

1.0 AIR DUCT

- .1 On all round ducts and on rectangular ducts not exposed to view use Johns Manville Microlite Type 75 or *equivalent* flexible blanket fibreglass insulation with FSK facing. Product must meet the requirements of ASTM C 1290, and include aluminum foil vapour barrier reinforced with fibreglass scrim and laminated to a fire resistant kraft facing. Maximum thermal conductivity 0.042 W/mC (0.29 Btu-in/hr2ft2F) in accordance with ASTM C 518. Use 40 mm (1-1/2") thickness.
- .2 On rectangular ducts exposed to view use Johns Manville Spin Glas Type 814 or *equivalent* rigid fibreglass insulation board, 48 kg/m3 (3 lb/ft3) density, with FSK facing. Product must meet the requirements of ASTM C 612, and include aluminum foil vapour barrier reinforced with fiberglass scrim and laminated to a fire resistant kraft facing. Maximum thermal conductivity 0.033 W/mC (0.23 Btu-in/hr2ft2F) at 24C (75f) mean temperature. Use 40 mm (1-1/2") thickness.
- .3 On rectangular ducts exposed to weather, use Johns Manville Spin Glas Type 817 or *equivalent* rigid fibreglass insulation board, 96 kg/m3 (6 lb/ft3) density, with FSK facing. Product must meet the requirements of ASTM C 612, and include aluminum foil vapour barrier reinforced with fibreglass scrim and laminated to a fire resistant kraft facing. Maximum thermal conductivity 0.032 W/mC (0.22 Btu-in/hr2ft2F) at 24C (75F) mean temperature. Use 80mm (3") thickness. Insulation to be finished with .016 aluminum jacket.

1.1 DUCTWORK FIRE PROTECTION INSULATION

- .1 Use 3M FireMaster or equivalent duct wrap consisting of sufficient layers of 40 mm (1-1/2") thick non-combustible flexible fire proof blanket to achieve the required fire rating. Insulation to be fully encapsulated in foil scrim and supplied in roll form. Insulation applied as per manufacturer specifications.

1.2 EMERGENCY GENERATOR EXHAUST SYSTEM

- .1 Use 50 mm (2") thick Johns Manville Thermo 12 Gold hydrous calcium silicate or Roxul high temperature insulation, finish with aluminum jacket.
- .2 Alternatively double wall breaching system may be used.

1.3 CHILLERS CENTREIFUGAL

- .1 Use sheet of Armaflex insulation or alternatively chiller may be factory insulated. Repair any site damage to manufacturer standard.

**SECTION 24 07 00
HVAC INSULATION**

- .2 See section 23 30 00, "Air Distribution" for internal duct insulation.
- .3 Externally insulate all supply air ducts between the supply air unit and the outlets, 1-1/2 Flex.
- .4 Externally insulate the sections of outside air intake ducts. Insulate the first 1.5mm (5") of exhaust ductwork adjacent to outside walls on roof, 3" board.
- .5 Externally insulate all supply in mechanical room 1-1/2" board.
- .6 Externally insulate all supply, return and exhaust air ductwork exposed to the outdoors, 3" board.
- .7 Externally insulate all combustion air intake ductwork, 1-1/2" board
- 8 Externally insulate the diesel generator radiator, exhaust air duct, outside as well, 3" board.

1.4 Application

- .1 On all round ducts, and on rectangular ducts not exposed to view, use Johns Manville Microlite Type 75 or equivalent flexible blanket fibreglass insulation with FSK facing. Product must meet the requirements of ASTM C 1290, and include aluminum foil vapour barrier reinforced with fibreglass scrim and laminated to a fire resistant kraft facing. Maximum thermal conductivity 0.042 W/mC (0.29 Btu-in/hr²ft²f) in accordance with ASTM C518. Use 40mm (1-1/2") thickness.
- .2 Externally all supply duct in mechanical room 1-1/2" board.
- .3 On rectangular ducts, impale insulation over mechanical fasteners. Provide mechanical fasteners per Insulation Manufacturer's published recommendations. Insulate behind duct balancing damper operators.
- .4 On round ducts impale insulation over mechanical fasten at the horizontal overlap points or use dabs of adhesive at several areas

1.5 Finish

- .1 In locations where the insulation will be exposed to view, finish with canvas. Provide 25mm x 25mm (1" x 1") galvanized steel sheet metal angle corner bead over duct insulation along all duct corners. Securely paste canvas on with a two coat application of lagging adhesive over the entire surface. Apply canvas between coats of adhesive, while first coat is still wet. Stretch canvas tight and smooth with overlapping seams located where at least visible. Apply second coat of adhesive immediately following application of canvas. Do not use metal bands.

.2 Seal canvas with off white sizing to leave a smooth non porous surface ready to receive paint application.

.3 Where insulation is exposed to the weather, finish with aluminum jacket over insulation with 1/2" standing cleat where joints meet.

1.6 EMERGENCY GENERATOR EXHAUST SYSTEM

.1 General: Insulate complete new exhaust system including silencer from generator up to point of connection with insulating thimble. Insulate modified sections of the existing diesel exhaust system.

.2 Insulation to be 3" thick Roxul or Calcium Silicate.

.3 Application: Apply insulation over clean dry surfaces. Butt all joints firmly together.

.4 Finish: Cover insulation with .016 aluminum jacket held in place with Stainless steel banding at 12" on centre.