

## PART 1 - GENERAL

<u>1.1 REFERENCES</u>	.1	Canadian General Standards Board (CGSB)
	.1	CAN/CGSB-1.60-97, Interior Alkyd Gloss Enamel.
	.2	CAN/CGSB-24.3-92, Identification of Piping Systems.
	.2	National Fire Protection Association (NFPA)
	.1	NFPA 13-2016, Standard for the Installation of Sprinkler Systems.
<u>1.2 ACTION AND INFORMATIONAL SUBMITTALS</u>	.1	Product Data:
	.2	Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
	.3	Product data to include paint colour chips, other products specified in this section.
	.4	Samples:
	.1	Submit samples in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Samples to include nameplates, labels, tags, lists of proposed legends.
<u>1.3 QUALITY ASSURANCE</u>	.1	Quality assurance submittals: submit following in accordance with Section 01 33 00 - Submittal Procedures.
	.2	Health and Safety:
	.1	Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.
<u>1.4 DELIVERY, STORAGE, AND HANDLING</u>	.1	Packing, shipping, handling and unloading:
	.1	Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.
	.2	Deliver, store and handle materials in accordance with manufacturer's written instructions.

1.4 DELIVERY,  
STORAGE, AND  
HANDLING  
(Cont'd)

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- .2 Waste Management and Disposal:
  - .1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .2 Dispose of unused paint and coating material at official hazardous material collections site approved by Departmental Representative.
  - .3 Do not dispose of unused paint or coating material into sewer system, into streams, lakes, onto ground or in locations where it will pose health or environmental hazard.

PART 2 - PRODUCTS

2.1 SUSTAINABLE  
REQUIREMENTS

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- .1 Materials and products in accordance with Section 01 35 21 - LEED Requirements.
  - .1 Choose products and materials with recycled content or resource efficient characteristics whenever possible. Use least toxic sealants, adhesives, sealers and finishes necessary to comply with the requirements of the project.

2.2 MANUFACTURER'S  
EQUIPMENT  
NAMEPLATES

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- .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.
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2.3 SYSTEM  
NAMEPLATES

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

- .2 Construction:  
.1 3 mm thick laminated plastic or white anodized aluminum, matte finish, with square corners, letters accurately aligned and machine engraved into core.

- .3 Sizes:  
.1 Conform to following table:

Size #	mm	Sizes (mm)	No. of Lines	Height of 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

- .2 Use maximum of 25 letters/numbers per line.
- .4 Identification for PWGSC Preventive Maintenance Support System (PMSS):  
.1 Use arrangement of Main identifier, Source identifier, Destination identifier.  
.2 Equipment in Mechanical Room:  
.1 Main identifier: size #9.  
.2 Source and Destination identifiers: size #6.  
.3 Terminal cabinets, control panels: size #5.  
.3 Equipment elsewhere: sizes as appropriate.

2.4 PIPING SYSTEMS .1  
GOVERNED BY CODES

- Identification:  
.1 Sprinklers: to NFPA 13.  
.2 Fuel oil piping: to CSA B139.1.

2.5 IDENTIFICATION .1  
OF PIPING SYSTEMS

- 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: 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 75 mm: 100 mm long x 50 mm high.  
.2 Outside diameter of pipe or insulation 75 mm and greater: 150 mm long x 50 mm 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 20 mm 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 150 degrees C and intermittent temperature of 200 degrees C.
- .7 Colours and Legends:  
.1 Where not listed, obtain direction from Departmental Representative.
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2.5 IDENTIFICATION .7 Colours and Legends: (Cont'd)  
OF PIPING SYSTEMS .2 Colours for legends, arrows: to  
(Cont'd) following table:

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

.3 Background colour marking and legends  
for piping systems:

Contents	Background colour marking	Legend
City water	Green	CITY WATER
Domestic hot water supply	Green	DOM. HW SUPPLY
Dom. HWS recirculation	Green	DOM. HW CIRC
Domestic cold water supply	Green	DOM. CWS
Storm water	Green	STORM
Sanitary	Green	SAN
Plumbing vent	Green	SAN. VENT
Refrigeration suction	Yellow	REF. SUCTION
Refrigeration liquid	Yellow	REF. LIQUID
Fuel Oil Supply	to Codes	TO CODES
Fuel Oil Return	to Codes	TO CODES
Sensor/Control Wiring	Yellow	TO CODES
Engine exhaust	Yellow	ENGINE EXHAUST
Lubricating oil	Yellow	LUB. OIL
Gas regulator vents	to Codes	
Fire protection water	Red	FIRE PROT. WTR
Sprinklers	Red	SPRINKLERS

2.6 IDENTIFICATION .1 50 mm high stencilled letters and directional  
DUCTWORK SYSTEMS arrows 150 mm long x 50 mm high.

.2 Colours: back, or co-ordinated with base  
colour to ensure strong contrast.

2.7 VALVES, .1 Brass tags with 12 mm stamped identification  
CONTROLLERS 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.

- 2.8 CONTROLS COMPONENTS 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.
- 2.9 FUEL SYSTEM
- .1 In addition to all other labelling required, fuel storage and distribution systems shall be labelled in accordance with CPPI (latest edition). " Using CPPI colour-symbol system to mark equipment and vehicles for product information."
- 2.10 LANGUAGE
- .1 Identification in English and French.
  - .2 Use one nameplate and label for both languages.
- PART 3 - EXECUTION
- 3.1 MANUFACTURER'S INSTRUCTIONS
- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.
- 3.2 TIMING
- .1 Provide identification only after painting specified Section 09 91 00 - Painting has been completed.
- 3.3 INSTALLATION
- .1 Perform work in accordance with CAN/CGSB-24.3 except as specified otherwise.
  - .2 Provide ULC and CSA registration plates as required by respective agency.
  - .3 Identify systems, equipment to conform to PWGSC PMSS.
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3.4 NAMEPLATES

- .1 Locations:
  - .1 In conspicuous location to facilitate easy reading and identification from operating floor.
  - .2 Tank identification number: on fillbox, both sides.
  - .3 Fuel product identification labels: on tanks, both sides, on fill box, both sides. On piping at 3m spacing.
- .2 Standoffs:
  - .1 Provide for nameplates on hot and/or insulated surfaces.
- .3 Protection:
  - .1 Do not paint, insulate or cover.

3.5 LOCATION OF IDENTIFICATION ON PIPING AND DUCTWORK SYSTEMS

- .1 On long straight runs in open areas in equipment rooms, etc.: 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.
- .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.

3.5 LOCATION OF IDENTIFICATION ON PIPING AND DUCTWORK SYSTEMS (Cont'd)	.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.
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3.6 VALVES, CONTROLLERS	.1	Valves and operating controllers, except at plumbing fixtures, 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.

3.7 FIELD QUALITY CONTROL	.1	Verification requirements in accordance with Section 01 35 21 - LEED Requirements, include: .1 Materials and resources. .2 Storage and collection of recyclables. .3 Construction waste management. .4 Resource reuse. .5 Recycled content. .6 Local/regional materials. .7 Certified wood. .8 Low-emitting materials.
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3.8 CLEANING	.1	Proceed in accordance with Section 01 74 11 - Cleaning.
	.2	Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.