

Div 23b - Mechanical Identification Standard 2020 07 10 (1)

Dalhousie University Design Guidelines provide assistance to consultants during the planning, and design phases of the University's expansion and renovations. The Guidelines do not relieve a consultant from any professional responsibility, duty or due diligence to design elegant, functional, efficient and low maintenance facilities.

Facility owners have preferred materials and requirements that make the task of maintaining facilities less costly. Dalhousie understands this is a balance between capital and operating cost. The Guidelines are not intended to be the only acceptable solution. Dalhousie expects consultants to bring modern and innovative ideas, materials and methods to the University. If these Guidelines do not allow these new ideas then the consultant is to make a request in writing to the Dalhousie Project Manager for an exception to the guidelines. Necessary reasoning and or calculations shall accompany the request. The exception request will be reviewed internally and either rejected or accepted. The consultant will document this rational and/or justification for each exception in the Basis of Design. The University Guidelines may be updated subsequently.

These documents provide design guidelines only, and are not intended for use, in whole or in part, as a specification. Do not copy the guidelines verbatim in specifications or in notes on drawings. Refer questions and comments regarding the content and use of these documents to the Dalhousie University Project Manager. The Guidelines are intended to be read in conjunction with the local codes and regulations, and in no way are to be considered as a code replacement. The codes and regulations represent the minimum acceptable standard. Where the technical design requirements differ from the building codes and other applicable codes and standards, the more stringent of the codes shall be applied.

Maintaining the Standards/Guidelines

The Design Guidelines are created and maintained by Dalhousie's Facilities Management Department. Any enquiries about the Guidelines should be directed to Facilities Management, Director of Projects, Central Services Building. Dalhousie encourages design specialists and other interested parties to provide their input and suggestions based on their experience.

Locating this Standard's content in project specifications

The national master specification system has the following individual section for mechanical identification:

21 05 53 Identification for Fire-Suppression Piping and Equipment.

22 05 53 Identification for Plumbing Piping and Equipment.

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23 05 53 Identification for HVAC Piping and Equipment.

25 05 53 Identification for Integrated Automation.

The University requires the content of this Standard to be placed in a new, combined section, 23 05 54 – Mechanical Identification.

The following Common Work Results sections shall list “Section 23 05 54 – Mechanical Identification” in Part 1, 1.1 Related Requirements:

21 05 00 – Common Work Results For Fire Suppression

22 05 00 – Common Work Results For Plumbing

23 05 00 – Common Work Results For HVAC

25 05 01 – EMCS: GENERAL REQUIREMENTS, shall list “Section 23 05 54 – Mechanical Identification” in Part 1, 1.1.2 Related Requirements

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1. MANUFACTURER'S EQUIPMENT NAMEPLATES

- 1.1. Metal or lamicoïd nameplate mechanically fastened to each piece of equipment by manufacturer.
- 1.2. Lettering and numbers to be recessed.
- 1.3. Information to include, as appropriate:
 - 1.3.1. Equipment: Manufacturer's name, model, size, serial number, capacity.
 - 1.3.2. Motor: voltage, Hz, phase, power factor, duty, frame size.

2. SYSTEM NAMEPLATES

- 2.1. Lamicoïd:
 - 2.1.1. Colors:
 - .1 Hazardous: red letters, white background.
 - .2 Elsewhere: black letters, white background (except where required otherwise by applicable codes).

- 2.1.2. Construction:

3 mm thick laminated plastic or white anodized aluminum, matte finish, with square corners, letters accurately aligned and machine engraved into core.

- 2.1.3. Sizes:

Conform to following table:

#	mm	Lines	Letters (mm)
1	10 x 50	1	3
2	13 x 75	1	5
3	13 x 75	2	3
4	20 x 100	1	8
5	20 x 100	2	5
6	20 x 200	1	8
7	25 x 125	1	12
8	25 x 125	2	8
9	35 x 200	1	20

Use maximum of 25 letters/numbers per line.

- 2.2. Brass Tags:

- 2.2.1. Brass tags to be made of 18-gauge brass. Tags to be round or rectangular with rounded corners. Attach to valves / equipment with chain.

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2.3. Locations:

- 2.3.1. Terminal cabinets, control panels: Use size # 5.
- 2.3.2. Equipment in Mechanical Rooms: Use size # 9.

