

1346.0603 SECTION 603 DUCT CONSTRUCTION AND INSTALLATION.

Subpart 1. [Repealed, 34 SR 537]

Subp. 2. **Section 603.4.** IMC Section 603.4 is amended to read as follows:

603.4 Metallic ducts. All metallic ducts shall be constructed as specified in the *SMACNA HVAC Duct Construction Standards - Metal and Flexible*.

Exception: Ducts installed within a single dwelling unit shall have a minimum thickness as specified in Table 603.4.

603.4.1 Elbows. Radius elbows with velocities exceeding 1,000 feet per minute (fpm) (76.2 m/min) shall have an inside radius not less than the width of the duct or shall have turning vanes. Square throat elbows with velocities exceeding 1,000 feet per minute (fpm) (76.2 m/min) shall have turning vanes.

Exception: Ducts installed within a single dwelling unit.

603.4.2 Transition fittings. Transition fittings shall be constructed with a maximum slope of 45 degrees.

603.4.3 Obstructions. Where a pipe or other obstruction passes through a duct, a streamlined sleeve must be constructed equal in type and gage to the duct. The area of the duct, at the point of obstruction, must be increased by an amount equal to the area of the streamlined sleeve.

Subp. 3. **Section 603.7.** IMC Section 603.7 is amended to read as follows:

603.7 Rigid duct penetrations. Duct system penetrations of walls, floors, ceilings, and roofs and air transfer openings in any of those building components shall be protected as required by IMC Section 607. Ducts in a private garage and ducts penetrating the walls or ceilings separating a dwelling from a private garage shall be continuous and constructed of minimum 26 gage (0.48 mm) galvanized sheet metal and shall have no openings into the garage. Fire and smoke dampers are not required in such ducts passing through the wall or ceiling separating a dwelling from a private garage, unless required by International Building Code Chapter 7.

Subp. 4. **Section 603.8.** IMC Section 603.8 is amended to read as follows:

603.8 Underground ducts. Ducts shall be approved for underground installation. Metallic ducts not having an approved protective coating shall be completely encased in a minimum of 2 inches (51 mm) of concrete.

Subp. 5. **Section 603.8.1.** IMC Section 603.8.1 is amended to read as follows:

603.8.1 Slope. Ducts shall slope to allow drainage to a point provided with access for inspection and cleaning at each low point of the duct system.

Subp. 6. **Section 603.8.2.** IMC Section 603.8.2 is amended to read as follows:

603.8.2 Sealing. Ducts shall have a polyethylene vapor retarder of at least 4 mils (0.102 mm) thickness installed around the outside. Where encased in concrete, the ducts shall be sealed and secured prior to pouring the concrete encasement.

Subp. 7. **Section 603.8.3.** IMC Section 603.8.3 is amended to read as follows:

603.8.3 Plastic ducts and fittings. Plastic ducts shall be constructed of PVC or high-density polyethylene having a minimum pipe stiffness of 8 psi (55 kPa) at 5-percent deflection when tested in accordance with ASTM D2412. Plastic duct fittings shall be constructed of either PVC or high-density polyethylene. Plastic duct and fittings shall be utilized in underground installations only. The maximum design temperature for systems utilizing plastic duct and fittings shall be 150°F (66°C).

Subp. 8. **Section 603.8.** IMC Section 603.8 is amended by adding a subsection to read as follows:

603.8.4 Drainage and insulation.

Underground ducts shall be insulated in accordance with amended IMC Section 604.1 and provided with drain tile around the perimeter of the duct system to prevent water intrusion. The top of the drain tile shall be installed at an elevation lower than the bottom of the underground duct system. The building official may approve an alternate drainage system if soil conditions are adequate.

Subp. 9. **Section 603.9.** IMC Section 603.9 is amended to read as follows:

603.9 Joints, seams, and connections. Pressure sensitive tape shall not be used as the primary sealant for ducts designed to operate at static pressure of one inch water gauge or greater.

Duct Sealing

Location	Design Static Pressure	Minimum Required Sealing
All locations	Greater than 3.0 inches (750 Pa) water gauge	All transverse joints, longitudinal seams, and duct wall penetrations shall be sealed. Ductwork shall be equal to or less than Leakage Class 6 as defined in Section 4 of the <i>SMACNA HVAC Duct Leakage Test Manual</i> .*

Portions of ducts not completely inside the vapor retarder/air barrier enclosing conditioned space	3.0 inches (750 Pa) water gauge and less	All transverse joints, longitudinal seams, and duct wall penetrations shall be sealed.
Portions of return air ducts in the same space as an atmospherically vented or fan-assisted appliance.	3.0 inches (750 Pa) water gauge and less	All transverse joints, longitudinal seams, and duct wall penetrations shall be sealed.
All locations	Greater than 0.50 to 3.0 inches (125 to 750 Pa) water gauge	All transverse joints and duct wall penetrations shall be sealed.
All locations	0.50 inches (125 Pa) water gauge and less	All transverse joints, longitudinal seams, and duct wall penetrations shall have no visible gaps and shall be sufficiently airtight in accordance with Section 1.7 of the <i>SMACNA HVAC Duct Construction Standards - Metal & Flexible</i>

* Representative sections totaling no less than 25 percent of the total installed duct area for the designated pressure class shall be tested. Duct systems with pressure ratings in excess of three inches water column shall be identified in the construction documents.

Subp. 10. **Section 603.17.** IMC Section 603.17 is amended by adding a subsection to read as follows:

603.17.3 Adjustment of volume dampers. Volume dampers shall be adjusted to the required airflow of the system and locked in place. In finished or inaccessible locations, a friction-type register box may be used.

Statutory Authority: *MS s 16B.59; 16B.61; 16B.64; 326B.101; 326B.106; 326B.13*

History: *15 SR 71; 29 SR 299; L 2007 c 140 art 4 s 61; art 13 s 4; 34 SR 537*

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