

**UNIVERSITY OF ROCHESTER
ENVIRONMENTAL HEALTH & SAFETY**

Policy No.: FS003	Approved by: Mark Cavanaugh
Title: Passive Fire Systems Inspections	Date: 11/4/2019
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Prepared by: Scott Miller	

I. PURPOSE

Provide guidance on the inspection of passive fire systems in University owned buildings (i.e. curtain walls, fire barriers, fire doors, fire or smoke dampers, etc.)

II. PERSONNEL AFFECTED

EH&S Fire Safety
3rd Party Inspectors
Facilities Fire Barrier Inspection Team
Campus Planning, Project Management (PPM) Project Coordinator

III. DEFINITIONS

IV. RESPONSIBILITIES

The University of Rochester Fire Safety Specialist, members of the Facilities Fire Barrier Inspection Team or PPM Project Coordinator will be responsible for performing above ceiling inspection or will ensure a qualified 3rd party inspection of fire and/or smoke barriers of new, renovated or altered systems.

For new systems, the inspector will witness installation of 10% of each fire step system being installed or destructively test 2% of each fire system per floor.

For new linear systems, the inspector will witness 5% of the total linear feet of each type of joint system or destructively test one sample per 500 linear feet.

Failure of an inspection requires an additional 10% inspection of that system.

University Facilities and Customer Service is responsible for the fire and smoke damper test and inspections.

V. PROCEDURES

A. Curtain Wall Assembly

Where fire-resistance-rated floor or floor/ceiling assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies shall be sealed with an approved material or system to prevent interior spread of fire. Such material or systems shall be securely installed and capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 time-temperature fire conditions under a minimum positive pressure differential of 0.01

¹NYS Building Code- 2015 Edition

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inch of water column for the time period at least equal to the fire-resistance rating of the floor assembly.¹

There is typically a space between the outer end of the floor slab and the inside edge of the curtain wall. If this space is not properly and completely fire stopped, this space may act as a conduit for the vertical spread of fire for the entire height of the building.

B. Wall/Ceiling Joints

New York State Building Code, Section 715.1 states joints installed in or between fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for a time period not less than the required fire-resistance rating of the wall, floor or roof in or between which it is installed.¹ Fire-resistant joint systems shall be tested in accordance with ASTM E 1966 or UL 2079. The void created at the intersection of a floor/ceiling assembly and an exterior curtain wall assembly shall be protected in accordance with NYS Building Code Section 715.4. The Underwriter's Laboratories (UL) Certification Directory contains numerous listings for fire-resistant joint systems.

C. Fire and Smoke Dampers

New York State Building Code, Section 717 states fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers located within air distribution and smoke-control systems shall be installed in accordance with the requirements of 717, the manufacturer's installation instructions and listing.¹

Section 717.3.3.2 states the smoke damper shall close upon actuation of a listed smoke detector or detectors installed in accordance with section 907.3 and one of the following methods, as applicable:

1. Where a damper is installed within a duct, a smoke detector shall be installed in the duct within 5 feet of the damper with no air outlets or inlets between the detector and the damper. The detector shall be listed for the air velocity, temperature, and humidity-anticipated at the point where it is installed. Other than in mechanical smoke control systems, dampers shall be closed upon fan shutdown where local smoke detectors require a minimum velocity to operate.
2. Where a damper is installed above smoke barrier doors in a smoke barrier, a spot-type detector listed for releasing service shall be installed on either side of the smoke barrier door opening.

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3. Where a damper is installed within an unducted opening in a wall, a spot type detector listed for releasing service shall be installed within 5 feet horizontally of the damper.
4. Where a damper is installed in a corridor wall, the damper shall be permitted to be controlled by a smoke detection system installed in the corridor.
5. Where a total-coverage smoke detector system is provided within areas served by an HVAC system, dampers shall be permitted to be controlled by the smoke detection system.

New York State Building Code, Section 717.4 requires fire and smoke dampers shall be provided with an approved means of access, large enough to permit inspection and maintenance of the damper and its operating parts. The access shall not affect the integrity of the fire-resistance-rated assemblies. The access openings shall not reduce the fire-resistance rating of the assembly. Access points shall be permanently identified on the exterior by a label having letters not less than 0.5 inch in height reading: SMOKE DAMPER or FIRE DAMPER. Access doors in ducts shall be tight fitting and suitable for the required duct construction.¹

D. Through Wall Penetrations

New York State Building Code, Section 714.3.1.2 states through penetrations shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E 814 or UL 1479, with a minimum positive pressure differential of 0.01 inch of water and shall have an F rating not less than the required fire-resistance rating of the wall penetrated.¹

Indicate the specific amount of sealant to be placed in the annular space, with a backing material of a specified depth and compression. Usually, the sealant was to be placed into the annulus and flush with the wall. The specifications allowed for a minimum and maximum annular space. The specifications were dependent on the type of penetrating item, the size of the item, and the construction and rating of the assembly penetrated.

The firestop specifications usually require that the pipe insulation be secured with steel wire, 3 inches beyond the surface of the wall.

Almost all UL certifications require that the fire stopping material fill the annular space to a specific depth, and that a backing material such as rock wool with a specific density be installed behind the fire stopping material.

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E. Through Floor/Ceiling Penetrations

The specifications from the firestop collar manufacturer require one collar on the underside of floor/ceiling penetrations. The collar is secured to the assembly with the provided fasteners as required by the manufacturer. The collar should be installed below the floor/ceiling assembly as required by the manufacturer.

F. Fire Rated Doors

See FS003-A.

VI. REFERENCES

ASTM E 2174 – Standard Practice for On-Site Inspection of Installed Fire Stops
 New York State Building Code – 2015 Edition
 NFPA 80 – 2010 Edition (NFPA 101 Reference)
 NFPA 80 – 2013 Edition (NYSBC Reference)
 ASTM # 2393 – Standard Practice for On-Site Inspections of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers

VII. APPENDICES/FORMS

Not Applicable

VIII. REVISION HISTORY

Date	Revision No.	Description
4/20/2009	New	Establish written procedure for inspecting passive fire systems
9/14/2011	1	Revised code references and minor grammatical changes
2/11/2013	2	Minor changes to clarify language and added clarity to fire door inspection section
8/17/2017	3	Clarified language and update code references
11/4/2019	4	Update fire door section

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