

1. **General Information**

1.1 **Related requirements**

- .1 20 00 01 – Scope of work.
- .2 21 05 01 - General requirements for work results.

1.2 **References**

- .1 Unless otherwise indicated, complete all work in accordance with the current edition of the "*Code de Construction du Québec*"
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating
- .3 Canadian Standards Association (CSA)/CSA International
 - .1 CSA B139, Installation code for oil-burning equipment
- .4 Green Seal Environmental Standards (GSES)
 - .1 Standard GS-11, Environmental Standard for Paints and Coatings.
- .5 National Fire Code of Canada (NFC)
- .6 South Coast Air Quality Management District (SCAQMD), California State, Regulation XI. Source Specific Standards
 - .1 SCAQMD Rule 1113, Architectural Coatings.
 - .2 SCAQMD Rule 1168, Adhesive and Sealant Applications.

2. **Products**

2.1 **Equipment/Materials**

- .1 Not applicable.

3. **Execution**

3.1 **Application**

- .1 Manufacturer's instructions: Comply with manufacturer's written requirements, including any available technical bulletins, instructions for handling, storing, and commissioning products, and data sheet instructions.

3.2 Connecting pipes to appliances

- .1 Unless otherwise specified, follow the manufacturer's instructions.
- .2 Use valves with unions or flanges to insulate equipment from the piping system and to facilitate maintenance and assembly / removal of components.
- .3 Use double-joint fittings when the units are mounted on anti-vibration pads and when the piping is likely to move.

3.3 Clearances

- .1 Provide clearance around appliances to facilitate inspection, maintenance, and observation of proper operation as per the manufacturer's recommendations.
- .2 Also provide sufficient work space, according to the manufacturer's recommendations, for dismantling and removing appliances or pieces of equipment, if necessary, without the need to interrupt the operation of other equipment or components of the equipment network.

3.4 Outlet/drain valves

- .1 Unless otherwise indicated, install the piping with a slope in the direction of flow of the conveyed fluid.
- .2 Install the outlet/drain valves at the system's lower points, to the appliances and isolating valves.
- .3 Connect one pipe to each outlet/drain valve and route it over a floor drain.
- .4 The discharge point must be clearly visible.
- .5 Use outlet/drain valves with the following characteristics: valve or plug type and nominal diameter DN 3/4 unless otherwise stated, with threaded end, a flexible hose, plug and chain.

3.5 Air vent valve

- .1 Install manual air vent valves at the high points of the network.
- .2 Install isolation valves at each automatic air vent valve.
- .3 Connect waste pipe to approved locations and ensure that the discharge point is clearly visible.

3.6 Dielectric unions

- .1 Use suitable dielectric fittings for the type of pipe and suitable for the nominal network pressure.
- .2 Provide dielectric fittings to connect elements made from different metals.
- .3 Dielectric fittings with a nominal diameter of DN 2 or less: union fittings or bronze valves.
- .4 Dielectric connections with a nominal diameter greater than DN 2: flanges.

3.7 Piping

- .1 Cover the threads of the screw fittings with Teflon tape.
- .2 Prevent the introduction of foreign materials into non-connected openings.
- .3 Install the piping so that the different devices can be isolated and thus allow for disassembly or removal of the latter, if necessary, without the need to interrupt the operation of other network elements.
- .4 Assemble the pipe fittings manufactured according to the relevant ANSI standards.
- .5 The connecting mounting plates may be used on the main lines if the diameter of the bypass lines is not greater than half the diameter of the mainline.
 - .1 Before welding the mounting plates, saw or drill an opening in the main line, with a diameter equal to the full internal diameter of the bypass line to be connected and ensure that the edges are properly trimmed.
- .6 Install exposed piping, appliances, rectangular cleanouts and similar items parallel or perpendicular to building lines.
- .7 Install concealed piping to minimize furring space and maximize free height and available space.
- .8 Except where indicated, install the piping on a slope in the flow direction of the fluid to promote the free discharge of the latter and the free ventilation of the network.
- .9 Except where indicated, install piping to allow for the insulation of each pipe.
- .10 Group the lines when possible.
- .11 Deburr the ends of the pipes and rid them of slag and foreign matter accumulated prior to assembly.