3. PIPING SYSTEMS GOVERNED BY CODES

- 3.1. Sprinklers: to NFPA 13.
- 3.2. Standpipe and hose systems: to NFPA 14.
- 3.3. Fire Cabinets and Fire Extinguishers: NFPA 10

4. LOCATION OF IDENTIFICATION ON PIPING AND DUCTWORK SYSTEMS

- 4.1. On long straight runs in open areas in equipment rooms, galleries, tunnels: At not more than 17 m intervals and more frequently if required to ensure that at least one is visible from any one viewpoint in operating areas and walking aisles.
- 4.2. Adjacent to each change in direction.
- 4.3. At least once in each small room through which piping or ductwork passes.
- 4.4. On both sides of visual obstruction or where run is difficult to follow.
- 4.5. On both sides of separations such as walls, floors, partitions.
- 4.6. Where system is installed in pipe chases, ceiling spaces, galleries, confined spaces, at entry and exit points, and at access openings.
- 4.7. At beginning and end points of each run and at each piece of equipment in run.
- 4.8. At point immediately upstream of major manually operated or automatically controlled valves, dampers, etc. Where this is not possible, place identification as close as possible, preferably on upstream side.
- 4.9. Identification to be easily and accurately readable from usual operating areas and from access points.
- 4.10. Position of identification to be approximately at right angles to most convenient line of sight, considering operating positions, lighting conditions, risk of physical damage or injury and reduced visibility over time due to dust and dirt.
- 4.11. Maximum distance between non potable pipe identification to be 60".
- 4.12. Maximum distance between medical gas pipe identification to be 20'-0".

5. PIPING SYSTEMS IDENTIFICATION

- 5.1. Identify contents by background colour marking, pictogram (as necessary), legend; direction of flow by arrows. To CAN/CGSB 24.3 except where specified otherwise.
- 5.2. Pictograms:

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- 5.2.1. Where required, to Workplace Hazardous Materials Information System (WHMIS) regulations.
- 5.3. Legend:
 - 5.3.1. Block capitals to sizes and colours listed in CAN/CGSB 24.3.
- 5.4. Arrows showing direction of flow:
 - 5.4.1. Outside diameter of pipe or insulation less than 75 mm: 100 mm long x 50 mm high.
 - 5.4.2. Outside diameter of pipe or insulation 75 mm and greater: 150 mm long x 50 mm high.
 - 5.4.3. Use double-headed arrows where flow is reversible.
- 5.5. Extent of background colour marking:
 - 5.5.1. To full circumference of pipe or insulation.
 - 5.5.2. Length to accommodate pictogram, full length of legend and arrows.
- 5.6. Materials for background colour marking, legend, arrows:
 - 5.6.1. Pipes and tubing 20 mm and smaller: Waterproof and heat-resistant pressure sensitive plastic marker tags.
 - 5.6.2. All other pipes: Pressure sensitive plastic-coated cloth or vinyl with protective overcoating, waterproof contact adhesive undercoating, suitable for ambient of 100%RH and continuous operating temperature of 150°C and intermittent temperature of 200°C.
- 5.7. Waterproof and Heat Resistant Pressure Sensitive Plastic Marker Tags: for pipes and tubing $\frac{3}{4}$ " nominal and smaller.
- 5.8. Stenciled Identification:
 - 5.8.1. As an alternate to manufactured pipe markers identification may be stenciled on pipe except PVC piping using a first quality oil base paint and colour bands. Colored bands to be installed at each end of identification. Letters shall be a minimum of 2" high. Text to be black.
 - 5.8.2. Have a small sample of stenciled identification (at least one (1) of each service) reviewed by engineer prior to identifying pipework.
- 5.9. Outdoor Pipe:
 - 5.9.1. Use stenciled identification on aluminum jacket.
 - 5.9.2. Provide waterproof colored adhesive banding suitable for temperatures below -30°C at each end of identification. Banding to wrap around pipe and lap itself.
 - 5.9.3. Gas / Propane pipe painted yellow need not be identified.
- 5.10. Colours and Legends:
 - 5.10.1. All pipes to be identified. Where not listed, obtain direction from the University Project Manager.
 - 5.10.2. Colors for legends, arrows, to following table:

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Background Colour	Text and Arrows
Black	White
Black/White	White/Black
Brown	White
Dark Blue	White
Green	White
Grey	Black
Light Grey	Black
Light Blue	White
Magenta	White
Purple	White
Red	White
Black / White Striped	Black
White (Oxygen)	Green
White (Others)	Black
Yellow	Black

