

# GEW88-14

## 606.3

**Proponent:** Marcelo Hirschler, gbh International, representing North American Flame Resistant Alliance (gbhint@aol.com)

### Revise as follows:

**606.3 Duct and plenum insulation, sealing and testing.** Supply and return air ducts and plenums, air handlers and filter boxes shall be insulated and sealed in accordance with Section ~~C403.2.7.1.1~~ C403.2.7 of the *International Energy Conservation Code*. The exception in Section C403.2.7.1.1 shall not apply.

**Reason:** The reference to Section C403.2.7.1.1 of the IECC is an incorrect reference and inconsistent with the scope of this section of the IgCC since C403.2.7.1.1 addresses only some of the duct systems covered by the IgCC section. Section C403.2.7.1.1 of the IECC addresses purely low-pressure duct systems, while the IgCC section addresses duct and plenum insulation, sealing and testing. The proposed reference, section C403.2.7 of the IECC, addresses duct and plenum insulation and sealing and will, thus, cover the complete aspects of insulation, sealing and testing in accordance with the IMC and IECC. In particular, also, all the requirements associated with plenums, contained within section 602 of the IMC, are covered by section C403.2.7.1 of the IECC which sends the user to the IMC and, implicitly, to chapter 6 of the IMC. The relevant IECC sections are shown below.

**C403.2.7 Duct and plenum insulation and sealing.** All supply and return air ducts and plenums shall be insulated with a minimum of R-6 insulation where located in unconditioned spaces and a minimum of R-8 insulation where located outside the building. Where located within a building envelope assembly, the duct or plenum shall be separated from the building exterior or unconditioned or exempt spaces by a minimum of R-8 insulation.

#### Exceptions:

1. Where located within equipment.
2. Where the design temperature difference between the interior and exterior of the duct or plenum does not exceed 15°F (8°C).

All ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with Section 603.9 of the *International Mechanical Code*.

**C403.2.7.1 Duct construction.** Ductwork shall be constructed and erected in accordance with the *International Mechanical Code*.

**C403.2.7.1.1 Low-pressure duct systems.** All longitudinal and transverse joints, seams and connections of supply and return ducts operating at a static pressure less than or equal to 2 inches water gauge (w.g.) (500 Pa) shall be securely fastened and sealed with welds, gaskets, mastics (adhesives), mastic-plus embedded-fabric systems or tapes installed in accordance with the manufacturer's installation instructions. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

**Exception:** Continuously welded and locking type longitudinal joints and seams on ducts operating at static pressures less than 2 inches water gauge (w.g.) (500 Pa) pressure classification.

**C403.2.7.1.2 Medium-pressure duct systems.** All ducts and plenums designed to operate at a static pressure greater than 2 inches water gauge (w.g.) (500 Pa) but less than 3 inches w.g. (750 Pa) shall be insulated and sealed in accordance with Section C403.2.7. Pressure classifications specific to the duct system shall be clearly indicated on the construction documents in accordance with the *International Mechanical Code*.

**C403.2.7.1.3 High-pressure duct systems.** Ducts designed to operate at static pressures in excess of 3 inches water gauge (w.g.) (750 Pa) shall be insulated and sealed in accordance with Section C403.2.7. In addition, ducts and plenums shall be leak-tested in accordance with the *SMACNA HVAC Air Duct Leakage Test Manual* with the rate of air leakage (CL) less than or equal to 6.0 as determined in accordance with Equation 4-5.

$$CL = F/P^{0.65} \text{ (Equation 4-5)}$$

where:

F = The measured leakage rate in cfm per 100 square feet of duct surface. P = The static pressure of the test.

Documentation shall be furnished by the designer demonstrating that representative sections totaling at least 25 percent of the duct area have been tested and that all tested sections meet the requirements of this section.

**Cost Impact:** Will not increase the cost of construction.

**Analysis:** The International Energy Conservation Code sections C403.2.7 and C403.2.7.1.1 referenced in the text of this proposal are section numbers for the 2012 Edition. Due to significant changes approved for the 2015 IECC, the section numbers for the 2015 Editions will be C403.2.9 and C403.2.9.1.1, respectively.

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