5.14 Removal of Fire-Smoke Dampers from HVAC Penetrations of Fire-Resistance Rated Corridors (2025)

Reference: The requirements of this bulletin are referenced from 2025 San Francisco Building Code (SFBC) Sections 717.5.4, 717.5.4.1, 909. See also San Francisco Department of Building Inspection (SFDBI) 2025 Administrative Bulletin No.47.

Purpose: The purpose of this bulletin is to describe the requirements for application of Exceptions under 2025 SFBC Sections 717.5.4 and 717.5.4.1 for removal of fire and/or smoke dampers from HVAC duct penetrations of fire-resistance rated corridors in buildings regulated by the Office of the State Fire Marshal (SFM).

I. GENERAL REQUIREMENTS

Application: Fire and smoke dampers may be omitted from HVAC duct penetrations of fire- resistance rated corridors, where one of the following conditions apply:

1. **Condition #1 - Low-Rise:** In non-high-rise buildings that are not required to be protected by a smoke control system, fire and smoke dampers may be omitted from HVAC duct penetrations of fire-resistance rated corridors provided that the design meets all of the following requirements:

   A. **Corridor Walls.** The corridor wall does not serve as a required fire barrier or smoke barrier such as a horizontal exit wall, occupancy separation wall, or shaft enclosure. Where such conditions exist, HVAC penetrations shall comply with the applicable sub-section of SFBC Section 717 as well as any other requirements located elsewhere in the SFBC.

   B. **Fire Sprinkler System.** The building is protected throughout by a fire sprinkler system complying with 2025 CBC Sections 903.3.1.1 or 903.3.1.2 that is electrically supervised by building fire alarm system with occupant notification as required by the 2025 SFBC 907.5 and 2025 NFPA 72.

   C. **No Openings to Corridors.** The duct shall not have openings into the corridor, and shall not connect to any other duct that has openings that communicate the corridor with adjacent spaces.

   D. **100 Square Inches.** The duct shall not exceed 100 square inches.

   E. **Construction of Steel.** The duct is constructed of steel with a minimum thickness of 0.0217 inches.

   F. **Above Ceiling.** The duct shall be installed above a ceiling on both sides of the corridor wall.

   G. **Fire-Resistance Rated Wall.** The duct shall not terminate at a wall register in the fire-resistance rated wall.

   H. **Risers.** Where the duct connects to a common supply, return, or exhaust manifold that in turn is connected to a riser located in a fire-resistance rated shaft enclosure, a combination fire-smoke damper shall be provided at the penetration to the shaft enclosure per 2025 SFBC Section 717.5.3. Where the riser has an additional opening that communicates with the corridor, that opening shall be provided with a separate combination fire-smoke damper in addition to the combination fire-smoke damper required at the penetration where the connection between the horizontal duct manifold and the vertical riser occurs.

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2. **Condition #2 - High-Rise:** In high-rise buildings or other buildings that are required to have a smoke control system complying with 2025 SFBC Section 909, fire and smoke dampers may be omitted from HVAC duct penetrations of fire-resistance rated corridors provided that the design meets all of the following requirements:

   A. **Complies with Condition #1.** The duct complies with items under Condition #1 above.

   B. **Smoke Control System.** The duct is incorporated as part of the mechanical smoke control system complying with 2025 SFBC Section 909. The portion of the mechanical smoke control system that serves these ducts shall comply with 2025 SFBC Section 909 and 2025 SFDBI Administrative Bulletin No.47. Additional requirements are as follows:

      (1) **Pressurization Method.** The pressurization method per 2025 SFBC Section 909.6, the airflow method per 2025 SFBC Section 909.7, or a combination of both shall be utilized. Generally, the exhaust method is inappropriate for small spaces. The intent should be to prevent smoke from spreading from the room of fire origin to adjacent rooms and areas through common duct manifolds that are not protected by fire-smoke dampers at penetrations of the fire-resistance rated corridor wall.

      (2) **Engineering Analysis.** The smoke control designer shall provide an engineering analysis based on recognized design methods (See 2024 NFPA 92) and/or computer models such as CFAST, CONTAM, or FDS to determine required volumetric flow rates, air flow velocities, and/or duct location and geometry. The goal of such a system shall be to prevent migration of fire and smoke from the room of fire origin to any other space via the HVAC duct system. This shall be documented in the Smoke Control Report and Rational Analysis. If air is supplied, rather than exhausted, by the HVAC duct system, then the engineering analysis shall include provisions for preventing the spread of fire and smoke from the room of fire origin to the adjacent corridor via door openings due to positive pressurization.

      (3) **Standby Power, Monitored, Redundant Fans.** Fans that serve this portion of the smoke control system shall be on standby power per 2025 SFBC Section 909.11 and shall be monitored for positive confirmation of required airflow via pressure switches or current transducers per SFBC Section 909.12. A redundant fan shall be provided meeting all the same requirements, and such fans shall be included in the UUKL weekly self-test.

Additional Requirements. In addition to the above requirements, the omission of fire and smoke dampers from duct penetrations of fire-resistance rated corridors shall be subject to review and approval by the mechanical division of SFDBI. If the corridor walls are also designed as smoke barriers, then a SFDBI AB-005 equivalency may be required.