5.10.3. Background color marking and legends for piping systems:

Contents	Banding	Background Colour	Legend
Plumbing			
Acid Waste	Yellow	Yellow	ACID WASTE
Acid Vent	Yellow	Yellow	ACID VENT
Brine	Green	Green	BRINE

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Contents	Banding	Background Colour	Legend
City water	Green	Green	CITY WATER
Coil Condensate Drain	Green	Green	COND
Contaminated Lab Waste	Yellow	Yellow	CONT. LAB WASTE
Domestic Hot Water Supply	Green	Green	DOM. HW SUPPLY
Domestic Hot Recirculation	Green	Green	DOM. HW CIRC
Domestic Cold Water	Green	Green	DOM. CW SUPPLY
Tempered Water	Green	Green	TEMPERED WATER (XXX °C)
Non-Potable Cold Water	Green	Purple	WARNING: NON-POTABLE COLD WATER – DO NOT DRINK
Non-Potable Hot Water	Green	Purple	WARNING: NON-POTABLE HOT WATER – DO NOT DRINK
Non-Potable Hot Recirculation	Green	Purple	WARNING: NON-POTABLE DHW RECIRC. – DO NOT DRINK
Plumbing Vent	Green	Green	SAN VENT
Radon	Green	Green	RADON
Rainwater	Green	Green	RAINWATER
Raw water	Green	Green	RAW WATER
River water	Green	Green	RIVER WATER
Saltwater Supply	Green	Green	SALTWATER
Sanitary Sewer	Green	Green	SAN
Seawater	Green	Green	SEAWATER
Storm water	Green	Green	STORM
Treated water	Green	Green	TREATED WATER
Wastewater	Green	Green	WASTEWATER
Heating / Cooling			

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Contents	Banding	Background Colour	Legend
Chilled water return	Light Blue	Light Blue	CH. WTR. RETURN
Chilled water supply	Light Blue	Light Blue	CH. WTR. SUPPLY
Chilled Beam Water Supply	Light Blue	Light Blue	CH BEAM WTR SUPPLY
Chilled Beam Water return	Light Blue	Light Blue	CH BEAM WTR RETURN
Condenser water supply	Purple	Purple	COND. WTR. SUPPLY
Condenser water return	Purple	Purple	COND. WTR. RETURN
Geothermal Supply	Black/Yellow	Yellow	G.T. SUPPLY
Geothermal Return	Black/Yellow	Yellow	G.T. RETURN
Glycol Heating Supply	Black/Yellow	Yellow	GLY. HEAT SUPPLY
Glycol Heating Return	Black/Yellow	Yellow	GLY. HEAT RETURN
Glycol Heat Reclaim Supply	Black/Yellow	Yellow	GLY. HR SUPPLY
Glycol Heat Reclaim Return	Black/Yellow	Yellow	GLY. HR RETURN
Hot water Heating Supply	Black/Yellow	Yellow	HEATING SUPPLY
Hot water Heating Return	Black/Yellow	Yellow	HEATING RETURN
Hot Water Reheat Coil Supply	Black/Yellow	Yellow	HW REHEAT SUPPLY
Hot Water Reheat Coil Return	Black/Yellow	Yellow	HW REHEAT RETURN
Heat Pump Supply	Black/Yellow	Yellow	HP SUPPLY
Heat Pump Return	Black/Yellow	Yellow	HP RETURN
High Temperature HTG Supply	Black/Yellow	Yellow	HTHW HTG. SUPPLY++
High Temperature HTG Return	Black/Yellow	Yellow	HTHW HTG. RETURN++
Make-Up Water	Green	Yellow	MAKE-UP WTR
Boiler Feed Water	Green	Green	BLR. FEED WTR
Steam XXX psi	Black/Yellow	Yellow	XXX psi STEAM
Steam Condensate (Gravity)	Black/Yellow	Yellow	ST.COND.RET (GRAVITY)
Steam Condensate (Pumped)	Black/Yellow	Yellow	ST.COND.RET (PUMPED)

