



BUILDINGS BULLETIN 2009-028
OTCR

Supersedes: None

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Issuance Date: December 23, 2009

Purpose: This document establishes acceptance criteria for fire-rated flexible duct wrap insulation as an alternative material in the 2008 NYC Construction Codes

Related Code Section(s): AC 28-113 BC 712.3.1 MC 607
BC 1704.13 (Item 1) BC 716
BC 1704.25

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

Description: Fire-rated flexible duct wrap insulation consists of foil scrim encapsulated blanket of various thicknesses. The material is directly applied to the duct surface and is used to achieve a fire-resistance rating.

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 flexible duct wrap insulation assembly in accordance with ISO 6944, "Fire-Resistance Test for Ventilation Ducts"¹, ASTM E 814/UL 1479, "Fire Test of Through Penetration Firestop"² and ASTM E 84, "Standard Test Method for Surface of Building Material"³. 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 flexible duct wrap insulation may only be used in smoke control, stairwell and vestibule pressurization, and ventilation applications where a damper is not required.

Conditions of Acceptance: Fire-rated flexible duct wrap insulation 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 flexible duct wrap insulation 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 flexible fire-rated duct insulation 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 flexible duct 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. Flexible fire-rated duct insulation shall be labeled as per section AC 28-113.4. All shipments and deliveries of materials shall be accompanied by a certificate or label certifying that the materials shipped or delivered are equivalent to those tested and approved.
4. Size and limitation of ducts and duct enclosures shall be in accordance with the listing agency as per section AC 28-113.4.1.
5. Where the fire-rated flexible duct wrap 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/UL 1479 as per section BC 712.3. The F and T rating of the firestop system shall be equal to or greater than the hourly insulation rating of ventilation duct assembly, and F rating of the firestop system shall be equal to or greater than the hourly integrity and stability rating of the ventilation duct assembly.
6. Fire-rated flexible duct wrap insulation shall not have a flame spread rating of more than 25 and smoke developed rating of more than 50 pursuant to ASTM E 84.

C. Restrictions 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. Fire-rated flexible duct wrap insulation shall not be accepted as an alternative to shaft

enclosures around the ducts penetrating through different floor assemblies where required by section BC 712.4 and the New York City Fire Code.

Referenced 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*".

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