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OTCR

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Purpose: This document establishes acceptance criteria for evaluating metal fire-rated single-wall insulated vent connector assemblies penetrating fire-rated walls of mechanical rooms (insulated vent connector pass-through assemblies) pursuant to section AC 28-103.8.

Related Code/Zoning Section(s):	AC 103.8 AC 113.4	BC 1704.24	FGC 503.10 FGC 503.11 FGC 504 FGC 505	MC 504 MC 506.3.1.1	MC 803 MC 803.10.4 MC 804 MC 806 MC 810.3

Subject(s): Mechanical rooms, fire-resistance-rated wall, insulated vent connector pass-through assemblies; Boilers, vent connector assemblies; Water-heaters, vent connector assemblies

Background: The NYC Construction Codes do not prescribe the use of insulated metal fire-rated single-wall vent connector assemblies penetrating fire-rated walls of mechanical rooms (insulated vent connector pass-through assemblies). Insulated vent connector pass-through assemblies:

- are single-walled vents with field applied flexible wrap insulation;
- provide a horizontal connection between the mechanical room housing low heat and low pressure appliances to vertical exhaust stacks (low heat and low pressure appliances are defined in accordance with Section MC 202, see APPLIANCE TYPE and BOILER, LOW-PRESSURE);
- carry the same fire-resistance rating as the mechanical room where they originate.

This bulletin establishes acceptance criteria for insulated vent connector pass-through assemblies.

Description: Insulated vent connector pass-through assemblies are fire-rated assemblies consisting of Code prescribed vents and field applied flexible wrap insulation. The vent connector shall be constructed in accordance with the following vent types:

- Vent connectors for Category I gas appliances (Sections FGC 503.10 and 504);
- Vent connectors for Category II, III, and IV gas appliances (Section FGC 503.11);
- Direct-vent, integral vent, mechanical vent and ventilation/exhaust hood venting for gas appliances (Section FGC 505);

- Connectors constructed and tested as commercial kitchen hood grease ducts (Section MC 506.3.1.1);
- Connector pass-through for oil burning appliances (Section MC 803.10.4);
- Direct-vent, integral vent for oil burning appliances (Section MC 804), and;
- Metal chimney for oil burning appliances (Section MC 806)

Uses: Insulated vent connector pass-through assemblies are used to connect the mechanical/boiler room to the vertical stack when the stack is located outside of the mechanical/boiler room. This bulletin shall apply only to fire-rated chimney vent connector assemblies serving Categories I through IV low heat and low pressure appliances (boilers and hot water heaters) using natural gas or No. 2 fuel oil. Maximum size of the vent connector shall be in accordance with the listing of the fire-rated insulated material.

Evaluation Scope: NYC Construction Codes.

Evaluation Criteria: Pursuant to sections AC 28-103.8 and 28-113, the Office of Technical Certification and Research (OTCR) establishes acceptance criteria for testing and evaluating insulated vent connector pass-through assemblies installed outside the mechanical/boiler room in accordance with the following conditions:

OPTION 1

- The insulated vent connector pass-through assembly shall be tested for fire-resistance ratings in accordance with ASTM E2816[1] *Standard Test Method for Fire Resistive Metallic HVAC Duct System.* The testing of the assembly shall be performed in accordance with Section 1.3.3, Condition C of the standard. The surface area temperature of the fire-rated vent connector pass-through assembly shall meet the requirements of the following as applicable:
  - UL 441[2] (*Gas Vents*), Section 20,or
  - UL 1738[3] ('Venting Systems For Gas- Burning Appliances, Categories II, III, IV'), Section 17
- Minimum dimensions, construction and installation requirements of the vent connector pass-through assemblies shall comply with Sections MC 506.3.1.1 for acceptable vent dimensions, MC 506.3.2 for joints and seams, and MC 506.3.3 for bracing and support requirements.
- The insulated vent connector pass-through assembly and through penetration assembly shall be tested for F and T rating in accordance with ASTM E 814. The F and T rating of the assembly shall be equal to or exceed the fire-resistance rating of the mechanical room.

