

The Need for Proper Access in Commercial Kitchen Exhaust Systems

"If you can't see it - you can't inspect it"

A commercial kitchen exhaust system is generally composed of three main parts, hood, duct and fan. The ductwork in these systems is constructed to be, quite literally, out of sight and out of mind. However, if there is no means to examine the interiors of these ventilation systems a grave calamity can take place.

Kitchen exhaust systems are designed to pull grease vapors and cooking residues out of the kitchen and into the atmosphere. As this occurs, some of the grease will condense on the interior of the duct system and over a surprisingly short period of time, especially with certain forms of cooking, enough grease will accumulate to create a very serious fire hazard. Ignition of oils on the cooking surfaces can send volatile flames up into the exhaust system, setting fire to this grease build-up. These fires burn extremely hot (2300 degrees F+) and can ignite surrounding areas and building materials. Serious fires will reach the roof and can burn the entire building down.

To prevent fire, proper inspection and grease removal must be performed. The only way these systems can be adequately inspected is if proper access opening are installed strategically throughout the length of the ducting system.

This well known concern is behind the attempts to entrench proper access provisions into the National Fire Protection Association (NFPA) and other code bodies and ultimately, into jurisdiction legislation.

Access Openings

Section 1-3.1.3 of the NFPA #96 (1998 Edition), or 4.1.8 (2001 Edition) states:

"All interior surfaces of the exhaust system shall be reasonably accessible for cleaning and inspection purposes."

This particular NFPA clause is probably one of the most important statements in the Standard because the vast majority of systems are not fully accessible.

As regards access openings, NFPA #96 generally states:

- Access openings are required every 12 feet (3.7 m) and at every change in direction of horizontal ductwork, unless the duct is large enough for personnel entry (approximately 24"x 24" plus).
- Openings are required within 18 inches (457.2 mm) of hoods containing dampers, which block the opening of the duct. (Which includes most water-wash type hoods).

- Openings in vertical ducts are to be on **every floor** or on the top of the vertical riser if personnel entry is possible.
- Exhaust fans with ductwork connected to both sides shall have access within 3 feet (0.92 m) on **each side** of the fan.

Access Panels (Doors)

Properly constructed and installed access doors or panels are mandatory to cover these openings. This is best achieved by requiring that only UL Listed Grease Duct Access Panels (Doors) be used.

NFPA #96 4-3.4.4 (1998 Edition), or 7.4.3.4 (2001 Edition) states:

"Listed grease duct access door assemblies (access panels) shall be installed in accordance with the terms of the listing and the manufacturer's instructions."

The construction requirements of these UL Listed Grease Duct Access Panels must be as follows:

- Same thickness as the duct (No. 16 MSG carbon steel or 18 MSG stainless steel)
- Gasket sealants must be rated for at least 1500 degrees F (815.6 degrees C)
- Must be grease tight
- Fasteners shall be of carbon steel or stainless steel
- Door fasteners must not penetrate the duct walls
- Doors can be opened without the use of tools
- Door mountings shall ensure a proper, secure fitting over openings

Architects and consultants should specify UL Listed Grease Duct Access Panels on new construction and renovation plan drawings.

By maintaining the above conditions for the location of openings and the quality of access panels, maintenance engineers and property owners can be assured of adequate supervision of grease build-up and cleaning. In addition, the quality of UL Listed Grease Duct Access Panels ensures that the panel will safely withstand even a serious fire in a duct.

The above information is edited excerpts from the [Inspector's Edition of Phil Ackland's Commercial Exhaust Systems Manual](#).

This comprehensive reference guide provides an in-depth understanding of exhaust and fire suppression components, as well as how to inspect systems and assess servicing contractors.

***Phil Ackland** has been in the commercial exhaust system field for over thirty years. He holds several patents. He sits on the NFPA #96 Standards committee. He also acts as a technical advisor to both legislators and insurance companies.*

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