SECTION 210553

IDENTIFICATION FOR FIRE SUPPRESSION PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Equipment labels
2. Pipe labels
3. Valve tags
4. Information signs

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For color, letter style, and graphic representation required for each identification material and device

C. Information Sign Proofs: Proposed information signs completed with required data and installation details.

D. Equipment-Label Schedule: Include a listing of all equipment to be labeled and the proposed content for each label.

E. Valve Schedules: Valve numbering scheme.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each piping system to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Identification products for fire suppression piping and equipment compliant with this Section except as modified and approved by the authority having jurisdiction (AHJ).

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032 inch (0.8 mm) thick, with predrilled holes for attachment hardware.
2. Letter Color: White.
3. Background Color: Red.
4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch (64 by 19 mm).

5. Minimum Letter Size: 1/4 inch (6.4 mm) for name of units if viewing distance is less than 24 inches (600 mm), 1/2 inch (13 mm) for viewing distances up to 72 inches (1830 mm), 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.
7. 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 (3.2 mm) thick, with predrilled holes for attachment hardware.
2. Letter Color: White.
3. Background Color: Red.
4. Maximum Temperature: Able to withstand temperatures up to 160 deg F (71 deg C).
5. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch (64 by 19 mm).
6. Minimum Letter Size: 1/2 inch (13 mm) for viewing distances up to 72 inches (1830 mm), 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.
8. 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.

D. Equipment-Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch (A4) bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules) and the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 PIPE LABELS

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

B. Pretensioned Pipe Labels: Precoiled, semirigid plastic formed to cover full circumference of pipe and to attach to pipe without fasteners or adhesive.

C. 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 inch (38 mm) high.

D. Pipe-Label Colors:

1. Background Color: Red.
2. Letter Color: White.

2.3 VALVE TAGS

A. Description: Stamped or engraved with 1/4-inch (6.4 mm) letters for piping-system abbreviation and 1/2-inch (13 mm) numbers.

1. Tag Material: Brass, 0.032 inch (0.8 mm) thick, with predrilled holes for attachment hardware.
2. Fasteners: Brass wire-link chain, beaded chain, or S-hook.
3. Valve-Tag Color: Natural Brass.
4. Letter Color: Black.

B. Valve-Tag Size and Shape: 2 inches (50 mm), round.

C. Valve Schedules: For each piping system, on 8-1/2-by-11-inch (A4) bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.

1. Valve-tag schedule shall be included in operation and maintenance data.

2.4 INFORMATION SIGNS

A. Material and Thickness: Multi-layer, multi-color plastic, mechanically engraved, 1/8 inch (3.2 mm) thick.

B. Letter Color: White.

C. Background Color: Red.

D. Maximum Temperature: Able to withstand temperatures up to 160 deg F (71 deg C).

E. Minimum Letter Size: 1/4 inch (6.4 mm).

F. Adhesive: Contact type permanent adhesive, compatible with label and with substrate.

G. Minimum Indications for NFPA 13 General Information Signs:

1. Name and location of facility protected.
2. Occupancy classification.
3. Commodity classification.
4. Presence of high-piled and/or rack storage.
5. Maximum height of storage planned.
6. Aisle width planned.
7. Encapsulation of pallet loads.
8. Presence of solid shelving.
9. Flow test data.
10. Presence of flammable/combustible liquids.
11. Pressure of hazardous materials.
12. Presence of other special storage.
13. Location of auxiliary drains and low point drains on dry pipe and preaction systems.
14. Original results of main drain flow test and date conducted.
15. Name of installing contractor and contact information.

H. Minimum Indications for NFPA 13 Hydraulic Design Information Signs:

1. Location of design area.
2. Discharge density over the design area.
3. Required flow and residual pressure at the fire pump discharge, or if no pump is present at the connection to the water supply.
4. Occupancy classification, or commodity classification, maximum storage height, and configuration.
5. Hose stream allowance.
6. Installing Contractor's name and contact information.

I. Minimum Indications for NFPA 14 Hydraulic Design Information Signs:

1. Location of the two hydraulically most remote hose connections.
2. Design flow rate for the hydraulically most remote hose connections.
3. Design residual inlet and outlet pressures for the hydraulically most remote hose connections.
4. Design static pressure and design system demand at the system control valve or fire pump discharge, and at each fire department connection.

J. Minimum Indications for NFPA 14 Water Supply Pump Signs:

1. Minimum pressure and flow required at the pump discharge flange to meet the system demand.

PART 3 - EXECUTION

3.1 PREPARATION

A. Obtain authority having jurisdiction (AHJ) approval for identification materials, lettering, colors, indications, quantity, and locations.

B. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 GENERAL INSTALLATION 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.

3.3 EQUIPMENT LABEL INSTALLATION

A. Install or permanently fasten labels on each major item of mechanical equipment including pumps, controllers, releasing control units, packaged systems, air compressors, nitrogen generators, and similar.

B. Locate equipment labels where accessible and visible.

3.4 PIPE LABEL INSTALLATION

A. Pipe-Label Locations: 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. 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 (15 m) along each run. Reduce intervals to 25 feet (7.6 m) in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

3.5 VALVE-TAG INSTALLATION

A. Install tags on valves and control devices in piping systems. List tagged valves in a valve-tag schedule.

3.6 INFORMATION SIGN INSTALLATION

A. Permanently mount information signs in locations as required by NFPA and authority having jurisdiction (AHJ).

B. Install NFPA 13 General Information Signs at each system control riser.

C. Install NFPA 13 Hydraulic Design Information Signs at each system riser.

1. Provide separate hydraulic design information signs for each design performance criteria.

D. Install NFPA 14 Hydraulic Design Information Signs at system control valves.

E. Install NFPA 14 Water Supply Pump Signs in the immediate vicinity of fire pumps or connected controllers.

END OF SECTION