

Part 1 General

1.1 GENERAL REQUIREMENTS

- .1 The Contractor shall be responsible to carry out all the Work set out or referred to in this Section 23 05 53 01.

1.2 SUMMARY

- .1 Section Includes:
 - .1 Materials and requirements for the identification of piping systems, valves and controllers, including the installation and location of identification systems.
 - .2 Sustainable requirements for construction and verification.

1.3 REFERENCES

- .1 Canadian Gas Association (CGA):
 - .1 CSA/CGA B149.1-05, Natural Gas and Propane Installation Code.
- .2 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.
- .3 National Fire Protection Association (NFPA):
 - .1 NFPA 13, Standard for the Installation of Sprinkler Systems.

1.4 SUBMITTALS

- .1 Submittals: in accordance with Division 01 – General Requirements
- .2 Product data to include paint colour chips, other products specified in this section.
- .3 Samples:
 - .1 Submit samples in accordance with Division 01 – General Requirements.
 - .2 Samples to include nameplates, labels, tags, lists of proposed legends.

1.5 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, shipping, handling and unloading:
 - .1 Deliver, store and handle in accordance with Division 01 – General Requirements.
 - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- .2 Waste Management and Disposal:
 - .1 Construction Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Division 01 – General Requirements.
 - .2 Dispose of unused paint, coating material at official hazardous material collections site.

- .3 Do not dispose of unused paint, 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 MANUFACTURER'S EQUIPMENT NAMEPLATES

- .1 Plastic laminate nameplate mechanically fastened to each piece of equipment by manufacturer. Metal plates shall be provided for all for equipment operating over 60°C (140°F).
- .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 Construction:
 - .1 3 mm 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 (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 Locations:
 - .1 Terminal cabinets, control panels: use size #5.
 - .2 Equipment in Mechanical Rooms: use size #9.
 - .3 All other equipment: use size #5.

- .5 Equipment Identification:
 - .1 The contractor shall supply and install tags for each piece of equipment.

2.3 EXISTING IDENTIFICATION SYSTEMS

- .1 Apply existing identification system to new Work.
- .2 Where existing identification system does not cover for new work, use identification system specified this Section.
- .3 Before starting work, obtain written approval of identification system from Departmental Representative and Engineer.

2.4 PIPING SYSTEMS GOVERNED BY CODES

- .1 Identification:
 - .1 Sprinklers: in accordance with NFPA 13.

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: 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°C and intermittent temperature of 200°C.

.7 Colours 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:

Contents	Background colour marking	Legend
Hot Water Heating Supply	Yellow	HEATING SUPPLY
Hot Water Heating Return	Yellow	HEATING RETURN
Natural Gas	To Codes	-
Gas Regulator	To Codes	-
Vent		
Domestic Cold Water Supply	Green	DOM. COLD WATER
Make-up Water	Green	MAKE-UP WTR.
Trap Primer	Green	TRAP PRIMER
Sanitary	Green	SAN
Plumbing Vent	Green	VENT
Fire protection water	Red	FIRE PROT. WTR.
Sprinklers	Red	SPRINKLERS
Conduit for Low Voltage	To Section 25	

2.6 IDENTIFICATION DUCTWORK SYSTEMS

- .1 50 mm high stencilled letters and directional arrows 150 mm long x 50 mm high. Identify associated system and service.
- .2 Colours: back, or co-ordinated with base colour to ensure strong contrast.
- .3 Identify Supply/Exhaust/Return System with labels as indicated on Mechanical Drawings prepared as part of Existing Design e.g. "RTU-1 Supply"
- .4 Identify "Supply/Return/Exhaust" systems with directional arrows as indicated e.g. "RTU-1 Supply".

2.7 VALVES, CONTROLLERS

- .1 Brass tags with 12 mm 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. Numbers shall be assigned by user.

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 LANGUAGE

- .1 Identification in English.

2.10 CEILINGS

- .1 Identify equipment and valve location on ceiling or access doors.
- .2 Tags shall be engraved, laminate, colored to match the services plastic.
- .3 Size: 20 mm x 50 mm.

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 has been completed.

3.3 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 Identify systems, equipment to conform to users requirements.

3.4 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.

3.5 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 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.
- .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.

3.6 VALVES, CONTROLLERS

- .1 Valves and operating controllers, except at plumbing fixtures, radiators, 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 Division 01 – General 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.

3.8 CLEANING

- .1 Proceed in accordance with Division 01 – General Requirements.
- .2 Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION