

SECTION 23 36 00

AIR TERMINAL UNITS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Variable volume terminal units.

1.02 REFERENCES

- A. American Refrigeration Institute:
 - 1. ARI 880 - Air Terminals.
 - 2. ARI 885 - Procedure for Estimating Occupied Space Sound Levels in the Application of Air Terminals and Air Outlets.
- B. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- C. National Fire Protection Association:
 - 1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
- D. Underwriters Laboratories Inc.
 - 1. UL 181 - Factory-Made Air Ducts and Connectors.

1.03 SUBMITTALS

- A. Division 01 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings indicating airflow, static pressure, heating coil capacity and NC designation. Include electrical characteristics and connection requirements. Include schedules listing discharge and radiated sound power level for each of second through sixth octave bands at inlet static pressures of 1 inch to 4 inches wg, room location, model number, size and accessories furnished.
- C. Manufacturer's Installation Instructions: Submit support and hanging details, and service clearances required.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.04 CLOSEOUT SUBMITTALS

- A. Division 01 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of units, controls components.
- C. Operation and Maintenance Data: Submit manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts lists. Include directions for resetting constant volume regulators.

1.05 QUALITY ASSURANCE

- A. Test and rate air terminal unit's performance for air pressure drop, flow performance, and acoustical performance in accordance with ARI 880 and ARI 885. Attach ARI seal to each terminal unit.
- B. Maintain one copy of each document on site.

1.06 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience approved by manufacturer.

1.07 PRE-INSTALLATION MEETINGS

- A. Division 01 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.08 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.09 COORDINATION

- A. Division 01 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with 15905 - HVAC Instrumentation and Controls.

1.10 WARRANTY

- A. Division 01 - Execution and Closeout Requirements: Product warranties and product bonds.

1.11 EXTRA MATERIALS

- A. Division 01 - Execution and Closeout Requirements: Requirements for extra materials.

PART 2 PRODUCTS

2.01 SINGLE DUCT VARIABLE VOLUME AIR TERMINAL UNITS

- A. Manufacturers:
 - 1. Titus
 - 2. Price
 - 3. Anemostat & Krueger
 - 4. Substitutions: Division 01 - Product Requirements.
- B. Product Description: Constant air volume terminal units for connection to central air systems, with electronic controls, and hot water heating coils.
- C. Identification: Furnish each air terminal unit with identification label and airflow indicator. Include unit nominal airflow, maximum factory-set airflow and minimum factory-set airflow and coil type.

- D. Basic Assembly:
 - 1. Casings: Minimum 22 gage galvanized steel.
 - 2. Lining: Non porous sealer liner which complies with VL181 and NFPA 90A, 41b density with all cut edges sealed from the air stream using mechanically bonded metal barrier strips. Titus steriloc lining or double wall lining.
 - 3. Plenum Air Inlets: Round stub connections for duct attachment.
 - 4. Plenum Air Outlets: S slip-and-drive connections.
- E. Basic Unit:
 - 1. Configuration: Air volume damper assembly inside unit casing. Locate control components inside protective metal shroud.
 - 2. Damper: Construct of galvanized steel with peripheral gasket and self-lubricating bearings; maximum damper leakage: 10 CFM of design air flow at 6 inches inlet static pressure.
 - 3. Mount damper operator to position damper normally closed.
- F. Attenuation Section: 1 inch thick with steriloc liner.
- G. Multi Outlet Attenuation Section: With 6 or 8 inch diameter collars, each with butterfly balancing damper with lock.
- H. Round Outlet: Discharge collar matching inlet size.
- I. Hot Water Heating Coil:
 - 1. Construction: 1/2 inch copper tube mechanically expanded into aluminum plate fins, leak tested under water to 200 psig pressure, factory installed.
 - 2. 2 row coils minimum.
- J. Provide air flow sensor, damper, damper motor and linkage for full DDC operation furnished by Control Contractor for pressure independent operation.
- K. Sound Ratings: Not to exceed 30 NC at 2 inches static pressure.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Division 01 - Administrative Requirements: Coordination and project conditions.
- B. Verify ductwork is ready for air terminal installation.

3.02 INSTALLATION

- A. Connect to ductwork in accordance with Division 23.
- B. Drywall contractor to install ceiling access doors for units above inaccessible ceiling.
- C. Support units individually from structure. Do not support from adjacent ductwork.
- D. Install transition piece to match duct size to inlet or outlet of terminal unit.

3.03 ADJUSTING

- A. Division 01 - Execution and Closeout Requirements: Requirements for starting and adjusting.

- B. Reset volume with damper operator attached to assembly allowing flow range modulation from 100 percent of design flow to 30 percent full flow. Set units with heating coils for minimum 30 percent full flow.

END OF SECTION