

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

### 1.2 SUMMARY

- A. This Section includes the following:
1. Backdraft dampers.
  2. Volume dampers.
  3. Combination fire and smoke dampers.
  4. Duct silencers.
  5. Turning vanes.
  6. Duct-mounting access doors.
  7. Flexible connectors.
  8. Flexible ducts.
  9. Duct accessory hardware.

### 1.3 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Fusible Links: Furnish quantity equal to 10 percent of amount installed.

## PART 2 - PRODUCTS

### 2.1 BACKDRAFT DAMPERS

- A. Gravity backdraft dampers, size 18 x 18 inches or smaller, furnished with air moving equipment, may be air moving equipment manufacturers' standard construction.
- B. Fabricate multi-blade, parallel action gravity balanced backdraft dampers of extruded aluminum, with blades of maximum 6 inch width, with felt or flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure; Model BD6 manufactured by Ruskin, Greenheck or equal.

### 2.2 VOLUME CONTROL DAMPERS

- A. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards, and as indicated.
- B. Fabricate single blade dampers for duct sizes to 12 x 48 inch. Fabricate multi-blade damper of opposed blade pattern with maximum blade sizes 12 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.
- C. Provide locking, indicating quadrant regulators on single and multi-blade dampers. Where rod lengths exceed 30 inches provide regulator at both ends

### 2.3 COMBINATION FIRE AND SMOKE DAMPERS

- A. Damper shall meet the requirements of current NFPA standards and further shall be tested, rated and labeled in accordance with the latest edition on UL Standard s.
- B. Damper actuator combination shall have a UL rating. Damper actuator shall be electric type for 120 volt operation.
  - 1. Prefer metal gear actuator, plastic not acceptable.
- C. Damper blades shall be 16 gauge galvanized steel 3 Vee type with three longitudinal grooves for reinforcement. Damper frame shall be galvanized steel formed into a structural hat channel shape with reinforced corners. Bearing shall be sintered bronze sleeve type rotating in extruded holes in the damper frame. Blade seals shall be silicone rubber designed to inflate and provide a tighter seal against leakage as pressure on either side of the damper increases. Jamb seals shall be stainless steel compression type with silicone rubber backing. Blades shall be completely symmetrical relative to their axle pivot point, presenting identical resistance to airflow in either direction or pressure on either side of the damper.

### 2.4 DUCT SILENCERS

- A. Factory assembled unit, tested and certified by an independent acoustic testing laboratory,. Provide test data taken within six months of submittal date.
- B. Outer casings of rectangular silencers shall be made of 22 gauge type #G-90 lock-former-quality galvanized steel. Interior partitions for rectangular silencers shall be not less than 26 gauge type #G-90 galvanized lock-former-quality perforated steel.
- C. Filler material shall be inorganic glass fiber of a proper density to obtain the specified acoustic performance and be packed under not less than 5% compression to eliminate voids due to vibration and settling. Material shall be inert, vermin- and moisture-proof and have a flame spread classification.

### 2.5 TURNING VANES

- A. Multi-blade device with blades aligned in short dimension; blades shall be hollow double wall turning vanes type per SMACNA standards; steel or aluminum construction; with individually adjustable blades, mounting straps. Manufacturer shall be Aero/Dyne or equal (no known equal).

### 2.6 DUCT-MOUNTING ACCESS DOORS

- A. Fabricate rigid and close-fitting doors of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, install minimum one inch thick insulation with sheet metal cover. Fabricate in accordance with SMACNA Duct Construction Standards.
- B. Access doors smaller than 12 inches square may be secured with sash locks. Provide two hinges and two sash locks for sizes up to 18 inches square, three hinges and two compression latches with outside and inside handles for sizes up to 24 x 48 inches. Provide an additional hinge for larger sizes.

2.7 FLEXIBLE CONNECTORS.

- A. UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 30 oz per sq yd, approximately 6 inches wide, crimped into metal edging strip. Fabricate in accordance with SMACNA Duct Construction Standards.
- B. Leaded vinyl sheet, minimum 0.55 inch thick, 0.87 lbs per sq ft, 10 dB attenuation in 10 to 10,000 Hz range. Manufacturer by Ventfrabrics or equal.

2.8 FLEXIBLE DUCTS.

- A. Flexible one-inch thick insulated round ductwork at the last seven (7') feet to each air outlet and inlet. Connect each end with stainless steel screw operated drawbands. Support duct to maintain smooth shape without sagging. All connections shall utilize welded conical tees, aluminum conical fitting with damper by Flexmaster #CBD, or 45° boot take-offs by Flexmaster #STOD. Spin-in type or other types of butt tees, bullhead tees or straight taps are not permitted.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install accessories in accordance with manufacturer's instructions.

**END OF SECTION**