

PART 1 GENERAL

1.1 Related Sections

- .1 Section 01 001 – General Requirements.

1.2 References

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 51-GP-52Ma-89, Vapour Barrier, Jacket and Facing Material for Pipe, Duct and Equipment Thermal Insulation.
 - .2 CAN/CGSB-51.53-95, Poly (Vinyl Chloride) Jacketting Sheet, for Insulated Pipes, Vessels and Round Ducts
- .2 Manufacturer's Trade Associations
 - .1 Thermal Insulation Association of Canada (TIAC): National Insulation Standards (Revised 1999).
- .3 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S102-M88(R2000), Surface Burning Characteristics of Building Materials and Assemblies.
 - .2 CAN/ULC-S702-1997, Thermal Insulation, Mineral Fibre, for Buildings

1.3 Definitions

- .1 For purposes of this section:
 - .1 "CONCEALED" - insulated mechanical services in suspended ceilings and non-accessible chases and furred-in spaces.
 - .2 "EXPOSED" - will mean "not concealed" as defined herein.
- .2 TIAC ss:
 - .1 CRF: Code Rectangular Finish.
 - .2 CPF: Code Piping Finish.

1.4 Shop Drawings

- .1 Submit shop drawings in accordance with Section 01 0001 – General Requirements.
- .2 Submit for approval manufacturer's catalogue literature related to installation, fabrication for pipe, fittings, valves and jointing recommendations.

1.5 Qualifications

- .1 Installer to be specialist in performing Work of this Section, and have at least 3 years successful experience in this size and type of project, member of TIAC.

PART 2 PRODUCTS

2.1 Fire And Smoke Rating

- .1 In accordance with CAN/ULC-S102.
 - .1 Maximum flame spread rating: 25.
 - .2 Maximum smoke developed rating: 50.

2.2 Insulation

- .1 Mineral fibre specified includes glass fibre, rock wool, slag wool.
- .2 Thermal conductivity ("k" factor) not to exceed specified values at 24 oC mean temperature when tested in accordance with ASTM C335.
- .3 TIAC Code A-3: Rigid moulded mineral fibre with factory applied vapour retarder jacket.
 - .1 Mineral fibre: to CAN/ULC-S702.
 - .2 Jacket: to CGSB 51-GP-52Ma.
 - .3 Maximum "k" factor: to CAN/ULC-S702.

2.3 Insulation Securement

- .1 Tape: Self-adhesive, aluminum, reinforced, 50 mm wide minimum.
- .2 Contact adhesive: Quick setting.
- .3 Canvas adhesive: Washable.
- .4 Tie wire: 1.5 mm diameter stainless steel.
- .5 Bands: Stainless steel, 19 mm wide, 0.5 mm thick.

2.4 Cement

- .1 Thermal insulating and finishing cement:
 - .1 Air drying on mineral wool, to ASTM C449/C449M.

2.5 Vapour Retarder Lap Adhesive

- .1 Water based, fire retardant type, compatible with insulation.

2.6 Indoor Vapour Retarder Finish

- .1 Vinyl emulsion type acrylic, compatible with insulation.

2.7 Jackets

- .1 Polyvinyl Chloride (PVC):
 - .1 One-piece moulded type and sheet to CAN/CGSB-51.53 with pre-formed shapes as required.

- .2 Colours: by Contract Administrator.
- .3 Minimum service temperatures: -20oC.
- .4 Maximum service temperature: 65oC.
- .5 Moisture vapour transmission: 0.02 perm.
- .6 Fastenings:
 - .1 Use solvent weld adhesive compatible with insulation to seal laps and joints.
 - .2 Pressure sensitive vinyl tape of matching colour.
- .2 Canvas:
 - .1 120 gm/m2 cotton, plain weave, treated with dilute fire retardant lagging adhesive to ASTM C921. Use only where use of PVC Jacket is impractical.
 - .2 Lagging adhesive: Compatible with insulation.

PART 3 EXECUTION

3.1 Pre- Installation Requirement

- .1 Pressure testing of piping systems and adjacent equipment to be complete, witnessed and certified.
- .2 Surfaces to be clean, dry, free from foreign material.

3.2 Installation

- .1 Install in accordance with TIAC National Standards.
- .2 Apply materials in accordance with manufacturers instructions and this specification.
- .3 Maintain uninterrupted continuity and integrity of vapour retarder jacket and finishes.
 - .1 Hangers, supports to be outside vapour retarder jacket.
- .4 Supports, Hangers:
 - .1 Apply high compressive strength insulation, suitable for service, at oversized saddles and shoes where insulation saddles have not been provided.

3.3 Piping Insulation Schedules

- .1 Includes valves, valve bonnets, strainers, flanges and fittings unless otherwise specified.
- .2 TIAC Code: A-3.
 - .1 Securements: SS Wire Bands Tape at 300 mm oc.
 - .2 Seals: VR lap seal adhesive, VR lagging adhesive.
 - .3 Installation: TIAC Code: 1501-C.
- .3 Thickness of insulation to be as listed in following table.
 - .1 Run-outs to individual units and equipment not exceeding 4000 mm long.

Application	Temp oC	TIAC code	Pipe sizes (NPS) and insulation thickness (mm)					
			Run out	to 1	1 1/4 to 2	2 1/2 to 4	5 to 6	8 & over
Domestic CWS with vapour retarder		A-3	25	25	25	25	25	25

- .4 Finishes:
- .1 Exposed indoors: Canvas PVC jacket.
 - .2 Exposed in mechanical rooms: Canvas PVC jacket.
 - .3 Concealed, indoors: canvas on valves, fittings. No further finish.
 - .4 Use vapour retarder jacket on TIAC code A-3 insulation compatible with insulation.
 - .5 Installation: To appropriate TIAC code CRF/1 through CPF/5.

END OF SECTION