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**BUILDINGS BULLETIN 2009-029**  
**OTCR**

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**Supersedes:** None

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**Purpose:** This document establishes acceptance criteria for fire-rated rigid air duct ventilation assembly as an alternative material to the 2008 NYC Construction Codes.

**Related Code Section(s):**

AC 28-113	BC 712
BC 1704.13 (Item1)	BC 716
BC 1704.25	BC 712.3.1
	MC 607

**Subject(s):** Fire-resistance-rated construction, ducts and air transfer openings; Fire-resistance-rated construction, penetrations; Fire-resistance-rated construction, rigid ventilation air duct assembly.

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**Description:** A fire-rated rigid air duct ventilation assembly consists of individual duct sections that are bolted together. Each individual section is comprised of welded inner steel framework that is clad with a thick fire-resistant panel.

**Evaluation Scope:** 2008 NYC Construction Codes

**Evaluation Criteria:** Pursuant to AC 28-113, the Office of Technical Certification and Research recognizes and establishes acceptance criteria for fire-rated rigid air duct ventilation assembly in accordance with ISO 6944, "Fire Resistance Test for Ventilation Ducts" <sup>1</sup>, ASTM E 814/UL 1479, "Fire Test of Through-Penetration Firestops" <sup>2</sup> and ASTM E 84, "Standard Test Method for Surface of Building Material" <sup>3</sup>. The assembly shall be tested and listed to the above referenced standards by an approved agency and shall comply with the 2008 NYC Construction Codes and the conditions and restriction of this bulletin.

**Uses:** Fire-rated rigid air duct ventilation assembly may only be used in smoke control, stairwell and vestibule pressurization, and ventilation applications, where dampers are not required.

**Conditions of Acceptance:** Fire-rated rigid air duct ventilation assemblies shall be designed and installed in accordance with the 2008 NYC Construction Codes and other applicable provisions including but not limited to the following:

**A. Design**

1. Fire-rated rigid air ventilation assembly shall be designed in accordance with the Building Code, manufacturer's recommendations, and the conditions of the required listings.

## **B. Installation Requirements**

1. Installation requirements shall be in accordance with the manufacturer's instructions, the applicable listing, and the conditions of this bulletin.
2. Pursuant to section BC 1704.13, the installation of fire-rated rigid air duct ventilation system shall be subject to special inspection requirements of Chapter 17 of the Building Code and 1 RCNY section 101-06. Special inspectors of fire-rated rigid air duct ventilation systems shall:
  - a. Maintain the same qualification requirements for the "Firestop, Draftstop and Fireblock Systems" category as defined in 1 RCNY section 101-06, Appendix A.
  - b. Have duties and responsibilities in accordance with, but not limited to, the inspection requirements for "Firestop, Draftstop and Fireblock System" and the following:
    - i. Perform all "Firestop, Draftstop, and Fireblock System" special inspections per section BC 1704.25 where the subject ducts penetrate a fire-rated assembly; and
    - ii. Verify the installation in accordance with this Bulletin, the product listing and manufacturer's installation instructions and conditions.
  - c. Complete the statement of special inspection by referencing this Bulletin under the Special Inspection Item for "Alternative Materials" in section 3.0 of the TR1 form.
3. Through-penetration fire stop systems shall be subject to section BC 1704.25 and Appendix A of 1 RCNY section 101-06 with the special inspection category of "Firestop, Draftstop, and Fireblock" system.
4. Fire-rated rigid air duct ventilation shall be labeled as per section AC 28-113.4. All shipments and deliveries of materials shall be accompanied by a certificate of label certifying that the materials shipped or delivered are equivalent to those tested and approved.
5. Size and limitation of fire-rated rigid air duct ventilation shall be in accordance with the listing agency as per section AC 28-113.4.1.
6. Where the fire-rated rigid air duct ventilation assembly penetrates a fire-rated assembly, the resulting opening around the ventilation system shall be fire stopped with a firestop system tested in accordance with ASTM E 814/UI 1479 as per section BC 712.3. The F and T rating of the firestop system shall be equal to or greater than hourly insulation rating of ventilation duct assembly, and F rating of firestop system should be equal to or greater than the hourly integrity and stability rating of the ventilation duct assembly.
7. Fire-resistance-rated rigid air duct ventilation assembly shall not have a flame spread rating of more than 25 and smoke developed rating of more than 50 in accordance with ASTM E 84.

## **C. Restriction and Prohibited Installation**

1. Pursuant to ISO 6944, Section 1.4, the following applications shall not be permitted:
  - a. Duct materials which are extremely sensitive to thermal shock.
  - b. Ducts installed above fire-resistance-rated suspended ceilings where ducts rely on the performance of the ceiling for their fire resistance.

- c. Ducts required by code to contain fire damper.
  - d. Smoke outlet ducts, where the ducts need to retain their integrity and cross sectional area under fire protection.
  - e. Duct lined on the inside with combustible material or which in practice may accumulate combustible deposit on their inside face such as kitchen extract duct and grease duct.
2. A fire-rated rigid air duct ventilation assembly shall not be accepted as an alternative to shaft enclosures around the ducts penetrating through different floor assemblies as required by section BC 712.4 and the New York City Fire Code.

**Reference  
Standards:**

1. ISO 6944-85, *"Fire resistance tests-Ventilation ducts, International Organization for Standardization"*.
2. ASTM E 814-00, *"Standard Test Method for Fire Tests of Through-penetration Fire Stops, ASTM International"*.
3. ASTM E 84-01, *"Standard Test Method for Surface Burning Characteristics of Building Materials, ASTM International"*.