

## SECTION 15815

### FLEXIBLE DUCTWORK

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Non-Insulated Flexible Duct.
- B. Insulated Flexible Duct.
- C. Acoustical Insulated Flexible Duct.

##### 1.2 RELATED SECTIONS

- A. Section 15810 - Ducts.
- B. Section 15822 - Sound Attenuators.

##### 1.3 REFERENCES

- A. ASTM C 518 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Apparatus.
- B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
- D. NFPA 90A - Standard for Installation of Air Conditioning and Ventilating Systems; National Fire Protection Association.
- E. NFPA 90B - Standard for Installation of Warm Air Heating and Air Conditioning Systems; National Fire Protection Association.
- F. UL 181 - Standard for Factory Made Air Ducts and Air Connectors; Underwriters Laboratory.

##### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's product literature for each type unit.
- C. Quality Assurance Submittals: Certified test reports from independent testing laboratory supporting compliance

of products to Building Code cited in QUALITY ASSURANCE Article of this Section.

#### 1.5 QUALITY ASSURANCE

- A. Regulatory requirements: UL compliance; affix UL Listing Mark, with Class code, to each UL listed unit.
- B. Code compliance: Units listed as complying with the following:
  - 1. SBCC.
  - 2. ICBO.
  - 3. BOCA.
  - 4. HUD 515-2.1(b).
  - 5. City of Chicago, IL.
  - 6. New York, NY.
  - 7. San Francisco, CA.
  - 8. Dade County, FL Building Code.

### PART 2 PRODUCTS

#### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: METALFLEX Division of Professional Duct Systems, Inc., 6180 Boat Rock Blvd., S.W., Atlanta, GA 30336. ASD. Tel: (888) MTL-FLEX (888-685-3539).
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. Substitutions: Not permitted.
- D. Supply all products specified in this section from a single manufacturer.

#### 2.2 NON-INSULATED FLEXIBLE AIR DUCT

- A. Acceptable Product: METALFLEX V-100-UL.
- B. Acceptable Product: METALFLEX V-100-S-UL.
- C. Materials: Aluminum, formed into corrugated circular duct in eight foot length with watertight seams and continuous lock seam connection at each end.
- D. Characteristics:
  - 1. Meet requirements of UL 181.
  - 2. Listed Class 0 Air Duct in accordance with NFPA 90A and NFPA 90B.

3. Fire Hazard Classification in accordance with ASTM E 84:
    - a. Flame Spread: Not exceeding 0.
    - b. Smoke Developed: Not exceeding 0.
  4. Maximum velocity air handling capability: 5000 feet per minute.
  5. Maximum operating pressure, positive and negative:
    - a. Duct diameter 3 inches to 10 inches: Plus or minus 12 inches WG.
    - b. Duct diameter 12 inches to 24 inches: Plus or minus 8 inches WG.
    - c. Operating temperature range: Minus 100 degrees F to plus 430 degrees F.
  6. Ship duct lengths compressed to 2 feet, 8 inch length.
- E. Accessories: Furnish each length with universal male/female connector at each end.
- F. Accessories: Furnish each length with male/female connector one end.

### 2.3 INSULATED FLEXIBLE AIR DUCT

- A. Acceptable Product: METALFLEX V-200-UL.
- B. Acceptable Product: METALFLEX V-200-S-UL.
- C. Acceptable Product: METALFLEX V-250-UL.
- D. Acceptable Product: METALFLEX V-250-S-UL.
- E. Materials:
1. Inner Duct Core: Aluminum, formed into corrugated circular duct in eight foot length with watertight seams and continuous lock seam connection at each end.
  2. Insulating Layer: Non-combustible, 1-1/2 inches thickness.
  3. Vapor Barrier: Polyethylene, gray color, having 0.10 Perm rating in accordance with ASTM E 96, Procedure A.
  4. Vapor Barrier: Metalized film, having 0.05 Perm rating in accordance with ASTM E 96, Procedure A.
- F. Characteristics:
1. Meet requirements of UL 181.
  2. Listed Class 1 Air Duct in accordance with NFPA 90A and NFPA 90B.

3. Fire Hazard Classification in accordance with ASTM E 84:
    - a. Flame Spread: Not exceeding 25.
    - b. Smoke Developed: Not exceeding 50.
  4. Maximum velocity air handling capability: 5000 feet per minute.
  5. Maximum operating pressure, positive and negative:
    - a. Duct diameter 4 inches to 10 inches: Plus or minus 12 inches WG.
    - b. Duct diameter 12 inches to 20 inches: Plus or minus 8 inches WG.
  6. Operating temperature range: Minus 20 degrees F to 250 degrees F.
  7. Thermal efficiency:
    - a. C-factor, calculated at 75 degrees F mean: 0.173.
    - b. R-Value, calculated by ADC FD72-R1 method: 5.79 average.
    - c. R-Value, calculated by ASTM C 518 method: 4.2 average.
  8. Ship duct lengths compressed to 2 feet, 8 inch length.
- G. Accessories: Furnish each length with universal male/female connector at each end.
- H. Accessories: Furnish each length with male/female connector one end.

#### 2.4 ACOUSTICAL INSULATED FLEXIBLE AIR DUCT

- A. Acceptable Product: METALFLEX V-450-S-DB.
- B. Materials:
  1. Inner Duct Core: Aluminum, formed into corrugated circular duct in eight foot length with watertight seams and continuous lock seam connection at each end.
  2. Insulating Layer: Non-combustible, 1-1/2 inches thickness.
  3. Vapor Barrier: Metalized film, having 0.05 Perm rating in accordance with ASTM E 96, Procedure A.
- C. Characteristics:
  1. Maximum velocity air handling capability: 2500 feet per minute.
  2. Maximum operating pressure, positive and negative, for duct diameter 4 inches to 20 inches: Plus or minus 2 inches WG.

3. Operating temperature range: Minus 20 degrees F to plus 250 degrees F.
4. Thermal efficiency:
  - a. C-factor, calculated at 75 degrees F mean: 0.173.
  - b. R-Value, calculated by ADC FD72-R1 method: 5.79 average.
  - c. R-Value, calculated by ASTM C 518 method: 4.2 average.

D. Accessories: Furnish each length with male/female connector one end.

### PART 3 EXECUTION

#### 3.1 INSTALLATION

- A. Install flexible ductwork in accordance with provisions of Section 15810 - Ducts.

END OF SECTION