

APPENDIX A

UNIFORM MECHANICAL CODE STANDARD 6-2 STANDARD FOR METAL DUCTS

Based on the second edition, 1995 *HVAC Duct Construction Standards, Metal and Flexible*, published by the Sheet Metal and Air Conditioning Contractors National Association.
See Sections 506.2, 602.1, and 602.5 of the *Uniform Mechanical Code*.

A.6.201 Scope.

The performance criteria and requirements herein contemplate a duct that is a structural assembly having the capacity to support occupant health and safety while minimizing its own contribution to property damage under emergency conditions. Ducts can supply fresh or treated air in support of life and health, can convey products of combustion away from a fire zone, can maintain a pressure differential that facilitates evacuation and reduces the spread of fire and smoke, and can facilitate firefighter access to a fire source.

A.6.202 Definitions.

Closure – The joining components on duct surfaces that are subjected to a pressure differential across the duct wall, including mechanical locks and metallic and nonmetallic materials used as fillers or sealers whether on straight sections of ducts or fittings or used in connection of ducts or fittings to other apparatus. Closure shall also pertain to penetrations of duct walls (such as by screws, rivets, pipes, electrical conduits, etc.).

Closure Failure – Any structural failure at a closure and also any loss of adhesive bond, creep, displacement, or other deterioration of closure materials and methods that results in an increase in air leakage above an allowable level and any behavior contributing to accelerated aging of the closure systems.

Duct Assembly – The completed composite connected assembly of straight sections, fittings, and accessories attached to or occurring in the perimeter of an air passageway that is used for supply air, exhaust air, or recirculated air mode. The passageway need not be continuous.

Note: Where apparatus, ceiling plenums, room boundaries, shafts, air terminals, etc., form a part of the passageways, such are not subject to the performance requirements in this standard, but are not prohibited from being made subject to similar requirements.

Metal Duct – A duct constructed of galvanized steel, uncoated steel, stainless steel, or aluminum material of commercial grade. Accessories and

reinforcements are not required by this standard to be of the same material as the duct wall, but they must be electrolytically compatible and shall not reduce the performance levels for strength and tight closure of ducts.

Structural Failure – Any visible and measurable rupture, collapse, buckling, or other permanent deformation or separation of the elements in the duct assembly.

A.6.203 Performance Requirements for Ducts.

- (A) **Pressure.** Structural failure or closure failure of a duct assembly shall not occur at 150 percent of the designed operating pressure classification when supported at the maximum recommended support spacing.
- (B) **Support Spacing.** Structural failure or closure failure of duct assembly shall not occur when supported at twice the maximum recommended support spacing and atmospheric pressure is maintained inside the ducts.
- (C) **Deflection, Longitudinal.** The maximum allowable deflection of rectangular duct walls at design pressure classification shall not exceed the following:

Duct Dimension		Deflection	
12" down	(305 mm)	1/2"	(12.7 mm)
13" to 18"	(330 to 457 mm)	5/8"	(15.9 mm)
19" to 24"	(483 to 610 mm)	3/4"	(19.1 mm)
over 24"	(over 610 mm)	1"	(25.4 mm)

The deflection reference plane is that passing through two adjacent corners of the duct. For cross-broken ducts, the measurement point shall be on the centerline of the duct at a point 1/8 of the duct width or reinforcement interval or joint spacing if unreinforced, whichever is greater, from the intersection of the cross-breaks. For cross-broken ducts, the allowable wall deflection shall be increased by 50 percent of the deflection "set" measured at atmospheric pressure level in the duct.

- (D) **Deflection, Transverse.** The maximum allowable deflection for rectangular duct transverse joint systems and intermediate reinforcements shall be 1/4 inch (6.4 mm) for