



CITY OF LEE'S SUMMIT, MISSOURI

Codes Administration

220 SE Green St

Lee's Summit, MO 64063

Phone (816) 969-1200 Fax (816) 969-1201

CODE MODIFICATION REQUEST

BUILDING/STRUCTURE NAME: Saint Luke's East - Cath Lab Expansion

PREMISE ADDRESS: 20 N.E. Saint Luke's Blvd.

PERMIT NUMBER (if applicable): PRCOM 20162583

OWNER'S NAME: Saint Luke's East Hospital

TO: Director of Codes Administration

In accordance with the Lee's Summit Building Code, I wish to apply for a modification to one or more provisions of the code as I feel that the spirit and intent of the Lee's Summit Building Code are observed the public health, welfare and safety are assured. The following articulates my request for your review and action. (NOTE: ATTACH ANY ADDITIONAL INFORMATION NECESSARY)

Referencing 2012 IBC, Section 710.4, I request use of the acoustical tile ceiling, in an I-2 corridor, as a horizontal smoke partition. Due to existing mechanical piping and VAV box installed above new cart park 1C212 (old IR entry vestibule), it is not possible to extend corridor walls to deck in the locations noted on attached reflected ceiling plan. For comparison, the 2000 NFPA 101, section 8.2.4.2 allows use of an acoustical tile ceiling to limit transfer of smoke.

SUBMITTED BY:

NAME: Mark Hunter, ACI/Boland, Inc.

ADDRESS: 1710 Wyandotte

CITY, STATE, ZIP: Kansas City, MO 64108

☐ OWNER ☒ OWNER'S AGENT

Tel.# 816-763-9600

SIGNATURE: Mark Hunter

3/20/17

MANAGER OF INSPECTIONS ACTION RECOMMEND ☒ APPROVAL ☐ DENIAL

SIGNATURE: [Signature] DATE: 3-21-17

MIKE COPELAND, MANAGER OF BUILDING INSPECTIONS

Tracy Deister, Asst. Dir. Codes Admin.

DIRECTOR OF CODES ADMINISTRATION ACTION: ☐ APPROVED ☐ DENIED ☐

SIGNATURE: [Signature] DATE: 3-27-17

MARK DUNNING, DIRECTOR OF CODES ADMINISTRATION

COMMENTS: Ryan Elam Development Center Director

A COPY MUST BE ATTACHED TO THE APPROVED PLANS ON THE JOB SITE

- a. It shall be made on either side of the fire barrier.
- b. It shall be made by an approved device that is designed for the specific purpose.

One source of information on tested materials, devices, and systems for protecting through-penetrations of fire resistance-rated barriers is "Through-Penetration Firestop Systems" (Volume II) of the *Fire Resistance Directory*, published by Underwriters Laboratories.¹⁹ Such devices and systems are designed to resist the spread of fire through openings in fire resistance-rated floor or wall barriers that accommodate penetrating items, such as electrical cables, cable trays, conduits, and pipes. Such devices and systems are classified by UL with respect to installation in a wall only, installation in a floor only, or installation in a wall or floor. The basic standard used by Underwriters Laboratories to investigate products in this category is UL 1479, *Fire Tests of Through-Penetration Firestops*.²⁰ UL 1479 is similar to ASTM E 814, *Standard Test Method for Fire Tests of Through-Penetration Fire Stops* (see A.8.2.3.2.4.2).²¹ A sampling of the currently classified devices includes the use of the following:

- (1) Ceramic fibers
- (2) Foamed silicones
- (3) Mineral wool batts
- (4) Intumescent sheets
- (5) Sealing blankets and plugs
- (6) Fittings and couplings
- (7) Various caulks, putties and mastics
- (8) Spring-loaded guillotine blades

Over the life of a building, it is important to maintain the integrity of barriers to protect against fire penetration. Renovations or any changes to building utilities will tend to violate the compartmentation provided when a building is first occupied.

Exhibit 8.7 illustrates some of the typical fire barrier penetrations, which are covered in 8.2.3.2.4.

8.2.4 Smoke Partitions.

Subsection 8.2.4 is new for the 2000 edition of the *Code*. It is intended to serve as another menu-like item that can be referenced by other parts of the *Code*, especially the occupancy chapters, instead of repeating detailed, slightly-varying criteria in many chapters. In future editions of the *Code*, more occupancy chapters will reference 8.2.4 on smoke partitions where exceptions from the typical 1-hour fire resistance-rated corridor wall requirement are provided for sprinklered buildings. For an example of a

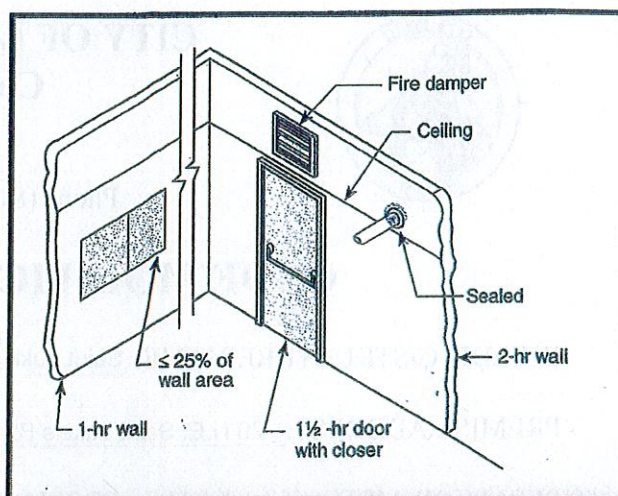


Exhibit 8.7 Typical penetrations of a fire barrier

mandate for the use of the smoke partitions provisions are 2.4.1 and 2.4.2, and 3.3.1.5 and 3.3.1.6.5.

