

PART 1 - GENERAL

1.01 Intent of Document

The information included in this section is intended to identify the **SPECIFIC ITEMS** required by Oklahoma State University in the design and construction of facilities on the campus. Items of "normal, code, industry or standard construction practice" are not included in this section.

1.02 Design Criteria

- A. All metal and flexible ductwork fittings shall conform to the latest edition of SMACNA HVAC duct construction standards.
- B. Provide neoprene-coated glass fiber flexible connections at duct connections to fans.
- C. Provide factory-fabricated hardware for manual dampers, plenum doors and access doors. Provide locking quadrant-type damper operators. Provide standoff brackets to locate operators at outside surface of wrapped ducts. Access doors with sheet metal screw fasteners are not acceptable.
- D. Specify damper frame style that does not impinge on the duct's cross-sectional free area. Show fire dampers in all ducts penetrating the fire separations, as required by NFPA. Do not make general statements such as *install fire dampers in accordance with applicable codes*. Provide access to each fire damper for maintenance and fusible link replacement. Consider pressure relief doors and panels to prevent duct damage from sudden pressure changes from a smoke or fire damper closure. Provide accessible, well-sealed pressure relief doors or panels that can be closed after they open.
- E. Takeoffs shall be conical with a manual damper if warranted. If the main duct is not deep enough for a conical fitting, specify a 45° fitting with a round collar.
- F. Specify motorized back draft dampers for positive closure of air duct on exhaust systems where stack effect would open gravity type dampers
- G. Specify duct access doors for inspection, maintenance and cleaning at all automatic dampers, fire and smoke dampers, before duct turning vanes and before all booster coils.
- H. Radius heel elbows shall be used wherever possible. Rectangular elbows are discouraged.
 - 1. If supply air rectangular elbows are needed, they shall have single wall turning vanes, with intermediate support rails if the length of the vanes exceeds 36". Edges of the turning vanes shall be parallel with the sides of the elbow. Rails shall be 2" wide for elbows up to 12", and 4" wide for elbows above 12" in the dimension perpendicular to the vanes.
 - 2. Return air and exhaust ducts shall not have turning vanes.

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Duct Accessories

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- I. Diverging transitions shall not exceed 15° per side. Converging transitions shall not exceed 30° per side.

END OF SECTION 15820