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Contents	Banding	Background Colour	Legend
Safety Valve Vent	Black/Yellow	Yellow	STEAM VENT
Intermittent Blow-Off	Black/Yellow	Yellow	INT. BLOW-OFF
Continuous Blow-Off	Black/Yellow	Yellow	CONT. BLOW-OFF
Fire Protection			
Hybrid System - Nitrogen	Red/White	Red	FIRE - NITROGEN
Hybrid System - Water	Red/White	Red	FIRE – HYBRID WATER
Sprinkler System	Red/White	Red	SPRINKLERS
Window Sprinkler System	Red/White	White	WINDOW SPRINKLER
Standpipe System	Red/White	White	STANDPIPE
Air			
Breathing Air	Black/Red	Light Grey	BREATHING AIR
Compressed air (< 100 psi)	Black/Green	Green	COMP. AIR XXX psi
Compressed air (> 100 psi)	Black/Green	Green	COMP. AIR XXX psi
Fuels and Engine			
Artificial Natural Gas	Yellow	Yellow	ART. NAT GAS
No. XXX Fuel Oil Suction	Yellow	Yellow	# XXX FUEL OIL
No. XXX Fuel Oil Return	Yellow	Yellow	# XXX FUEL OIL
Engine Crankcase Venting	Yellow	Yellow	VENT
Engine Exhaust	Yellow	Yellow	ENGINE EXHAUST
Lubricating Oil	Yellow	Yellow	LUB. OIL
Hydraulic Oil	Yellow	Yellow	HYDRAULIC OIL
Gasoline	Yellow	Yellow	GASOLINE
Natural Gas	Yellow	Yellow	NAT GAS
Propane	Yellow	Yellow	PROPANE
Gas regulator vents	Yellow	Yellow	GAS VENT

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Contents	Banding	Background Colour	Legend
Pure Water			
Distilled water		Green	DISTILL. WTR
Demineralized water		Green	DEMIN. WATER
Reverse Osmosis Water (Supply)	Black	White	RO WATER SUPPLY
Reverse Osmosis Water (Return)	Black	White	RO WATER RETURN
Medical Gas			
Anaesthetic Gas Scavenging	Magenta	Magenta	AGSS
Carbon Dioxide	Grey/White	Grey	CO ₂
Gas Mixtures	Each Gas	50% each gas	Lettering of Each Gas
Helium	Brown	Brown	HELIUM
Medical Air	Black/White	Black/White	MEDICAL AIR
Medical Vacuum	Yellow	Yellow	MEDICAL VACUUM
Nitrogen	Black/White	Black	NITROGEN
Nitrous Oxide	Dark Blue	Dark Blue	NITROUS OXIDE
Oxygen	Green/White	White	OXYGEN
Refrigeration			
Refrigeration Suction	Black/Yellow	Yellow	REF. SUCTION (R-###)
Refrigeration Liquid	Black/Yellow	Yellow	REF. LIQUID (R-###)
Refrigeration Hot Gas	Black/Yellow	Yellow	REF. HOT GAS (R ###)
Vacuum			
Lab Vacuum (## in Hg)		Yellow	LAB VACUUM (## in Hg)
Vacuum		Green	VACUUM

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Contents	Banding	Background Colour	Legend
Instrument Vacuum		Yellow	INSTUMENT VACUUM
Other			
Carbon dioxide		Red	CO2
Chlorine		Yellow	CHLORINE

5.11. Exposed Ceilings Painted Black

5.11.1. Pipe identification to be consist of a grey band at each end of the identification, grey directional arrows, and the service written in grey.

6. DUCTWORK IDENTIFICATION

6.1. 50 mm high stenciled letters and directional arrows 150 mm long x 50 mm high.

6.2. Colours: Black, or coordinated with base colour to ensure strong contrast.

6.3. Identify systems: e.g. Supply AHU1, Return AHU 1.

7. VALVES, CONTROLLERS

7.1. Brass tags with ½” stamped identification data filled with black paint or black lamicoid tags with ½” high white letters.

7.2. Valves and operating controllers, except at plumbing fixtures, radiation, or where in plain sight of equipment they serve: Secure tags with nonferrous chains or closed "S" hooks.

7.3. Install one copy each of flow diagrams and valve schedules, of approved size, mounted in frame behind non-glare glass where directed by Engineer/Architect, showing charts and schedules with identification of each tagged item, valve type, service, function, normal position, location of tagged item. Provide one copy of each (reduced in size if required) in each operating and maintenance manual.

7.4. Number valves in each system consecutively.

7.5. Valves to be identified using the following prefixes:

Description	Tag	Description	Tag
Domestic Cold Water	DCW - xxx		
Domestic Hot Water	DHW - xxx	Glycol Heating Supply	GWS – xxx

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Description	Tag	Description	Tag
Dom. HW Recirculation	DHWRC - xxx	Glycol Heating Return	GHR - xxx
Non Potable Water	NPW - xxx	Hot Water Heat Supply	HWS - xxx
Natural Gas	NG - xxx	Hot Water Heat Return	HWR - xxx
Propane	P - xxx	Low Temperature HWS	LTHS - xxx
		Low Temperature HWR	LTHR - xxx
Chilled Water Supply	CWS - xxx	Steam	S - xxx
Chilled Water Return	CWR - xxx	Steam Condensate	SC - xxx

7.6. Where access doors are provided for valves provide lamicoïd mechanically fastened to door identifying valve service. Where not listed in table below seek clarification from Architect/Engineer.

Service	Identification
Elevator / Elevator Pit Sprinkler shut off valve	Red lamicoïd, White letters ¼" high – "ELEVATOR SPRINKLER SYSTEM"
Gas / Propane Shut-off valves	Red lamicoïd, White letters ¼" high – "GAS / PROPANE SHUT-OFF VALVE"
Medical Gas Valves	See section 22 60 00

8. CONTROLS COMPONENTS IDENTIFICATION

8.1. Language

8.1.1. Provide nameplates and identification tapes and tags in English.

8.2. Nameplates for Panels

8.2.1. Identify faces with laminated plastic nameplates.

8.2.2. Sizes: 25 x 67 mm minimum.

8.2.3. Lettering: 7 mm minimum high, black.

8.2.4. Inscriptions: machine engraved to identify function and, where applicable, fail-safe position.

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- 8.2.5. Nameplates: plastic laminate, 3 mm thick Melamine, matt white finish, black core, square corners, lettering accurately aligned and engraved into core.
- 8.3. Nameplates for Field Devices
 - 8.3.1. Identify by plastic encased cards attached by chain.
 - 8.3.2. Sizes: 50 x 100 mm minimum.
 - 8.3.3. Lettering: 5 mm minimum high produced from laser printer in black.
 - 8.3.4. Data to include: point name, schematic designation number, model, capillary length, size, range, set point, other pertinent data, function, fail-safe position.
 - 8.3.5. Companion cabinet: identify interior components using plastic enclosed cards.
- 8.4. Nameplates for Room Sensors
 - 8.4.1. Interior: identify by stick-on labels.
 - 8.4.2. Exterior: identify point name on face of cover using plastic laminate nameplates.
 - 8.4.3. Sizes: to suit.
 - 8.4.4. Lettering: to suit. Clearly legible.
- 8.5. Warning Signs
 - 8.5.1. Equipment (e.g. motors, starters) under remote automatic control: provide orange coloured signs warning of automatic starting under control of EMCS.
 - 8.5.2. Sign to read: "Caution: This equipment is under automatic remote control of EMCS" or equivalent to Engineer's approval.
- 8.6. Nameplates for Wiring
 - 8.6.1. Provide numbered tape markings on wiring at panels, junction boxes, splitters, cabinets, outlet boxes.
 - 8.6.2. Colour coding: to CSA C22.1. Use colour coded wiring in communications cables, matched throughout system.
 - 8.6.3. Power wiring: identify at each panel
- 8.7. Nameplates for Conduit
 - 8.7.1. Colour code all EMCS conduit.
 - 8.7.2. Locate coding on conduits, in exposed and concealed locations including removable suspended ceilings, tunnels, shafts, on both sides of walls, floors, and at 15 m intervals.
 - 8.7.3. Coding: use plastic tape or paint, 25 mm wide, fluorescent orange. Confirm colour with Engineer during "Preliminary Design Review".

9. ABOVE CEILING EQUIPMENT IDENTIFICATION:

- 9.1. Where mechanical equipment are installed above accessible ceilings, identification in accordance with the tables below. Underceiling identification shall be installed on the ceiling T-Bar spline or access door frame directly below the access to the equipment. Vinyl adhesive discs shall be ¾" diameter, white or black center disc (if necessary) to be ¼" diameter. Letters on underceiling lamicoids to be ¼" high unless noted otherwise.

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Letters on equipment lamicooids to be ½” high unless noted otherwise. In no case shall equipment be installed in a ceiling space that is not considered accessible unless a proper access hatch is provided.

9.2. Where multiple similar devices are accessed through the same tile or access door only one (1) adhesive disc of each color is needed. If the device is identified with a lamicooid but no unique number only one (1) lamicooid is required stating the device and the quantity (e.g., 3 Fire Dampers).

