

## SECTION 23 05 53 - IDENTIFICATION FOR PIPING AND EQUIPMENT

### PART 1 - GENERAL (NOT USED)

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Identification Devices:
    - a. Seton Name Plate Company
    - b. Marking Services, Inc.
    - c. National Marker Co.
  - 2. Paint:
    - a. Benjamin Moore
    - b. Devoe
    - c. Glidden

#### 2.2 MATERIALS, GENERAL

- A. Plastic Pipe Markers
  - 1. Pipe labels that adhere to pipe or insulation surface with directional arrows.
- B. Tags:
  - 1. Engraved anodized aluminum or engraved plastic, 2-inch diameter. Pre-punched and provided with brass chain.
- C. Labels and Nameplates:
  - 1. Laminated three-layer plastic with black engraved letters on light contrasting background color, drilled for mounting with two sheet metal or brass screws. Pressure-sensitive embossed labels are not acceptable.
- D. Paint Stencils:
  - 1. Use metal stencils only. No cardboard stencils are allowed.
    - a. Size of Legend and Letters for Stencils:

Insulation or Pipe Diameter	Length of Color Field	Size of Letters
3/4" to 1-1/4"	8"	1/2"
1-1/2" to 2"	8"	3/4"
2-1/2" to 6"	12"	1-1/4"
Ductwork & Equipment	N/A	2-1/2"
- E. Paint:
  - 1. Exterior grade oil-based alkaloid gloss stenciling spray paint. Color complying with NEMA Z535.1.
- F. Underground Plastic Line Markers:
  - 1. Multi-ply tape consisting of solid aluminum foil core between 2 layers of plastic tape, not less than 6-inches wide x 4 mils thick.
- G. Valve Schedule Frames:
  - 1. Provide frames of finished hardwood or extruded aluminum, with non-glare glass.

### PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Provide pipe identification, valve tags, stencils, or engraved name plates to clearly identify all mechanical equipment, including motors, piping and controls of the various mechanical systems and direction of flow in piping.
- B. Plastic Pipe Markers
  - 1. On bare pipe when surface temperature exceeds 180 degree F provide a 1- inch thick insulation band under marker for protection from the hot pipe.
- C. Piping, Ducts, and Equipment Identification:
  - 1. Piping:
    - a. 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:
      - 1) 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 to be same as content legend lettering.
      - 2) If flow can be in both directions, use a double-headed arrow indication.
      - 3) Apply pipe legend and arrow indication at every point of pipe entry or exit where line goes through wall or ceiling cut.
      - 4) Apply pipe legend and arrow indication within 3 inch of each valve to show proper identification of pipe contents and direction of flow.
      - 5) Apply legend 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.
      - 6) Pipes under 3/4 inch O.D.: Fasten brass tags securely at specified legend locations.
      - 7) Legend on steam piping, condensate return, compressed air, gas, and vacuum systems: Include working pressure or vacuum.
  - 2. Valves:
    - a. System service valves located inside the building: Tag and identify as to type of service.
    - b. Valves or cocks controlling branch mains or risers to various portions of the building: Tag and identified as to service and location.
  - 3. Controls:
    - a. Magnetic starters and relays: Install nameplates or stencil to identify connecting or controlled equipment.
    - b. Manual operating switches, fused disconnect switches and thermal over-load switches which have not been specified as furnished with indexed face plates: Install nameplates or be stencil as to controlled equipment.
    - c. Automatic controls, control panels, zone valves, pressure electric, electric pressure switches, relays, and starters: Clearly identified with unit served and function.
    - d. Identify all starters, disconnect switches, and manually operated controls, except integral equipment switches with nomenclature corresponding to operating instructions in the "Operation and Maintenance Manual". Coordinate with the university Facilities Operations personnel through the university Project Manager.
  - 4. Fans:
    - a. Label exhaust fans, air handling units and connecting ductwork supplying one or more areas from an equipment room or isolated crawl or furred space. Install nameplate or stencil as to plan code number, service and areas or zones served.
  - 5. Pumps:
    - a. Identify as to service and zones served.
    - b. Install nameplate or stencil system served on base mounted pumps.
    - c. Install brass tags secured by tie wires on small in-line pumps.
  - 6. Storage Tanks, Water Treatment Equipment and Heaters:
    - a. Stencil service on tanks and heaters