The new smoke partition requirements provide other sections of the *Code* with another tool that can be referenced. The smoke partition provisions were written in other options, not previously available under the provisions for fire barriers and smoke barriers. For example, a smoke partition is not required to have a fire resistance rating, but a fire barrier must have a rating. Also, a smoke partition is not required to have a smoke leakage-rated damper where ductwork runs through the partition, but a fire barrier typically must be provided with a damper.

8.2.4.1 Where required elsewhere in this *Code*, smoke partitions shall be provided to limit the transfer of smoke.

Chapter 8 does not require the installation of smoke partitions but provides detailed criteria for smoke partitions required by other sections of the *Code*. A smoke partition is a continuous membrane designed to form a barrier to limit the transfer of smoke. See the definition of the term *smoke partition* in 3.3.1.85.

8.2.4.2 Smoke partitions shall extend from the floor to the underside of the floor or roof deck above, through any concealed spaces, such as those above suspended ceilings, and through interstitial structural and mechanical spaces.

*Exception:** Smoke partitions shall be permitted to terminate at the underside of a monolithic or suspended ceiling system where the following conditions are met:

- (a) The ceiling system forms a continuous membrane.
- (b) A smoketight joint is provided between the top of the smoke partition and the bottom of the suspended ceiling.
- (c) The space above the ceiling is not used as a plenum.

A.8.2.4.2 Exception An architectural, exposed, suspended-grid acoustical tile ceiling with penetrations for sprinklers, ducted HVAC supply and return air diffusers, speakers, and recessed light fixtures is capable of limiting the transfer of smoke.

The concept of limiting the transfer of smoke from one side of a smoke partition to the other is inherent in the concept of preventing any and all smoke from transferring to the other side of a partition. A smoke partition should be thought of as a barrier that reasonably limits, but does not prevent, smoke transfer. As such, there are suspended ceiling systems and noncombustible partition ceilings that provide resistance to smoke transfer that is approximately equal to the additional resistance provided by a partition. The exception to 8.2.4.2 permits smoke partitions to be penetrated against the underside of such ceilings. The annex just further describes the degree of the level of acceptable penetrating items (for example, speakers, recessed light fixtures, and ducted HVAC air diffusers) makes it clear that a smoke partition doesn't prevent all smoke transfer, rather it limits the transfer of smoke to an acceptable life safety level.

8.2.4.3 Doors.

8.2.4.3.1 Doors in smoke partitions shall comply with 8.2.4.3.2 through 8.2.4.3.5.

8.2.4.3.2 Doors shall comply with the provisions of 7.2.1.

8.2.4.3.3 Doors shall not include louvers.

8.2.4.3.4* Door clearances shall be in accordance with NFPA 80, *Standard for Fire Doors and Fire Windows*.

A.8.2.4.3.4 Gasketing of doors should not be necessary, as the clearances in NFPA 80, *Standard for Fire Doors and Fire Windows*, effectively achieve resistance to the passage of smoke if the door is relatively tight-fitting.

NFPA 80, *Standard for Fire Doors and Fire Windows*, permits clearances of $\frac{1}{8}$ in. (3.2 mm) between the door frame and the top and sides of the door. For swinging doors with builder's hardware, NFPA 80 permits the following clearances:

- (1) $\frac{1}{4}$ in. (9.5 mm) between the bottom of the door and raised threshold or sill.
- (2) $\frac{1}{4}$ in. (9.5 mm) between the bottom of the door and the floor where no sill exists.
- (3) $\frac{1}{4}$ in. (9.5 mm) between the bottom of the door and rigid floor tile.
- (4) $\frac{1}{4}$ in. (9.5 mm) between the bottom of the door and floor covering such as carpet.

With the allowed clearances, some smoke will pass to the opposite side of a closed door. It is important to remember that the intent of the smoke partition is not to prevent all smoke transfer, but rather to limit the transfer of smoke to an acceptable life safety level.

8.2.4.3.5 Doors shall be self-closing or automatic-closing in accordance with 7.2.1.8.

The fire door provisions applicable to doors in smoke partitions are actually contained in 8.2.4.3.1 through 8.2.4.3.5. It is important to be cognizant of the relationships made by other sections of the code. The smoke partition provisions in the code listing requirement of 8.2.4.3.1 is exemplified in large residential hotels and care occupancies under specified conditions but the other door provisions are retained (5-6.3.2, 5-6.3.6 and 5-6.3.6.5).

8.2.4.4 Penetrations and Miscellaneous Openings in Smoke Partitions.

8.2.4.4.1 Pipes, conduits, bus ducts, cables, wires, air ducts, pneumatic tubes and ducts, and similar building service equipment that pass through smoke partitions shall be protected as follows:


- (1) The space between the penetrating item and the smoke partition shall meet one of the following conditions:
 - a. It shall be filled with a material that is capable of limiting the transfer of smoke.
 - b. It shall be protected by an approved device that is designed for the specific purpose.
- (2) Where the penetrating item uses a sleeve to penetrate the smoke partition, the sleeve shall be solidly set in the smoke partition, and the space between the item and the sleeve shall meet one of the following conditions:
 - a. It shall be filled with a material that is capable of limiting the transfer of smoke.
 - b. It shall be protected by an approved device that is designed for the specific purpose.
- (3) Where designs take transmission of vibrations into consideration, any vibration isolation shall meet one of the following conditions:



Photo 1

CODE SUMMARY

[illegible][illegible]

Life Safety Legend		Well Designations
Codes Plan Tags	FEC	See Notes/Response
Exiting Fire Elevator		1111111111 11