- .12 Use eccentric reducers with diameter changes to ensure the free flow of the conveyed fluid and the ventilation network.
- .13 Plan for the means to compensate for thermal movements of the piping as indicated.
- .14 Valves and fittings
 - .1 Install valves in accessible locations.
 - .2 Remove internal parts before welding connections.
 - .3 Unless otherwise indicated, install the valves so that their operating rod is above the horizontal line.
 - .4 Install the valves so that they are accessible for servicing without the need to disassemble adjacent piping.
 - .5 Install globe valves on the bypass lines for the control valves.
 - .6 Unless otherwise specified, install gate valves or ball valves at the connection points of the bypass pipes, for the purpose of isolating parts of the network.
 - .7 Install butterfly valves between weld neck flanges to ensure a perfect compression of the sleeve.
 - .8 Provide valves with a nominal diameter greater than or equal to DN 2 1/2 of a chain operating device when mounted more than 2400 mm (95 in) above the floor in a mechanical installation room.

3.8 Sleeves

- .1 Install sleeves for masonry and concrete feedthroughs, fire and other specified locations.
- .2 Use black steel pipe 40 series sleeves.
- .3 In the case of foundation walls and where they protrude on coated floors, provide the sleeves in their midpoint of continuous welded annular fins.
- .4 Leave a 6 mm annular space between the feedthrough sleeves and the pipes or between the sleeves and the insulation covering the pipes.
- .5 Installation
 - .1 For masonry and concrete wall feedthroughs and concrete floor slabs, install the sleeves so that they are flush with the coated surface.

- .2 For other types of floors, install the sleeves so that they protrude above the 25-mm coated surface.
- .3 Before laying the sleeves, cover the exposed exterior surfaces with a generous coating of zinc-rich paint in accordance with the CAN / CGSB-1.181 standard.
- .6 Sealing the feedthroughs
 - .1 At foundation walls and subfloor floors, seal feedthroughs with fireproof, water repellent and non-hardening sealant.
 - .2 Elsewhere:
 - .1 Plan for a space for the installation of a fireproof material or element;
 - .2 Ensure to maintain the required degree of fire resistance.
 - .3 Fill the sleeves in place for later use with lime-based plaster or other easily removable fill material.
 - .4 Prevent all contact between copper pipes or tubes and feedthrough sleeves.

3.9 Escutcheons

- .1 Install escutcheons where pipelines pass through walls, partitions, floors and ceilings in finished areas and spaces.
- .2 Manufacturing: single-piece escutcheons, retained with locking screws.
 - .1 Material: chromed or nickel-plated brass or 302 grade stainless steel.
- .3 Dimensions: Outer diameter greater than that of the opening or feedthrough sleeves.
 - .1 Inside diameter appropriate to the outside diameter of the pipelines on which they are mounted, or the insulation of these latter.

3.10 Firestop protection

- .1 Install the materials in the annular space between the pipelines or ducts, insulated or not and the firestop separations they pass through.
- .2 No particular protection is required for cold pipes that are not insulated and are not likely to exhibit contraction / expansion movements.
- .3 Cover non-insulated hot pipes that may exhibit contraction / expansion movements with a soft, non-combustible material that will allow such movements without risk of

damage to the firestop material or installation.

- .4 In the case of insulated pipes and conduits, ensure to maintain the integrity of the insulation and vapour barrier.

3.11 Network flushing

- .1 Perform the work in accordance with section 22 11 16 - Domestic water piping
- .2 Prior to receiving the work, clean all equipment and materials and restore them to working order and replace the filters of the piping network.

3.12 Pressure testing of equipment, materials and piping

- .1 Notify the Engineer at least 48 hours prior to the pressure testing.
- .2 Conduct the piping testing in accordance with the relevant sections for heating, ventilation and air conditioning systems and installations.
- .3 Pressurize the system and ensure that no leakage occurs for a period of at least four (4) hours, unless a longer period is prescribed in the relevant sections for mechanical systems and facilities.
- .4 Prior to testing, isolate equipment and components from the system that are not designed to withstand the pressure or intended test agent.
- .5 The tests must be carried out in the presence of the Engineer.
- .6 If applicable, assume the cost of repairing or replacing defective items, restoring the testing and restoring the network. The Engineer will determine if the items found to be defective need to be repaired or replaced.
- .7 Insulate or conceal the works only after having the tests approved and certified by the Engineer.

END OF SECTION