

1. PART 1 – GENERAL

1.1 References

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.60-M89, Interior Alkyd Gloss Enamel.
 - .2 CAN/CGSB-24.3-92, Identification of Piping Systems.
- .2 Canadian Gas Association (CGA)
 - .1 CSA/CGA B149.1-10.

1.2 Submittals

- .1 Submittals: in accordance with Section 230500E – Common Work Results for Mechanical.
- .2 Product data to include paint colour chips, other products specified in this section.

1.3 Samples

- .1 Submit samples in accordance with Section 230500E – Common Work Results for Mechanical.
- .2 Samples to include nameplates, labels, tags, lists of proposed legends.

2. PART 2 – PRODUCTS

2.1 Manufacturer's equipment nameplates

- .1 Metal or plastic laminate nameplate mechanically fastened to each piece of equipment by manufacturer.
- .2 Lettering and numbers raised or recessed.
- .3 Information to include, as appropriate:
 - .1 Equipment: manufacturer's name, model, size, serial number, capacity.
 - .2 Motor: voltage, Hz, phase, power factor, duty, frame size.

2.2 System nameplates

- .1 Colours:
 - .1 Hazardous: RED letters, WHITE background.
 - .2 Elsewhere: BLACK letters, WHITE background (except where required otherwise by applicable codes).
- .2 Material and construction:
 - .1 1/8" thick laminated plastic, matte finish, with square corners, letters accurately aligned and machine engraved into core.

.3 Sizes:

.1 Conform to following table:

Size #	Sizes (inch)	No. of Lines	Height of Letters (inch)
1	1/2 x 2	1	1/8
2	1/2 x 3	1	1/4
3	1/2 x 3	2	1/8
4	3/4 x 4	1	3/8
5	3/4 x 4	2	1/4
6	3/4 x 8	1	3/8
7	1 x 5	1	1/2
8	1 x 5	2	3/8
9	1 1/2 x 8	1	3/4

.2 Use maximum of 25 letters/numbers per line.

2.3 Existing identification systems

- .1 Apply existing identification system to new work.
- .2 Before starting work, obtain written approval of identification system from the Departmental Representative.

2.4 Piping systems governed by codes

- .1 Natural gas: to CSA/CGA B149.1.

2.5 Identification of piping systems

- .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.
- .2 Pictograms:
 - .1 Where required: to Workplace Hazardous Materials Information System (WHMIS) regulations.
- .3 Legend:
 - .1 Block capitals to sizes and colours listed in CAN/CGSB 24.3.
- .4 Arrows showing direction of flow:
 - .1 Outside diameter of pipe or insulation less than 3": 4" long x 2" high.
 - .2 Outside diameter of pipe or insulation 3" and greater: 6" long x 2" high.
 - .3 Use double-headed arrows where flow is reversible.
- .5 Extent of background colour marking:
 - .1 To full circumference of pipe or insulation.
 - .2 Length to accommodate pictogram, full length of legend and arrows.
- .6 Materials for background colour marking, legend, arrows:
 - .1 Pipes and tubing 3/4" and smaller: waterproof and heat-resistant pressure sensitive plastic marker tags.
 - .2 Other pipes: pressure sensitive vinyl with protective overcoating, waterproof contact adhesive undercoating, suitable for ambient of 100% RH and continuous operating temperature of 300°F and intermittent temperature of 400°F.

.7 Colors and Legends:

- .1 Where not listed, obtain direction from Departmental Representative.
- .2 Colours for legends, arrows: to following table:

Background colour:	Legend, arrows:
Yellow	BLACK
Green	WHITE
Red	WHITE

.3 Background colour marking and legends for piping systems:

<u>Contents</u>	<u>Background colour marking</u>	<u>Legend</u>
Treated water	Green	TREATED WATER
Chilled water supply	Green	CH. WTR. SUPPLY
Chilled water return	Green	CH. WTR. RETURN
Hot water heating supply	Yellow	HEATING SUPPLY
Hot water heating return	Yellow	GLYC. HEATING RETURN
Condensate (gravity)	Yellow	ST.COND.RET (GRAVITY)
Domestic hot water supply	Green	DOM. HW SUPPLY
Domestic cold water supply	Green	DOM. CWS
Plumbing vent	Green	SAN. VENT

2.6 Valves, controllers identification

- .1 Brass tags with ½” stamped identification data filled with black paint.
- .2 Include flow diagrams for each system, of approved size, showing charts and schedules with identification of each tagged item, valve type, service, function, normal position, location of tagged item.

2.7 Controller and system component identification

- .1 Identify all systems, equipment, components, controls, sensors with system nameplates specified in this section.
- .2 Inscriptions to include function and (where appropriate) fail-safe position.

2.8 Language

- .1 Identification of systems and components: bilingual in French and in English.

3. PART 3 – EXECUTION

3.1 Installation

- .1 Perform work in accordance with CAN/CGSB-24.3 except as specified otherwise.
- .2 Provide “ULC” and/or “CSA” registration plates as required by respective agency.

3.2 Nameplates

- .1 Locations:
 - .1 In conspicuous location to facilitate easy reading and identification from operating floor.
- .2 Standoffs:
 - .1 Provide for nameplates on hot and/or insulated surfaces.
- .3 Protection:
 - .1 Do not paint, insulate or cover.

3.3 Location of identification on piping and ductwork systems

- .1 On long straight runs in open areas in boiler rooms, equipment rooms, galleries, tunnels: at not more than 50 feet intervals and more frequently if required to ensure that at least one is visible from any one viewpoint in operating areas and walking aisles.
- .2 Adjacent to each change in direction.
- .3 At least once in each small room through which piping or ductwork passes.
- .4 On both sides of visual obstruction or where run is difficult to follow.
- .5 On both sides of separations such as walls, floors, partitions.
- .6 Where system is installed in pipe chases, ceiling spaces, galleries, confined spaces, at entry and exit points, and at access openings.
- .7 At beginning and end points of each run and at each piece of equipment in run.
- .8 At point immediately upstream of major manually operated or automatically controlled valves, and dampers. Where this is not possible, place identification as close as possible, preferably on upstream side.
- .9 Identification easily and accurately readable from usual operating areas and from access points.
 - .1 Position of identification 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.

3.4 Valves, controllers

- .1 Valves and operating controllers, except at plumbing fixtures, radiation, or where in plain sight of equipment they serve: Secure tags with non-ferrous chains or closed "S" hooks.
- .2 Install one copy of flow diagrams, valve schedules mounted in frame behind non-glare glass where directed by Departmental Representative. Provide one copy (reduced in size if required) in each operating and maintenance manual.
- .3 Number valves in each system consecutively.