OPTION 2

- The assembly shall be tested for fire-resistance ratings in accordance with ASTM E2336[4] "*Standard Test Method for Fire Resistive Grease Duct Enclosure* System". The surface temperature test is included within ASTM E2336 requirements.
- Minimum dimensions, construction and installation requirements of the vent connector pass-through assemblies shall comply with Sections MC 506.3.1.1 for acceptable vent dimensions, MC 506.3.2 for joints and seams, and MC 506.3.3 for bracing and support requirements.
- The insulated vent connector pass-through assembly and through penetration assembly shall be tested for F and T rating in accordance with ASTM E 814. The F and T rating of the assembly

shall be equal to or exceed the fire-resistance rating of the mechanical/boiler room.

Acceptable fire rated insulated vent connector pass-through assembly shall be listed and labeled by an approved agency in accordance with section AC 28-113.2.3 and shall comply with the conditions of this bulletin.

Conditions of Acceptance: Insulated vent connector pass-through assemblies shall comply with the NYC Construction Codes and the following applicable provisions:

A. Design

1. Insulated vent connector pass-through assembly shall be designed in accordance with the NYC Construction Codes, manufacturer's installation instructions, the conditions of the required listing and the conditions of this bulletin, as applicable.
2. The fire resistance ratings for the assembly shall be greater than or equal to the fire-resistance rating of the boiler room enclosure. Fire-resistance ratings for the insulated vent connector pass-through assembly shall be determined in accordance with the "Evaluation Criteria" section of this bulletin.

B. Installation Requirements

1. Installation requirements shall be in accordance with the NYC Construction Codes, manufacturer's installation instructions, the conditions of the required listing and the conditions of this bulletin, as applicable and the following:
   a. Insulated vent connector pass-through assemblies shall not pass through ceilings or floors.
   b. Insulated vent connector pass-through assemblies shall not run through occupied spaces, corridors, sleeping rooms, spaces with hazardous materials.
   c. Insulated vent connector pass-through assemblies materials shall meet the requirements minimum chimney connector thickness for medium- and high-heat appliances in accordance with MC Table 803.9(2).
   d. Insulated vent connector pass-through assemblies fittings shall be welded.

C. Inspections

1. Pursuant to section BC 1704.14, the installation of insulated vent connector pass-through assembly shall be subject to special inspection requirements of Chapter 17 of the Building Code and Department Rules covering special inspection. Special Inspectors of the insulated vent connector pass-through assembly shall:
   a. Maintain the same qualification requirements for the **'**CHIMNEYS' as defined in 1 RCNY section 101-06, Appendix A.
   b. Have duties and responsibilities in accordance with, but not limited to, 1 RCNY section 101-06, Section BC 1704.26 and the following.
      1) A smoke test shall be required to be witnessed by the special inspector in accordance with MC 810.3.
      2) The special inspector shall verify that the rated listing for the insulated vent connector pass-through assembly and penetration shall be greater than or equal to the fire-resistance rating of the boiler room enclosure.
      3) For OPTION 1 the special inspector shall verify that surface area temperature of the fire-rated insulated vent connector pass-through assembly complies with the requirements specified in OPTION 1.

4) Special inspection to verify that the new vent connector pathway does not create an obstruction to the adjacent areas.

5) 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.

D. Labeling

1. Insulated vent connector pass-through assemblies 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.

Referenced Standards: Applicable version of standards shall be in accordance with the version of the standard referenced in the applicable Code.

A. ASTM E2816[1] '*Standard Test Method for Fire Resistive Grease Duct Enclosure* System'

B. UL 441[2] *'Gas Vents'*

C. UL 1738[3] '*Venting Systems For Gas- Burning Appliances, Categories II, III, IV*'

D. ASTM E2336[4] '*Standard Test Method for Fire Resistive Grease Duct Enclosure System'*