- b. Label connecting pipes and indicate the service temperature entering and leaving the tank or heater.
- 7. Air Conditioning Equipment:
  - a. Equipment such as chillers, pumps, condensers, or rooftop equipment: Identified by stencils, or system nameplates. Labels of remote equipment shall also indicate the space(s) being served and the location of their electrical breaker (Panel ID, Room No. And Circuit).
  - b. Identify locations of air handling devices which have filters and are above accessible ceilings by a blue circular dot or tack at least 3/4 inch in diameter, or embossed tape, adhered to the nearest T-bar.
- 8. Access Doors:
  - a. Provide engraved nameplates or painted stencils to identify concealed valves, controls, dampers or other similar concealed mechanical equipment.
  - b. Identify the locations of fire dampers above accessible ceilings with a red circular dot at least 3/4 inch in diameter, or embossed tape, adhered to the nearest T-bar. Access door shall be painted red.
  - c. Obtain the university Project Manager’s approval before installation on all access doors in finished areas.
- 9. Lift-Out Ceilings:
  - a. Provide engraved nameplates on ceiling tee stem (screwed or riveted, adhesive not allowed) to identify concealed valves, filters, fire/smoke dampers or similar concealed mechanical equipment that is directly above nameplate in ceiling space.
  - b. Obtain the university Project Manager’s approval before installation.
- 10. Terminal Units:
  - a. Identify all units with unique numbers corresponding to the drawings, and indicate the space being served.
  - b. Use engraved plastic laminate labels affixed to each box by screws or rivets.

### 3.2 SCHEDULES

#### A. Piping Identification

Classification	Color of Field	The Campus Letters	Legend
Materials Inherently Hazardous:			
Flammable or Explosive:			
Natural Gas	Yellow	Black	NG
Lab Waste	Yellow	Black	AW
Extreme Temperatures or Pressures:			
Domestic Hot Water	Yellow	Black	Dom HW
Domestic Hot Water, Circulating	Yellow	Black	Dom HWC
Heating Water Supply	Yellow	Black	HWS
Heating Water Return	Yellow	Black	HWR
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
High Pressure Compressed Air (over 90 psig)	Yellow	Black	CA
Materials of Inherently Low Hazard:			
Liquid or Liquid Admixture:			
Distilled Water	Green	White	DW

Classification	Color of Field	The Campus Letters	Legend
Domestic Cold Water	Green	White	Dom CW
Sanitary Sewer	Green	White	SAN
Waste Vent	Green	White	V
Chilled Water Supply	Green	White	CWS
Chilled Water Return	Green	White	CWR
Condenser Water Supply	Green	White	CS
Condenser Water Return	Green	White	CR
Gas or Gaseous Admixture:	Blue	White	
Medium Pressure Compressed Air (30 to 90 psig)	Blue	White	CA
Low Pressure Compressed Air (less than 30 psig)	Blue	White	CA
Vacuum	White	Black	VAC
Fire Quenching Materials:			
Fire Lines	Red	White	FL

B. Mechanical Equipment Naming Strategy:

1. Equipment identification numbers may be up to 32 characters. Equipment naming strategy is:  
 System – Bld – Number  
 ###-#####-##-###
2. The first three placeholders are reserved for the system designation (alpha characters)
3. The fourth character is a hyphen.
4. The fifth through ninth placeholders are reserved for the building designation (alpha and/or numeric)
5. The tenth character is a hyphen
6. The eleventh through sixteenth placeholders are a “smart number.” It is composed of a two-digit, alpha or numeric, floor location designator followed by a hyphen and a three digit numeric sequential indicator.
7. The seventeenth character is a hyphen
8. In some instances the point name will be followed by a hyphen and a sub-point name
9. All device and point names will be assigned by the Facilities Operations, Building Operations Department.
10. All references to equipment and devices in drawings, labels, equipment tags, BAS system, etc., must use this naming convention.
11. Equipment designation, for prints may exclude the building designator.

**END OF SECTION 23 05 53**