

**SECTION 23 33 00
DUCTWORK ACCESSORIES**

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Back-draft dampers.
 - 2. Duct access doors.
 - 3. Fire dampers.
 - 4. Volume control dampers.
 - 5. Flexible duct connections
 - 6. Duct test holes.

1.2 REFERENCES

- A. National Fire Protection Association:
- B. Sheet Metal and Air Conditioning Contractors:
- C. Underwriters Laboratories Inc.:

1.3 SUBMITTALS

A. Shop Drawings: Indicate for shop fabricated assemblies including volume control dampers duct access doors and duct test holes. B. Product Data: Submit data for shop fabricated assemblies including fire dampers including locations and ratings backdraft dampers flexible duct connections volume control dampers duct access doors. Include electrical characteristics and connection requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of access doors .

1.5 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.6 COORDINATION

- A. Coordinate Work where appropriate with building control Work.

PART 2 - PRODUCTS

2.1 BACK-DRAFT DAMPERS

- A. Product Description: Multi-Blade, back-draft dampers: Parallel-action, gravity-balanced, Galvanized 16 gage thick steel, or extruded aluminum. Blades, maximum 6 inch 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.

2.2 DUCT ACCESS DOORS

- A. Manufacturers:
 - 1. Ventlock
 - 2. Dura-Dyne
- B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.
- C. Fabrication: Rigid and close fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, furnish minimum 1 inch Less Than 12 inches square, secure with sash locks.
 - 1. Up to 18 inches Square: Furnish two hinges and two sash locks.
 - 2. Up to 24 x 48 inches: Three hinges and two compression latches with outside and inside handles.
 - 3. Larger Sizes: Furnish additional hinge.
 - 4. Sash Lock
 - 5. Compression Latch
 - 6. Hinge
 - 7. Access panels with sheet metal screw fasteners are not acceptable.

2.3 FIRE DAMPERS

- A. Manufacturers:
 - 1. Ruskin
 - 2. Greenheck
 - 3. Air Balance Co.
- B. Fabricate in accordance with NFPA 90A and UL 555, and manufacturer's condition of listing. Permanently mark dampers for use in static systems.
- C. Ceiling Dampers: Galvanized steel, 22 gage frame and 16 gage flap, two layers 0.125 inch ceramic fiber on top side, and one layer on bottom side for round flaps, with locking clip.
- D. Horizontal Dampers: Galvanized steel, 22 gage frame, stainless steel closure spring, and lightweight, heat retardant non-asbestos fabric blanket.
- E. Curtain Type Dampers: Galvanized steel with interlocking blades. Furnish stainless steel closure springs and latches for horizontal installations closure under airflow conditions. Configure with blades out of air stream except for 2 inch pressure class ducts up to 12 inches in height.
- F. Multiple Blade Dampers: 16 gage galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, 1/8 x 1/2 inch plated steel concealed

linkage, stainless steel closure spring, blade stops, and lock.

- G. Fusible Links: UL 33, separate at 212 degrees F with adjustable link straps for combination fire/balancing dampers.

2.4 VOLUME CONTROL DAMPERS

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.
- B. Splitter Dampers:
 - 1. Material: Same gage as duct to 24 inches size in both dimensions, and two gages heavier for sizes over 24 inches.
 - 2. Blade: Fabricate of double thickness sheet metal to streamline shape, secured with continuous hinge or rod.
 - 3. Operator: Minimum 1/4 inch diameter rod in self aligning, universal joint action, flanged bushing with set screw;
 - 4. Single Blade Dampers: Fabricate for duct sizes up to 12 x 48 inch.
- C. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized frame channel with suitable hardware.
- D. End Bearings: Except in round ductwork 12 inches and smaller, furnish end bearings. On multiple blade dampers, furnish oil-impregnated nylon or sintered bronze bearings. Furnish closed end bearings on ducts having pressure classification over 2 inches wg;
- E. Quadrants:
 - 1. Furnish locking, indicating quadrant regulators on single and multi-blade dampers.
 - 2. On insulated ducts mount quadrant regulators on standoff mounting brackets, bases, or adapters.
 - 3. Where rod lengths exceed 30 inches furnish regulator at both ends.

2.5 FLEXIBLE DUCT CONNECTIONS

- A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated on Drawings.
- B. Connector: Fabric crimped into metal edging strip.
 - 1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric conforming to NFPA 90A, minimum density 30 oz per sq yd.
 - 2. Net Fabric Width: Approximately 6 inches wide.
 - 3. Metal: 3 inch wide, 24 gage galvanized steel.
- C. Leaded Vinyl Sheet: Minimum 0.55 inch thick, 0.87 lbs. per sq ft, 10 dB attenuation in 10 to 10,000 Hz range.

2.6 DUCT TEST HOLES

- A. Permanent Test Holes: Factory fabricated, air tight flanged fittings with screw cap. Furnish extended neck fittings to clear insulation.

PART 3 - EXECUTION

3.1 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.

3.2 INSTALLATION.

- A. Install in accordance with NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible.
- B. Install back-draft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated on Drawings.
- C. Install duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and as indicated on Drawings. Install at locations for cleaning kitchen exhaust ductwork in accordance with NFPA 96. Install minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated on Drawings. Install 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.
- D. Install temporary duct test holes where indicated on Drawings and required for testing and balancing purposes. Cut or drill in ducts. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.
- E. Provide fire dampers at locations as indicated on Drawings. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.

3.3 DEMONSTRATION

- A. Demonstrate re-setting of fire dampers to Owner's representative.

END OF SECTION 23 33 00