

**2.18 INSULATION**

- 2.18.1 All insulation used in air handling unit walls, roof and base shall have a Flame spread rating of less than 25 and a Smoke Developed rating of less than 50 per ASTM E84 and UL 723 and Can/ULC S102-M88.
- 2.18.2 Insulation shall meet NFPA 90A and 90B.

**2.19 FACTORY CONTROLS**

- 2.19.1 Provide factory mounted and wired controls for the air handling unit. Provide all I/O points as shown on the AHU-6 controls schematic on M-1.2 and all additional points to conform to the sequence of operation.
- 2.19.2 Provide a BACnet IP programmable controller with suitable I/O count and memory to operate the unit. The controller is to be programmed with the sequence of operation as stated in section 25 90 01 (BAS Applications & Sequencing) and/or on mechanical drawings. The controller will provide at least one, of each type of input and output, as spare I/O.
- 2.19.3 Unit manufacturer to provide all programming and verification of the sequence of operation.
- 2.19.4 Provide all input and output devices, except valves (valves provided by controls contractor), as shown on M-1.2 and required by the sequence of operation. I/O devices to conform to the standards detailed in section 25 30 01 (BAS Field Control Devices).
- 2.19.5 All external devices will be shipped loose for installation by the controls contractor. Terminal blocks are to be provided to connect the remote devices to the controller.
- 2.19.6 All setpoint and adjustable parameters are to be writeable BACnet variables to allow the BAS to interact and control the unit to achieve the global BAS strategies.

**2.20 STANDARD OF ACCEPTANCE**

- 2.20.1 Approved manufacturers:
  - .1 Basis of design – Haakon
  - .2 Alternatives: Ingenia, Ventrol
  - .3 Tier 2 Alternatives (Separate Price): York (JCI), Trane, Daikin, EngAir, **MAFNA**