HVAC PIPING INSULATION

1. GENERAL

1.1 Scope

.1 Piping insulation

.2 Adhesives, tie wires, tapes

.3 Recovering

1.2 Quality Assurance

.1 Insulation shall be installed by skilled workers regularly engaged in this type of Work.

.2 Materials shall meet or exceed fire and smoke hazard ratings as stated in this Section and defined in applicable building codes.

1.3 Submittals

.1 Submit Shop Drawings which indicate complete material data, "K" value temperature rating, density, finish, recovery jacket of materials proposed for this project and indicate thickness of material for individual services.

.2 Submit samples of proposed insulating and recovering materials.

1.4 Job Conditions

.1 Deliver material to Site in original non-broken factory packaging, labelled with Manufacturer's density and thickness.

.2 Perform Work at ambient and equipment temperatures as recommended by the adhesive manufacturer. Make good separation of joints or cracking of insulation due to thermal movement or poor workmanship.

2. PRODUCTS

2.1 General

.1 Insulation Materials, Recovery Jackets, Vapour Barrier Facings, Tapes and Adhesives: Composite fire and smoke hazard ratings shall not exceed 25 for flame spread and 50 for smoke developed.

.2 All insulation materials shall meet current Building Code Standards, and packages or containers of such materials shall be appropriately labelled.

.3 Insulate fittings and valve bodies with preformed removable insulated fittings.

2.2 Materials

.1 Hot Piping: Formed fine fibrous glass or mineral fibre pipe insulation, with factory applied general purpose jacket, factory moulded to conform to piping, "K" value maximum

0.035 W/m°C (0.25 Btu-in/(hr-ft^2-°F)) at 24°C (75°F). Service temperature up to 150°C (300°F).

.2 Recovery Jackets:

.1 ULC labelled thermo-canvas flamespread less than 25 smoke developed less than 50.

.2 0.4 mm (30 ga) smooth aluminum sheet for piping.

.3 Cold and hot water piping up to 116ºC (240ºF): as an alternate to formed fibreglass pipe insulation, rigid phenolic closed cell foam insulation shall be equal in accordance with B6 to Kingspan Koolphen K CFC-free rigid phenolic insulation. Product shall meet ASTM-E-84 and ASTM-C-585-90 and ULC burn and smoke spread rating for non-combustible installations (ULC-S102, S127).

3. EXECUTION

3.1 Preparation

.1 Do not install covering before piping and equipment has been tested and approved.

.2 Ensure surface is clean and dry prior to installation. Ensure insulation is dry before and during application. Finish with systems at operating conditions.

3.2 Installation

.1 Ensure insulation is continuous through inside walls. Pack around pipes with fire proof self-supporting insulation material, properly sealed.

.2 Insulate piping, fittings and valves. Do not insulate unions, flanges (except on flanged valves), "victaulic" couplings, strainers, (except on chilled water lines), flexible connections and expansion joints. Terminate insulation neatly with plastic material trowelled on a bevel.

.3 Finish insulation neatly on hangers, supports and other protrusions.

.4 Locate insulation or cover seams in least visible locations. Locate seams on piping in ceiling spaces on the underside of the pipe.

.5 Provide recovering jackets on exposed insulation throughout, including equipment rooms. Insulation located in crawlspaces, pipe shafts and suspended ceiling spaces is not considered exposed. Make smooth uneven insulated surfaces before recovering.

.6 Cover insulation exposed to outdoors with aluminum jacket secured with aluminum bands on 200 mm centres or screws on 150 mm centres. Lap joints 75 mm minimum and seal with compatible waterproof lap cement.

.7 Flare out staples may be used to secure jacket laps on hot systems. Staples are to be applied on 100 mm centres.

.8 Hot Piping: for fittings and valves, apply hydraulic insulating cement; or apply factory fabricated insulation half shells.

3.3 Insulation Installation Thickness Schedule

.1 All piping identified in the following table shall be insulated and jacketed except as noted on Drawings.

Piping or Equipment		**Pipe Sizes, mm**	**Insulation Thickness (fibreglass), mm**	**Insulation Thickness (closed cell phenolic), mm**	**Recovery Jacket**
1.	Hot Water Heating Piping	All sizes	40	25	Canvas
2.	Vents within 3 m of Roof Outlet, as measured along pipe	All sizes	25	12	Canvas
3.	Air Separators		25	N/A	Aluminum
4.	Boiler intake vent	All sizes	50	32	Al

END OF SECTION