

Design Standard Ductwork Accessories

Purpose:

Ductwork is an essential element of the mechanical space cooling and heating systems. This design standard has the purpose of creating a consistent application of ductwork requirements throughout the East Side Union High School District, therefore achieving a standard of quality for maintenance, energy efficiency, and reliability throughout all renovation and new building projects.

Design Standard:

Design and specify work to include materials, installation, and testing of HVAC duct accessories such as volume dampers, splitter dampers, adjustable deflectors, duct access doors, backdraft dampers, fire dampers, duct silencers, spin-in fittings, and smoke dampers

- Volume Dampers
 - Construct of galvanized sheets not lighter than 18 gauge, reinforced to prevent vibration, equipped at both ends with brass bearing mounts and of sufficient length to provide a complete shutoff of the duct
 - Provide each damper with an adjustment and locking quadrant device for accessible locations, or remote type for non-accessible locations. Provide operating rod and attaching devices as required. Provide raised platform for insulated duct
- Barometric Dampers (Large): Frame and blades fabricated from 0.063 mill finish aluminum. Blades have polyurethane edge seals. 1/2-inch diameter aluminum blade shafts with bronze bearings. Adjustable counterweight. Blades start to open at 0.05-inch APD - 55 FPM. Blades fully open at 0.06-inch APD - 680 FPM. Manufacturers: Louvers & Dampers, Ruskin, Cesco, Greenheck, Prefco, or approved
- Backdraft Dampers (small): All welded 14 gauge aluminum, with blades pivoting off center, double crimped front and rear, polyurethane seals. Link blades to work in unison, pivoting in ball bearings, and provide adjustable counterweights attached to the blades. . Blades start to open at 0.05-inch APD - 55 FPM. Blades fully open at 0.06-inch APD - 680 FPM. Frames: Channel type with flanges to facilitate mounting. Manufacturers: Louvers & Dampers, Ruskin, Cesco, Greenheck, Prefco, or approved
- Control Dampers: Provide automatic control dampers as indicated. Airfoil, multiblade type, maximum blade length of 48 inches. Provide parallel blades for positive or modulating mixing service and opposed blades for throttling service. Blades to be interlocking, minimum 16 gauge galvanized steel. Damper blades

reinforced, have continuous full length axle shafts and/or operating jackshafts as required to provide coordinated tracking of blades. Dampers over 25 sq.ft. in area to be in two or more sections, with interconnecting blades. Dampers to have a maximum air leakage of 15 CFM psf at 4-inch w.g. pressure. Provide automatic dampers except those specified with units. Manufacturers: Alerton, Auto-Matrix, Honeywell, Johnson Controls, Staefa, Siemens, Trane, Siebe

- Fire smoke damper: Motorized fire/smoke damper with motor. 22 gauge roll from galvanized steel with a 120VAC motor for motorized operation. Standard UL 212F fusible link. Provide smoke detector at each damper per code. Dynamic type. The fire dampers to be U.S. standard for 1-1/2 hour listing. Motors to be UL listed. Provide the thermal protection via the fusible link. Damper to be normally closed. Minimum leakage Class II damper. Provide with automatic reset. Damper to fail closed when power is interrupted to actuator.
- Filters: Provide minimum Merv-13 filters for LEED projects. Size for maximum velocity of 500 feet per minute. Filters shall be standard dimensions.

Approved Manufacturers:

- Volume dampers
 - Ruskin
 - Greenheck
 - Penn
 - Nailor
 - Cesco
- Backdraft dampers
 - Ruskin
 - Greenheck
 - Penn
 - Nailor
 - Cesco
- Control dampers
 - Ruskin
 - Greenheck
 - Penn
 - Nailor

- Cesco
- Fire Smoke Dampers
 - Ruskin
 - Greenheck
 - Penn
 - Nailor
 - Cesco
- Filters
 - American Air Filter
 - Camfil Farr

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Construction Specifications

- Division 23 HVAC Design Standards
- 23 31 00 – Ductwork Design Standards

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