9.3. Underceiling Identification Table:

Service	Identification
DHW Recirculation Pump	Green Adhesive Disc and White lamicooid, Black letters with pump identification
Plumbing System Valves	Green Adhesive Disc
Propane / Natural Gas System Valves	Yellow Adhesive Disc
DHW Mixing Valves	Green Adhesive Disc and White lamicooid, Black letters with 'DHW Mixing Valve'
Trap Primer	Green Adhesive Disc and White lamicooid, Black letters with 'Trap Primer'
Water Hammer Arrestor	Green Adhesive Disc
Lab Vacuum Components	Yellow Adhesive Disc
Steam System Valves	Cyan
Heating System Valves	Yellow Adhesive Disc with Black center
Chilled Water System Valves	Yellow Adhesive Disc with Black center
Sprinkler System Valves	Red lamicooid, with White letters
Compressed Air Valves	Yellow Adhesive Disc
Reverse Osmosis Valves	Green Adhesive Disc with Yellow center
Fire Protection System Components	Red lamicooid, White letters identifying equipment (e.g., 'Auxiliary Drain', 'Zone Valve')
Back Draft Dampers	Blue Adhesive Disc
Balancing Dampers	Blue Adhesive Disc
Duct Access Doors	Blue Adhesive Disc
Fan Coil Units / Heat Pumps / Fans	White lamicooid, Black letters with unit identifier (e.g., FC-##)
Fire Dampers	Red lamicooid, White letters identifying equipment (e.g., 'Fire Damper')

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Service	Identification
Fire and Smoke Dampers	Red lamicaid, White letters identifying equipment (e.g., 'Fire and Smoke Damper')
Heating / Cooling Coil	White lamicaid, Black letters with coil identifier (e.g., HC-##)
Humidifier	White lamicaid, Black letters with unit identifier (e.g., H-##)
Operating Dampers	See Section 23 05 54
VAV Box / Air Valve / Air terminal unit	White lamicaid, Black letters with unit identifier (e.g., 'AV-##').
VRF System Components	White lamicaid, Black letters with unit identifier (e.g., HP-##, BC-##). All components to be identified individually.
EMCS / Control Devices	Red Adhesive Disc with White center
EMCS System Transformers	White lamicaid, Black letters with unit identifier (e.g., EMCS Transformer)

9.4. Ceiling Mounted Equipment Identification Table:

Service	Identification
DHW Recirculation Pump	White lamicaid, Black letters with pump identification
Plumbing System Valves	Valve Tags
Propane / Natural Gas System Valves	Valve Tags
DHW Mixing Valves	Valve Tags
Trap Primer	White lamicaid, Black letters with 'Trap Primer'
Water Hammer Arrestor	None
Lab Vacuum Components	Valve Tags
Heating System Valves	Valve Tags
Chilled Water System Valves	Valve Tags
Sprinkler System Valves	Red lamicaid valve tag with White letters
Compressed Air Valves	Valve Tags
Reverse Osmosis Valves	Valve Tags
Fire Protection System Components	Red lamicaid, White letters identifying equipment (e.g., 'Zone Valve')

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Service	Identification
Back Draft Dampers	White lamicaid, black letters with unit identifier (e.g., FC-##)
Balancing Dampers	Spray paint damper handle blue
Fan Coil Units / Heat Pumps / Fans	White lamicaid, black letters with unit identifier (e.g., FC-##)
Fire Dampers	Red lamicaid, White ¼" high letters identifying equipment (e.g., 'Fire Damper')
Fire and Smoke Dampers	Red lamicaid, White ¼" high letters identifying equipment (e.g., 'Fire and Smoke Damper')
Heating / Cooling Coil	White lamicaid, Black letters with coil identifier (e.g., HC-##)
Humidifier	White lamicaid, Black letters with unit identifier (e.g., H-##)
Operating Dampers	Control Point Identification
VAV Box / Air Valve / Air terminal unit	White lamicaid, Black letters with unit identifier (e.g., 'AV-##').
VRF System Components	Black lamicaid, White letters with unit identifier (e.g., HP-## , BC-##). All components to be identified individually.
EMCS Devices	See Control System Identification Section above
EMCS System Transformer	White lamicaid, Black letters with unit identifier (e.g., EMCS Transformer ### V – ## V)

