. Provide metal labels on equipment with surface temperatures equal to or greater than 150 degrees F.
- F. Arc-Flash Warning Signs: Provide arc-flash warning signs on electrical disconnects and other equipment where arc-flash hazard exists, as indicated on Drawings, and in accordance with requirements of OSHA and NFPA 70E, and other applicable codes and standards.

3.4 INSTALLATION OF WARNING TAPE

- A. Warning Tape Color and Pattern: Yellow background with black diagonal stripes.
- B. Install warning tape on pipes and ducts, with cross-designated walkways providing less than 6 ft. of clearance.
- C. Locate tape so as to be readily visible from the point of normal approach.

3.5 INSTALLATION OF DUCT LABELS OR STENCILS

- A. Install self-adhesive duct labels or paint stencils showing service and flow direction with permanent adhesive on air ducts.
 - 1. Provide labels in the following color codes:
 - a. For air supply ducts: White letters on blue background.
 - b. For air return ducts: White letters on green background.
 - c. For general exhaust-, outside-, relief-, return-, and mixed-air ducts: White letters on green background.
- B. Locate label near each point where ducts enter into and exit from concealed spaces and at maximum intervals of 20 ft. where exposed or are concealed by removable ceiling system.

3.6 INSTALLATION OF WARNING TAGS

- A. Warning Tag Color: Black letters on an ANSI Z535.1 safety-yellow background.
- B. Attach warning tags, with proper message, to equipment and other items where scheduled.

END OF SECTION