

SECTION 23 33 00 - AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.01 BUY AMERICAN REQUIREMENTS

- A. Provide certificates to show that all products meet the following requirements.
 - 1. American Iron and Steel (AIS)
 - 2. Build America, Buy America Act
- B. See Supplementary Conditions for details.

1.02 SUMMARY

- A. Section Includes:
 - 1. Control Dampers
 - 2. Back-draft dampers.
 - 3. Duct access doors.
 - 4. Flexible duct connections.

1.03 REFERENCES

- A. Air Movement and Control Association International, Inc.:
 - 1. AMCA 500 - Test Methods for Louvers, Dampers, and Shutters.
- B. ASTM International:
 - 1. ASTM E1 - Standard Specification for ASTM Thermometers.
- C. National Fire Protection Association:
 - 1. NFPA 90A - Standard for the Installation of Air Conditioning and Ventilating Systems.
 - 2. NFPA 92A - Recommended Practice for Smoke-Control Systems.
- D. Sheet Metal and Air Conditioning Contractors:
 - 1. SMACNA - HVAC Duct Construction Standard - Metal and Flexible.

1.04 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Indicate for shop fabricated assemblies including duct access doors.
- C. Product Data: Submit data for shop fabricated assemblies and hardware used.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.05 CLOSE-OUT DOCUMENTS

- A. Product Data: Provide as-built information of submittal requirements.
- B. Maintenance: Provide operation and maintenance manuals for equipment noting model number, part numbers, and regular maintenance schedules.

1.06 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

PART 2 - PRODUCTS

2.01 INSULATED POSITIVE SHUT-OFF CONTROL DAMPERS

- A. Manufacturer: T. A. Morrison, TAMCO 9000 or equal.
- B. Extruded aluminum (6063T5) damper frame shall be not less than .080-inch in thickness. Damper frame to be 4 inches deep and shall be insulated with polystyrene on three sides if "Installed in Duct" type and on four sides if "Flanged to Duct" type.
- C. Blades to be extruded aluminum (6063TS) profiles, internally insulated with non-CFC, expanded polyurethane foam and shall be thermally broken. Complete blade shall have an insulating factor of R-2.29 and a temperature index of 55.
- D. Blade and frame seals shall be of extruded silicone and shall be secured in an integral slot within the aluminum extrusions.
- E. Bearings to be comprised of a celcon inner bearing fixed to a 7/16-inch aluminum hexagon blade pin rotating within a polycarbonate outer bearing inserted in the frame, resulting in no metal-to-metal, or metal-to-plastic contact.
- F. Linkage hardware shall be installed in frame side, shall be constructed of aluminum and corrosion resistant, zinc, and nickel-plated steel, complete with cup-point trunnion screws for a slip-proof grip.
- G. Dampers shall be opposed blade action. Dampers shall be made to size required without blanking off of free area. Dampers shall be available in two mounting types: i.e. "Installed in Duct" or "Flanged to Duct." Dampers to be designed for operation in temperatures ranging between minus 40 deg F and 212 deg F.
- H. Air leakage through a 48- by 48-inch damper shall not exceed 4.12 cfm/sq. ft. against 4 inches w.g. differential static pressure at standard air. Standard air leakage data to be certified under the AMCA Certified Ratings Program. Air leakage shall not exceed 4.9 cfm/sq. ft. against 4 inches w.g. differential static pressure at minus 40 deg F.

- I. Pressure drop of a fully open 48- by 48-inch damper shall not exceed .03-inch w.g. at 1000 fpm. Installation of dampers shall be in accordance with manufacturer's installation guidelines.

2.02 BACK-DRAFT DAMPERS

- A. Manufacturers:
 - 1. Ruskin
 - 2. Greenheck
 - 3. Approved substitutions in accordance with Division 1.
- B. Product Description: Multi-Blade, back-draft dampers: Parallel-action, gravity-balanced, Galvanized 16 gage (1.5 mm) thick steel, or extruded aluminum. Blades, maximum 6 inch (150 mm) width, center pivoted, with felt or flexible vinyl sealed edges. Blades linked together in rattle-free manner with 90-degree stop, steel ball bearings, and plated steel pivot pin. Furnish dampers with adjustment device to permit setting for varying differential static pressure.

2.03 DUCT ACCESS DOORS

- A. Reach-through doors shall be located at fire dampers, inlet side of coils, and where required to service internal duct appurtenances. Doors shall be stiffened to prevent rattle or vibration and shall be secured airtight with felt-edged gaskets. Secure the hinge and sash lock. Access doors to be insulated where adjacent duct is insulated or lined. Access doors shall be suitably sized for intended duty. See Section 3.02 Installation for sizes. Ruskin ADH or equal.

2.04 FLEXIBLE DUCT CONNECTIONS

- A. Manufacturers: Thermaflex
- B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.
- C. Round flexible duct connections shall be of a two element spiral construction composed of a corrosion resistant metal supporting spiral and a coated fabric with a mineral base. Flexible duct connectors shall be listed by UL, Class 1 ducts, and shall have a flame spread rating not exceeding 25 and a smoke developed rating not exceeding 50. Fuel contributed rating not exceeding 50.
- D. Square flexible duct connections shall be UL listed, fire-retardant, neoprene coated, woven glass fiber fabric, in accordance with NFPA 90A, minimum density 30 oz/sq. ft. and crimped into 3 inch wide and 24 gauge thick galvanized steel collars. Install per SMACNA HVAC Duct Construction Standards.
- E. The flexible duct connection shall be suitable for 1 1/2 times the duct pressure at the connection. Flexible separation shall not be less than 6 inches between separated metals.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify rated walls are ready for fire damper installation.
- C. Verify ducts and equipment installation are ready for accessories.
- D. Check location of air outlets and inlets and make necessary adjustments in position to conform to architectural features, symmetry, and lighting arrangement.

3.02 INSTALLATION.

- A. Install equipment in accordance with manufacturer's installation recommendations and code.
- B. Install in accordance with NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Refer to Section 23 31 00 for duct construction and pressure class.
- C. Install back-draft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated on Drawings.
- D. Access Doors: Install access doors at the following locations as indicated on Drawings:
- E. Access Door Sizes: Install minimum 8 x 8 inch size for hand access, 18 x 18 size for shoulder access, and as indicated on Drawings. Review locations prior to fabrication.

3.03 DEMONSTRATION

- A. Section 01 70 00 - Execution and Closeout Requirements for demonstration and training.
- B. Demonstrate re-setting of fire dampers to Owner's representative.

END OF SECTION