PART 1 GENERAL

1.1 REFERENCE STANDARDS

.1 Canadian General Standards Board (CGSB).

.1 CAN/CGSB-1.181, Ready-Mixed Organic Zinc-Rich Coating.

.2 Canadian Standards Association (CSA International).

.3 Green Seal Environmental Standards (GSES).

.1 Standard GS-11, Environmental Standard for Paints and Coatings.

.4 National Research Council Canada (NRC).

.1 National Fire Code of Canada 2010 (NFC).

.5 South Coast Air Quality Management District (SCAQMD.

.1 SCAQMD Rule 1113, Architectural Coatings.

.2 SCAQMD Rule 1168, Adhesive and Sealant Applications.

PART 2 PRODUCT

2.1 MATERIAL

.1 Paint: zinc-rich conform to CAN/CGSB-1.181.

.1 Primer: maximum VOC limit 250 g/L conform to GS-11 Standard and to SCAQMD Rule 1113.

.2 Paint: maximum VOC limit 150 g/L conform to GS-11 Standard and to SCAQMD Rule 1113.

.2 Sealants: maximum VOC limit conform to GSES GS-36 Standard and to SCAQMD Rule 1168.

.3 Adhesives: maximum VOC limit conform to SCAQMD Rule 1168 and to GSES GS-36 Standard.

PART 3 EXECUTION

3.1 APPLICATION

.1 Manufacturer's instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, as well as datasheets.

3.2 CONNECTIONS TO EQUIPMENT

.1 In accordance with manufacturer's instructions, unless otherwise indicated.

.2 Use valves and either unions or flanges for isolation and ease of maintenance as well as assembly.

.3 Use double swing joints when mounting equipment on vibration isolation and when piping subject to movement.

3.3 CLEARANCES

.1 Provide clearance around systems, equipment, and components for observation of operation, inspection, servicing, and maintenance, as recommended by manufacturer, National Fire Code of Canada, and CSA B139.

.2 Provide space for disassembly, removal of equipment, and components, as recommended by manufacturer and conform to CSA B139, without interrupting operation of other system, equipment, and system components.

3.4 DRAINS

.1 Unless indicated otherwise, install piping with grade in direction of flow.

.2 Install drain valve at low points in piping systems, at equipment, and at isolating valves section.

.3 Pipe each drain valve and discharge separately to above floor drain.

.1 Discharge shall be visible.

.4 Drain valves: NPS 3/4 gate or globe valves, unless indicated otherwise, with hose end male thread, cap, and chain.

3.5 AIR VENTS

.1 Install air vents conform to CSA B139 at high points.

.2 Install isolating valve at each automatic air valve.

.3 Install drain piping to approved location and terminate where discharge is visible.

3.6 DIELECTRIC COUPLINGS

.1 General: compatible with system to suit pressure rating of system.

.2 Locations: where dissimilar metals are joined.

.3 NPS 2 or smaller: isolating unions or bronze valves.

.4 Over NPS 2: isolating flanges.

3.7 PIPEWORK INSTALLATION

.1 Install pipework conform to CSA B139.

.2 Cover fittings to be screwed with Teflon tape.

.3 Avoid openings against foreign material.

.4 Install to isolate equipment and allow removal without interrupting operation of other equipment or systems.

.5 Assemble piping using manufactured fittings conform to relevant ANSI standards.

.6 Saddle type branch fittings may be used on mains if branch line is no larger than half size of main.

.1 Hole saw (or drill) and ream main to maintain full inside diameter of branch line prior to welding saddle.

.7 Install exposed piping, equipment, rectangular cleanouts and similar items parallel or perpendicular to building lines.

.8 Install concealed pipework to minimize furring space, maximize headroom, and conserve space.

.9 Install slope piping, except where indicated, in direction of flow for positive drainage and venting.

.10 Install, except where indicated, to permit separate thermal insulation of each pipe.

.11 Group piping wherever possible.

.12 Ream pipes and remove scale and other foreign material before assembly.

.13 Use eccentric reducers at pipe size changes to ensure positive drainage and venting.

.14 Provide for thermal expansion as indicated.

.15 Valves:

.1 Install in accessible locations.

.2 Remove interior parts before soldering.

.3 Install with stems above horizontal position unless indicated.

.4 Install valves accessible for maintenance without removing adjacent piping.

.5 Install globe valves in bypass around control valves.

.6 Use gate, butterfly or ball valves at branch take-offs for isolating purposes except where specified.

.7 Install butterfly valves between weld neck flanges to ensure full compression of liner.

3.8 FLUSHING OUT OF PIPING SYSTEMS

.1 Before start-up, clean interior of piping systems.

.2 Before the acceptance of work, clean and refurbish materials and equipment and leave them in operating condition, including replacement of filters in piping systems.

3.9 PRESSURE TESTING OF EQUIPMENT AND PIPEWORK

.1 Advise minimum 48 hours prior to performance of pressure tests.

.2 Maintain specified test pressure without loss for 4 hours minimum, unless specified for longer period of time in relevant mechanical sections.

.3 Prior to tests, isolate equipment and other parts those are not designed to withstand test pressure or the planned test agent.

.4 Pay costs of repairs or replacement, retesting, and restoration, if applicable.

.5 Insulate or conceal work only after approval and certification of tests.

3.10 EXISTING SYSTEMS

.1 Assume the responsibility for damage that this work may cause to the existing.

END OF SECTION