



Coffee Break Training - Fire Protection Series

Commercial Cooking: Exhaust Clearance from Fresh Air Intakes

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Learning Objective: The student shall be able to identify the clearance requirements from a wall-mounted exhaust fan to the nearest fresh air intake source.

The vapors emitted from commercial cooking equipment often are flammable and should be discharged in a way that prevents them from reentering a building. According to National Fire Protection Association (NFPA) 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, rooftop discharge to the atmosphere is always preferable to horizontal discharge like that shown in today's illustration.

When a wall-mounted outlet is installed, the exhaust flow should be discharged perpendicularly from the wall or upward. The outlet should be through a noncombustible wall with a minimum of 10 feet (3 meters (m)) of clearance from the outlet to adjacent buildings, property lines, grade level, combustible construction, and electrical equipment or lines, with the closest point of any air intake or operable door or window at or below the plane of the exhaust termination.

When the fresh air intake is located on the same plane or below the level of the exhaust outlet, a minimum 10 feet (3 m) of clearance should be provided between the closest edges of the outlets and the fresh air intake.

If the exhaust outlet is located **above** a fresh air intake, additional rules apply regarding the spacing between the outlet and the opening. The closest point of any air intake or operable door or window above the plane of the exhaust termination should be a minimum of 10 feet (3 m), plus 3 inches (76 millimeters (mm)) for each 1 degree (0.25 feet or 76 mm) from horizontal, the angle of degree being measured from the center of the exhaust termination to the center of the air intake or operable door or window.

The following table summarizes the range of minimum clearance requirements. It is preferable to use the formula of 10 feet + 0.25 feet (3 m +76 mm) per degree between the closest edges of the outlet and intake to get accurate minimum dimensions.

When the fresh air intake is:	Minimum clearance from exhaust (ft)	Minimum clearance from exhaust (m)
At or below the plane of exhaust discharge	10	3
10° above the plane of exhaust discharge	12.5	3.8
45° above the plane of exhaust discharge	21.25	6.5
90° above the plane of exhaust discharge	32.5	9.9

Although it is impossible from today's picture to accurately measure the clearance dimensions, it appears the nearest point of the outlet should be at least 10 feet (3 m) from the nearest point of the door since the door (the air intake) is below the level of exhaust discharge.

For additional information and an illustration of the spacing requirements, refer to NFPA 96, Chapter 7.



The distance between the exhaust point from this commercial cooking system and the operable door should be confirmed for compliance with national standards. Photo courtesy of Keith Heckler, Rockville Fire Department, Maryland.



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