



# Coffee Break Training - Fire Protection Series

## Commercial Cooking: Upblast Exhaust Fan Assemblies

No. FP-2011-7 February 15, 2011

**Learning Objective:** The student shall be able to list the requirements for upblast exhaust fan assemblies from commercial cooking equipment where grease-laden vapors are created.

Commercial cooking equipment that produces smoke or grease-laden vapors must have an adequate exhaust system to remove highly combustible vapor/air mixtures from the kitchen area. The illustration shows an upblast fan assembly connected to an exhaust duct.

Upblast exhaust fans are popular due to their low cost and ease of installation. They commonly are installed in one- or two-story restaurants or locations close to property lines or other buildings where horizontal exhaust may not be permitted (See Coffee Break Training 2006-5). The fan housing typically is made of spun aluminum, and the motor and the belt drive are outside the airstream or may be in the center of the airstream as illustrated in the photograph.

Where rooftop upblast fan outlets are installed, they should meet the following requirements.

- They should be provided with an open circular diameter of at least 4 inches (101 mm) following the curvature of the outer fan housing or an access opening at least 3 by 5 inches (76 by 127 mm) to allow for cleaning and inspection of the fan blades.
  - On existing upblast fans where sufficient access is not available to allow for the removal of grease contamination, an approved hinge mechanism or access panel should be installed.
- They should be hinged with flexible weatherproof electrical cable and service hold-open retainer to allow inspection and cleaning. The right-angle bracket to the right of the grease collection cup is the hinge assembly.
- They should be arranged so the fan discharges a minimum of 40 inches (1.02 m) above the roof surface.
- They should be designed so that where the fan attaches to the ductwork, the ductwork is at least 18 inches (460 mm) away from any roof surface.
- They should have the ability to drain grease out of any traps or low points formed in the fan or duct near the termination of the system into a collection container not exceeding 1 gallon (3.8 L) that is noncombustible, closed, rainproof, structurally sound, and will not sustain combustion.



This newly installed rooftop exhaust is an example of an upblast fan assembly from commercial cooking equipment where grease-laden vapors are created.

For additional information, refer to National Fire Protection Association (NFPA) 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, or the *International Mechanical Code*®.



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