

## **GENERAL**

Furnish and install Dual Duct Variable Air Volume Terminal Units of the sizes and capacities as scheduled.

## **CONSTRUCTION**

Terminals shall be constructed of not less than 22 gauge-galvanized steel, able to withstand a 125-hour salt spray test per ASTM B-117. Stainless steel casings, or galvanized steel casings with a baked enamel paint finish, may be used as an alternative. The terminal casing shall be mechanically assembled (spot-welded casings are not acceptable).

Casing shall be internally lined with 1/2" thick fiberglass insulation, rated for a maximum air velocity of 5000 f.p.m. Maximum thermal conductivity shall be .24 (BTU • in) / (hr • ft<sup>2</sup> • °F). Insulation must meet all requirements of ASTM C1071 (including C665), UL 181 for erosion, and carry a 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A. Raw insulation edges on the discharge of the unit must be covered with metal liner to eliminate flaking of insulation during field duct connections. Simple "buttering" of raw edges with an approved sealant is not acceptable.

All appurtenances including; control assemblies and control enclosures shall not extend beyond the top and bottom of the unit casing. At an inlet velocity of 2000 ft/min, the static pressure drop across the basic terminal shall not exceed

the performance scheduled for all unit sizes.

## **PRIMARY AIR VALVES**

Both primary air valves shall consist of a minimum of 22-gauge cylindrical body that includes embossment rings for rigidity. Each damper blade shall be connected to an independently linked solid shaft by means of an integral molded sleeve, which does not require screw or bolt fasteners. The shafts shall be manufactured of a low thermal conducting composite material, and include molded damper position indicators visible from the exterior of the unit. The dampers shall pivot in self-lubricating bearings. The damper actuators shall be mounted on the exterior of the terminal for ease of service. The valve assemblies shall include internal mechanical stops for both full open and closed positions. The damper blade seals shall be secured without use of adhesives. The air valve leakage shall not exceed 1% of maximum inlet rated airflow at 3" W.G. inlet pressure.

## **PRIMARY AIRFLOW SENSORS**

For inlet diameters 6" or greater, the differential pressure airflow sensors shall traverse their corresponding ducts using equal cross sectional area or log-linear traverse method along two perpendicular diameters.

Single axis sensors shall not be acceptable for duct diameters 6" or larger. A minimum of 12 total pressure-sensing points shall be utilized on each sensor. The total pressure inputs shall be averaged using a pressure chamber located at the center of each sensor. The sensors

shall output an amplified differential pressure signal that is at least 2.5 times the equivalent velocity pressure signal obtained from conventional pitot tubes. The sensors shall develop a differential pressure of 0.03" W.G. at an air velocity of ≤ 450 FPM. Documentation shall be submitted which substantiates this requirement. Balancing taps and airflow calibration charts shall be provided for field airflow measurements.

## **OPTIONS**

### **FOIL FACED INSULATION**

Insulation shall be scrim backed and foil faced. All insulation edges shall be covered with foil or metal nosing. Insulation shall meet ASTM C1136 for mold, mildew, and humidity resistance.

### **ELASTOMERIC CLOSED CELL FOAM INSULATION**

Provide Elastomeric Closed Cell Foam Insulation in lieu of standard. Insulation shall conform to UL 181 for erosion and NFPA 90A for fire, smoke and melting, and comply with a 25/50 Flame Spread and Smoke Developed Index per ASTM E-84 or UL 723. Additionally, insulation shall comply with Antimicrobial Performance Rating of 0, no observed growth, per ASTM G-21. Polyethylene insulation is not acceptable.

### **DOUBLE WALL CONSTRUCTION**

The terminal casing shall be double wall construction using a 22 gauge galvanized metal liner covering all insulation.