9.5. Lamicaid plates to be attached to splines, access door frames, and equipment with two (2) rivets each.

10. EQUIPMENT IN CABINETS AND CONCEALED BEHIND WALLS:

- 10.1. All Mechanical equipment accessed through access door in walls or concealed in cabinets to be identified and to have identification on the access door.
- 10.2. Lamicroids to be mechanically fastened to access doors / panels. Tags to be attached to valves equipment with chains or rivets.
- 10.3. Access door / panel identification letters to be ¼" high unless noted otherwise.
- 10.4. Equipment label letters to be ½" high unless noted otherwise.
- 10.5. Access door / Panel Identification

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Service	Identification
Elevator / Elevator Pit Sprinkler shut off valve	Red lamicaid, White letters – “ELEVATOR SPRINKLER SYSTEM’
EMCS Panels	White lamicaid, Black letters, ¼” high
Fire Damper (note 1)	White lamicaid, Red letters – “FIRE DAMPER’
Fire and Smoke Damper (note 1)	White lamicaid, Red letters – “FIRE and SMOKE DAMPER’
Gas / Propane Shut-off valves	Red lamicaid, White letters – “GAS / PROPANE SHUT-OFF VALVE’
In-floor Heat Header	White lamicaid, Black letters – “INFLOOR HEAT HEADER - ##’
Kitchen Hood Fire Suppression System	Red lamicaid, White letters – “KITCHEN HOOD FIRE SUPPRESSION’
Medical Gas Valves	See section 22 60 00
Plumbing Cleanout	None
Plumbing System Drain Valve	White lamicaid, Black letters – “DRAIN”

10.6. Equipment Identification:

Service	Identification
Elevator / Elevator Pit Sprinkler shut off valve	Valve Tag
Fire Damper (note 1)	White lamicaid, Red letters ¼” high – “FIRE DAMPER’
Fire and Smoke Damper (note 1)	White lamicaid, Red letters – “FIRE and SMOKE DAMPER’
Gas / Propane Shut-off valves	Valve Tag
In-floor Heat Header	White lamicaid, Black letters – “INFLOOR HEAT HEADER - ##’

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Service	Identification
Kitchen Hood Fire Suppression System	None
Medical Gas Valves	See section 22 60 00
Plumbing Cleanout	None
Plumbing System Drain Valve	Valve Tag

11. EQUIPMENT:

- 11.1. Identify Mechanical equipment with lamicaid plates attached to equipment with chain or minimum of two (2) rivets.
- 11.2. Identification to be visible by an individual standing on the floor, or fixed catwalk.
- 11.3. Identification label lettering to be 1" high unless noted otherwise.

Service	Identification
Common Items	
Thermometers / Pressure Gauges	None
Plumbing Equipment	
Acid Neutralizing Tank	Black lamicaid, white letters ½" high – "ACID NEUTRALIZING TANK". Attach to wall if tank is recessed in floor.
Air Compressor	Black lamicaid, White letters with unit identifier (e.g., COMP-##)
Air Drier	Black lamicaid, White letters with unit identifier (e.g., AD-##)
DHW Heater / Tank	Black lamicaid, White letters with unit identifier (e.g., T-##)
DHW Expansion Tank	Black lamicaid, White letters with unit identifier (e.g., ET-##)
Domestic Water Pressure Boosting System	Black lamicaid, White letters with unit identifier (e.g., B-##)
Grease Interceptor	Black lamicaid, white letters ½" high – "GREASE INTERCEPTOR". Attach to wall if tank is recessed in floor.

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Service	Identification
Hair / Solids Interceptor	None
Plumbing Fixtures	None
Pool Heater	Black lamicaid, White letters with unit identifier (e.g., H-##)
Pressure Regulator	Valve Tag
Pressure Tank	Black lamicaid, White letters with unit identifier (e.g., PT-##)
Pump	Black lamicaid, White letters with unit identifier (e.g., P-##)
Reverse Osmosis System	Black lamicaid, White letters with unit identifier (e.g., RO-##).
Trap Primer	Black lamicaid, White letters with unit identifier (e.g., TP-##)
Vacuum Pump	Black lamicaid, White letters with unit identifier (e.g., V-##)
Water Entrance Equipment	None
Water Treatment System	Black lamicaid, White letters with unit identifier (e.g., WT-##)
Medical Gas system	See Section 22 60 00
Sprinkler System Components	To NFPA 13, 14, 20 and Sections 21 13 13, 21 13, 14, and 21 30 00
Hydronic Systems	
Air Separator	None
Chiller	Black lamicaid, White letters with unit identifier (e.g., C-##)
Boiler	Black lamicaid, White letters with unit identifier (e.g., B-##)
Cabinet Unit Heater	Black lamicaid, white letters ¼" high with unit identifier (e.g., "CUH-X') in lower corner of unit.
Chemical Treatment Tank	Black lamicaid, White letters with unit identifier (e.g., T-##)
Chilled Beam	Black lamicaid, White letters with unit identifier (e.g., CB-##)
Condensate Meter	Black lamicaid, White letters attached with chain with unit identifier (e.g., CM)
Condensate Receiver	Black lamicaid, White letters attached with chain with unit identifier (e.g., CR-XX)

