SECTION 233300 - DUCTWORK ACCESSORIES

PART 1-GENERAL

1.1 SECTION INCLUDES

A. Backdraft dampers

B. Manual volume dampers

C. Fire dampers

D. Turning vanes

E. Duct access doors.

F. Duct test holes.

1.2 SUBMITTALS

A. Submit shop drawings and product data per applicable Division I Specifications.

B. Shop drawings shall include material, sizes, quantities, and dimensions.

1.3 QUALITY ASSURANCE

A. SMACNA HVAC Duct Construction Standards-Metal and Flexible.

B. UL181.

C. NFPA 90A and 90B.

D. ASHRAE Handbook, HVAC Systems and Equipment.

E. Dampers shall meet the requirements of Ashrae standard 90.1.

1.4 WARRANTY

A. Contractor shall warranty entire systems and equipment for a period of one (1) year.

PART 2-PRODUCTS

2.1 BACKDRAFT DAMPERS

A. Manufacturers

1. Ruskin

2. American Warming

3. Ampco

4. Greenheck

B. Frames: Galvanized steel.

C. Blades: Extruded aluminum.

D. Blade Seals: Neoprene.

E. Blade Axles: Galvanized steel.

F. Tie Bars and Brackets: Aluminum.

G. Return Spring: Adjustable tension for motor operated dampers only.

H. Dampers: Counter-balanced for building pressure activation.

2.2 MANUAL VOLUME DAMPERS

A. Manufacturers

1. Ruskin

2. United Sheet Metal

3. Fabco

4. Greenheck

B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards – Metal and Flexible, and as indicated.

C. Splitter Dampers:

1. Material: Same gauge as duct to 24 inches size in either direction, and two gauges 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 ¼" diameter rod in self aligning, universal joint action, flanged bushing with set screw.

D. Single Blade Dampers: Fabricate for duct sizes up to with smallest dimension less than 12 inches.

E. Multi-Blade Damper: Factory made of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble and edge crimped blades in prime coated or galvanized channel frame with suitable hardware; Use multi-blade dampers with smallest dimension 12" or larger.

F. End Bearings: Except in round ductwork 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon or sintered bronze bearings.

G. Quadrants:

1. Provide locking, indicating quadrant regulators on single and multi-blade dampers.

2. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.

3. Where rod lengths exceed 30 inches provide regulator at both ends.

2.3 FIRE DAMPERS

A. Manufacturers

1. Air Balance

2. Ruskin

3. Safe – Aire

4. Prefco

5. Greenheck

B. Fabricate in accordance with NFPA 90A and UL 555, and as indicated. Air Balance type 119 in medium pressure ductwork and type ML in low-pressure ductwork.

C. Fire Dampers where either dimension is less than 24” in width or 12” in height, the unit size shall be based on inside frame dimension.

D. Fire Dampers in medium pressure ductwork shall have 100% free area when open with frame and blades outside the duct area.

E. Horizontal Dampers: Galvanized steel, 22 gauge frame, stainless steel closure spring, and lightweight, heat retardant non-asbestos fabric blanket.

F. Curtain Type Dampers: Galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for closure under air flow conditions.

G. Multiple Blade Dampers: 16 gauge galvanized steel frame and blades, oil impregnated bronze or stainless steel sleeve bearings and plated steel axles, 1/8” x ½” plated steel concealed linkage, stainless steel closure spring, blade stops, and lock.

H. Fusible Links: UL 33.

2.4 DUCT TEST HOLES

A. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, threaded or twist-on metal caps.

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

2.5 AIR TURNING DEVICES/EXTRACTORS

A. Manufacturers:

1. Titus Model AG 45
2. Anemostat Model DT
3. Carnes Model XRVA
4. Krueger

B. Multi-blade device with blades attached to pivoting frame and bracket, steel construction, and worm drive mechanism with 18 inch long removable key operator.

2.6 MOUNTED ACCESS PANELS AND DOORS

A. Manufacturers:

1. Ruskin
2. Semco
3. United Sheet Metal

B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards – Metal and Flexible, and as indicated.

C. Fabrication: Rigid and close-fitting of galvanized steel with sealing gasket and quick fastening locking devices. For insulated ductwork, install minimum one inch thick insulation with sheet metal cover.

D. All access doors in sheet metal ducts or casings shall be provided with latches, hinges and felt gaskets as manufactured by Ventfabrics, Inc., 5520 North Lynch Avenue, Chicago, Illinois, Duro Dyne or approved equal. All doors less than 4 sq.ft. in area shall have Series 100 Ventlock, doors from 4 sq.ft. to 8 sq.ft. in area shall have a Series 200 Ventlock; and doors larger than 8 sq.ft. in area shall have Series 300 Ventlock.

E. Access doors to fire dampers for medium pressure duct system shall be located downstream of fire damper. Access section shall consist of access opening with double wall insulated door and shall serve as a vacuum relief valve.

F. Access doors with sheet metal screw fasteners are not acceptable.

PART 3-EXECUTION

3.1 INSTALLATION

A. Install manufactured products in accordance with manufacturer's instructions.

B. Provide splitter dampers, manual volume control dampers and/or extractors at points on supply, return, and exhaust systems as required for air balancing.

C. Provide fire dampers at locations indicated, where duct, outlets and inlets pass through fire rated components and where required by authorities having jurisdiction. Install per UL and manufacturers requirements with required perimeter mounting angles, sleeves, breakaway duct connections and sealing. Provide gentle transitions from adjacent ducts to dampers.

D. Demonstrate resetting of fire dampers to authorities having jurisdiction and Owner's representative.

E. Provide motorized shut-off dampers on exhaust fans or in exhaust ducts and in relief assemblies nearest to outside and where indicated.

F. Provide flexible connections immediately adjacent to equipment in ducts associated with fans and motorized equipment.

G. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, any motorized dampers, at splitter dampers, at relief dampers and at fire dampers. Provide minimum 12 x 12 inch size for hand access, 24 x 24 inch size for shoulder access. Size doors generously as the Architect will determine if doors are reasonable for intended access.

H. Provide duct test holes where required for testing and balancing purposes.

I. Transition ducts gently to allow installation of duct accessories if required.

J. Provide architectural access doors and install in architectural entities whenever access is required for work of this section. Doors and installation to meet the approval of the Architect.

K. Install negative pressure relief doors immediately downstream and a positive pressure relief access door upstream of all fire dampers (or other dampers subject to sudden closure). See Specification Section 23 33 00 for access door work.

L. Installation of duct accessories in exposed ducts to be done for best aesthetics. Prime accessories, shafts, operators, linkages, etc.

M. Provide openings in ductwork to accommodate rods, shafts, etc. and seal and insulate (if required).

N. Locate accessories for proper operation and service.

O. Provide turning vanes in all mitered ductwork 90 degree elbows.

P. Provide duct mounted access doors and panels to all fire dampers, control damper, plenum housings.

END OF SECTION 233300