

**1305.0910 SECTION 910, SMOKE AND HEAT REMOVAL.**

Subpart 1. **IBC [F] section 910.1.** IBC [F] section 910.1 is amended by adding sections to read as follows:

**910.1.1 Required venting method.** Required smoke and heat venting shall be accomplished with mechanical smoke exhaust according to Section 910.4.

**Exceptions:**

1. Calculated engineering design of mechanical smoke exhaust in accordance with Section 910.5 shall be permitted for buildings sprinklered throughout.
2. For non-sprinklered buildings, smoke and heat vents as specified in Section 910.3 shall be permitted.
3. Where approved by the building official, smoke and heat vents as specified in Section 910.3 shall be permitted in sprinklered buildings.

**910.1.2 Listing.** Smoke and heat vents and mechanical smoke exhaust fans shall be listed for the intended purpose.

**910.1.3 Curtain boards.** When mechanical smoke exhaust is provided in accordance with Section 910.4 or 910.5, curtain boards are only required at the separation between areas protected with early suppression fast response (ESFR) sprinklers and conventional sprinkler systems.

Subp. 2. **IBC [F] section 910.4.** IBC [F] section 910.4 is amended to read as follows:

**910.4 Mechanical smoke exhaust.** Mechanical smoke exhaust shall be in accordance with Sections 910.4.1 through 910.4.7.

(Subsections 910.4.1 through 910.4.7 remain unchanged except as amended in subparts 2a and 3.)

Subp. 2a. **IBC [F] section 910.4.3.1.** IBC [F] section 910.4.3.1 is amended to read as follows:

**910.4.3.1 Supply air.** Supply air for exhaust fans shall be sized to provide a minimum of 50 percent of the required exhaust. Air velocity at each supply air opening shall not exceed an average of 200 feet per minute when measured 4 feet (1219 mm) in front of the opening. Openings for supply air shall be uniformly distributed around the periphery of the area served and be located or ducted to a position not more than one-half the storage height above the floor. Supply air openings shall open automatically upon operation of the smoke exhaust system and shall not require a manual action at each supply opening for operation. Supply air openings shall be kept clear of storage or obstructions to airflow for at least 4 feet (1219 mm) in front of the opening. Supply air openings shall be separated from exhaust fans and exterior combustibles to prevent introduction of smoke into the building.

Subp. 3. **IBC [F] section 910.4.4.** IBC [F] section 910.4.4 is amended to read as follows:

**910.4.4 Operation.** Mechanical smoke exhaust fans shall be manually activated. Individual manual controls of each fan unit shall also be provided.

Subp. 4. [Renumbered subp 2a]

Subp. 5. **IBC [F] section 910.5.** IBC [F] section 910.5 is amended, and subsections added, to read as follows:

**910.5 Calculated engineering design of mechanical smoke exhaust.** Calculated engineering design of mechanical smoke exhaust shall be in accordance with Sections 910.5.1 through 910.5.5.

**910.5.1 Methodology.** Mechanical smoke exhaust systems shall be designed to remove smoke after a fire is extinguished and to assist the fire department during suppression operations or during marginal sprinkler control situations. They are not considered life safety systems and are not designed for occupant safety.

**910.5.2 Calculation method.** Volumetric flow rate calculations shall demonstrate that the system will provide at least three air changes per hour for the space required to be provided with smoke exhaust. When only a portion of a space is used for high-piled storage requiring smoke exhaust, the volume to be extracted shall be based on the ceiling height multiplied by the actual gross floor area for storage.

**910.5.3 Operation.** Mechanical smoke exhaust fans shall be manually activated. In addition, individual manual controls of each fan unit shall also be provided.

**910.5.4 Supply air.** Supply air for exhaust fans shall be sized to provide a minimum of 50 percent of the required exhaust. Air velocity at each supply air opening shall not exceed an average of 200 feet per minute when measured 4 feet (1219 mm) in front of the opening. Openings for supply air shall be uniformly distributed around the periphery of the area served and be located or ducted to a position not more than one-half the storage height above the floor. Supply air openings shall open automatically upon operation of the smoke exhaust system and shall not require a manual action at each supply opening for operation. Supply air openings shall be kept clear of storage or obstructions to airflow for at least 4 feet (1219 mm) in front of the opening. Supply air openings shall be separated from exhaust fans and exterior combustibles to prevent introduction of smoke into the building.

**910.5.5 Equipment.** Wiring and controls shall be as required in Sections 910.4.5 and 910.4.6. Interlock controls shall be as required in Section 910.4.7. Exhaust fans shall be uniformly spaced and each fan shall have a maximum individual capacity of 30,000 cfm (850 m<sup>3</sup>/min).

Subp. 6. **IBC [F] section 910.6.** IBC [F] section 910 is amended by adding a subsection to read as follows:

**910.6 Testing and maintenance.** Mechanical smoke exhaust systems shall be tested and maintained as required by Sections 910.6.1 through 910.6.4.

**910.6.1 Acceptance testing.** Mechanical smoke exhaust systems shall be acceptance tested as required by Sections 909.18 and 909.19.

**910.6.1.1 Controls.** For testing purposes, each smoke exhaust system equipped for automatic activation shall be put into operation by the actuation of the automatic initiating device. Control sequences shall be verified throughout the system, including verification of override from the firefighter's control panel when systems are equipped for automatic activation.

**910.6.2 Special inspections.** Special inspections for mechanical smoke exhaust shall be conducted according to Section 909.18.8.

**910.6.3 Maintenance.** Mechanical smoke exhaust systems, including exhaust fans, supply air openings and controls, shall be maintained and unobstructed.

**910.6.4 Operational testing.** Operational testing of the smoke exhaust system shall include all equipment such as initiating devices, fans, dampers, controls, and supply air openings. Mechanical smoke exhaust systems shall be operated and tested under each control sequence at least annually.

**Statutory Authority:** *MS s 16B.37; 16B.59 to 16B.76; 326B.02; 326B.101 to 326B.194*

**History:** *27 SR 1474; 32 SR 7; L 2007 c 140 art 4 s 61; art 13 s 4; L 2008 c 337 s 64; 39 SR 1605; 44 SR 609*

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