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Service	Identification
Expansion Tank	Black lamicaid, White letters with unit identifier (e.g., ET-##) attached to insulation jacket near nameplate.
Fin Tube Radiation	None
Force Flow Heaters	Black lamicaid, white letters ¼" high with unit identifier (eg "CUH-X') in lower corner of unit.
Fuel Oil Tank	See 'OTHER IDENTIFICATION' below
Fuel Oil Pump	Black lamicaid, White letters with unit identifier (e.g., P-##)
Glycol Fill Package	Black lamicaid, White letters with unit identifier (e.g., G-##)
Heat Exchanger	Black lamicaid, White letters with unit identifier (e.g., ET-##) attached to insulation jacket near nameplate.
Heat Pump	Black lamicaid, White letters with unit identifier (e.g., HP-##)
Heating Specialties	None
Heat / Cool Coils in ducts	Black lamicaid, White letters with unit identifier (e.g., RH-##)
In-floor Heat Header	Black lamicaid, White letters attached with unit identifier (e.g., INFL-XX)
Radiant Ceiling Panels	None
Reheat Coil	Black lamicaid, White letters with unit identifier (e.g., RH-##)
Steam Meter	Black lamicaid, White letters attached with chain with unit identifier (e.g., SM)
Steam Trap	Brass tag punched attached with chain. Each unit to have unique identifier (e.g., ST-XX)
Steel Panel Radiation	None
Unit Heater	None
Ventilation	
Air Handling Units	Black lamicaid, White letters with unit identifier (e.g., AHU-##)
Energy Recovery Ventilators	Black lamicaid, White letters with unit identifier (e.g., ERV-##)
Fans	Black lamicaid, White letters with unit identifier (e.g., EF-##)
Filter Banks (not in AHU)	Black lamicaid, White letters with unit identifier (e.g., F-##)

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Service	Identification
Filter Gauges	None
Grilles, Registers, and Diffusers	None
Heat Pumps	Black lamicoid, White letters with unit identifier (e.g., HP-##)
Heat Recovery Ventilators	Black lamicoid, White letters with unit identifier (e.g., HRV-##)
Heat Wheel (not in AHU)	Black lamicoid, White letters with unit identifier (e.g., HP-##)
Humidifier	Black lamicoid, White letters with unit identifier (e.g., H-##)
Louvers	None
Rooftop Gooseneck / Hood	Black lamicoid, White letters with unit identifier (e.g., LP-##) where unit has been called up uniquely on drawings.
Silencer	Black lamicoid, White letters with unit identifier (e.g., SL-##)
Split System AC / HP	Black lamicoid, White letters with unit identifier (e.g., AC-##). Tags to be on both evaporator and condenser.
Turning Vanes	None
VAV Box / Air Valve	Black lamicoid, White letters with unit identifier (e.g., VAV-##)
VRF System Components	Black lamicoid, White letters with unit identifier (e.g., HP-##, BC-##). All components to be identified individually.

12. OTHER IDENTIFICATION:

12. Identify each non potable water outlet with sign similar to that shown at right. Outdoor signs to be 10" x 10" aluminum mechanically fastened to building. Indoor signs to be at least 4" x 3" H mechanically fastened or glued to wall near outlet.



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12. Identify each oil tank/ diesel tank / propane tank installation with 10" x 10" peal and stick sign similar to signs shown at right. Sign to be located conspicuously and attached to each oil / diesel tank or installed on the fence / wall near each group of propane tanks. Signs for outdoor tanks to be suitable for outdoor use.



12. Identify location of Kitchen Type 'K' fire extinguisher with wall 10" x 3" minimum wall mounted sign providing directions for use



- 12.4. Emergency Fuel Shut-off: Provide red lamicoid sign with white letters stating "GAS SHUT OFF" fastened to wall adjacent to each emergency fuel shut off valve. In Mechanical and Service Rooms lettering to be 1" high. In Kitchens lettering to be ½" high.