

SPECIAL SPECIFICATION

SECTION 15840S

AIR TERMINAL UNITS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Furnish and install air terminal units of variable volume or constant volume type as scheduled for use in variable volume central systems, including:
 - 1. Variable volume regulators.
 - 2. Integral heating coils.
 - 3. Integral damper motor operators.

1.02 RELATED SECTIONS

- A. **Section 13085S – Seismic Protection**
- B. **Section 15170S – Motors**
- C. **Section 15191S – Ductwork**
- D. **Section 15950S – Testing, Adjusting, and Balancing**

1.03 REFERENCES

- A. NFPA 90A - Installation of Air Conditioning and Ventilation Systems.
- B. UL 181 - Factory-Made Air Ducts and Connectors.
- C. ADC 1062 - Air Distribution and Control Device Test Code.

1.04 SUBMITTALS

- A. Indicate on product data the configuration, general assembly, and materials used in fabrication. Category I.
- B. Include manufacturer's installation instructions.
- C. Include certified factory test results indicating the noise criteria and sound power and performance characteristics for each unit. Include maximum and minimum cfm ratings at 0.50-inch wg with the unit on fully bypass or fully primary air with the fan running a medium speed, radiated sound power and discharge sound pressure with the fan on and unit on full bypass, fan horsepower and fan curve, pressure drop through the unit with heating coil and dampers on full bypass. Include schedules listing discharge and radiated sound power level for each of second through sixth octave bands at inlet static pressures of one to 4 inch wg (250 to 1000 Pa).
- D. Provide operation and maintenance manual. Include directions for resetting constant volume regulator.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. **Titus**
- B. **Krueger**
- C. **Metal Aire**

2.02 MANUFACTURED UNITS

- A. Variable volume supply air control terminals for connection to single medium pressure duct, central air systems, with variable volume controls, hot water heating coils **where scheduled** and fused disconnect switch.
- B. Identify each airflow unit with clearly marked identification label and airflow indicator. Include unit nominal air flow, maximum factory set air flow, minimum factory set air flow, and coil type on label.

2.03 FABRICATION

- A. Casings: Minimum 22 gauge galvanized steel. Provide stiffeners and construct with sufficient rigidity to prevent vibration due to the action of turbulent air on the panel of the cabinet. Provide entire assembly capable of withstanding maximum static pressure of 3.0 inches WG.
- B. Lining: Provide neoprene or vinyl coated fibrous glass insulation meeting NFPA 90A 1 inch thick, 1.5 pounds per cubic foot density, or 3/4-inch thick dual density, 4 pounds per cubic foot to 1.5 pounds per cubic foot requirements and UL 181 erosion requirements. Cover all exposed parts, such as braces, etc. in contact with exterior surfaces, to prevent condensation on the exterior of the cabinet and minimize both heat and sound transmission. **Note: Where boxes are used in the MicroFab, they shall be doublewalled with no exposed liner.**
- C. Assembly: Air volume damper, fans and controls in single cabinet including inlet sound attenuator and renewable media filter in permanent frame.
- D. Plenum Air Inlets: Round/oval stub connections for duct attachment.
- E. Plenum Air Outlets: S and drive connections or 1 inch flange duct attachment.
- F. Limit air leakage from cabinet to a maximum of three percent at 3.0 inches WG interior casing pressure.

2.03 VOLUME DAMPER

- A. Locate air volume damper assembly inside unit casing. Construct from extruded aluminum or 20 gauge galvanized steel components. Key damper blades into shaft with nylon fitted pivot points. Secure damper to independent damper rod with a minimum of four screws. Tap damper rod to allow the set screw of the control arm to penetrate the damper rod.
- B. Provide automatic flow control assembly which combines spring rates matched for each volume regulator size with machined dashpot for stable operation.
- C. Mount automatic flow control assembly externally or provide access doors.
- D. Provide factory calibrated assembly consisting of damper and damper shaft extension for connection to externally mounted control actuator.
- E. Provide externally mounted pneumatic or electronic actuator to position damper, normally open, as indicated.

2.05 HEATING COILS

- A. Hot Water Heating Coil: 1/2-inch copper tube mechanically expanded into aluminum plate fins, leak tested under water to 200 psig pressure, factory installed, ARI certified.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide ceiling access doors or locate units above easily removable ceiling components.
- C. Support units individually from structure. Do not support from adjacent ductwork.
- D. Refer to Section 15810 for connections to equipment.
- E. Install heating coils in accordance with section on air coils.

END OF SECTION