

NFPA 96

THE ESSENTIAL INGREDIENTS



Ventilation systems in commercial cooking operations are subject to the requirements of NFPA 96.



Changes made in the latest edition keep pace with the commercial cooking industry's recent advances. ■ **CHRISTINE HANSEN**

NFPA 96, *VENTILATION CONTROL, and Fire Protection of Commercial Cooking Operations*, is one of the U.S. food service industry's most recognized and referenced fire safety standards. Originally published in 1946 as part of NFPA 91, *Installation of Blower and Exhaust Systems for Duct, Stock, and Vapor Removal or Conveying*, NFPA 96 became a stand-alone document in 1955. The most recently adopted version of NFPA 96, voted on at NFPA's annual meeting last May, clarifies and strengthens the standard.

One of the changes in the latest edition was the clarification of the type of occupancy in which the document can be applied. According to the scope of the 1998 edition of NFPA 96, the standard applies to "the design, installation, operation, inspection, and maintenance of all public and private cooking operations except for single-family residential usage."

The 2001 edition of NFPA 96 narrows that scope. While NFPA 96 wouldn't necessarily apply to residential equipment in a small food service area at an office, it would apply if the equipment was installed in an assembly hall. In the revised edition, the technical committee provided users with more leeway. The revised document scope covers requirements for the design, installation, and use of exhaust system components.

"NFPA 96 was never intended to require protection and a hood over a stove in a residence, but safety questions arise when you have that same residential stove in the basement of a church, a fraternity, or a dormitory," says R.T. Leicht, a senior fire protection specialist in the Delaware State Fire Marshal's office and a technical committee member.

"Once you've crossed the line to 50 or more people in an assembly occupancy and the safety risk associated with a larger occupancy, compliance with NFPA 96 is required," adds Committee Chair David P. Demers of Demers Associates Inc., in Lunenburg, Massachusetts.

Another change concerns exhaust velocity through ductwork. To

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move materials other than grease through a duct, previous editions of NFPA 96 required a minimum exhaust velocity of 1,500 feet (457 meters) per minute. However, the committee decided to reduce the velocity after reviewing a American Society of Heating, Refrigerating, and Air-Conditioning Engineers study showing higher velocities increase grease build-up while lower velocities keep materials moving.

As a result, NFPA 96 now requires a maximum exhaust velocity of 500 feet (152 meters) per minute. To achieve lower air velocities, ductwork will have to be larger.

Duct placement

An additional change affects the placement of exhaust ducts that penetrate a building's wall and travel along its exterior. The concern, says Leicht, is that exterior ductwork provides an opening into the building.

A new section addressing roof-top terminations through combustible or limited combustible walls requires clearances to the building walls to equal those for ducts in the interior of the building.

Pitched-roof duct terminations were also addressed for the first time, says NFPA Senior Fire Protection Specialist Jim Lake, who's the NFPA 96 staff liaison. NFPA 96 now includes a diagram showing the clearances from the duct termination and fan outlet to the roof surface on such roofs.

The requirement for connecting ducts in the 1998 edition appeared to limit the methods of connection to telescoping and bell-type connections. As a result, code enforcement officials were questioning, and in some cases not accepting, duct designs using welded flange connections. This wasn't the intent of the technical committee.

To clarify this, the revised NFPA 96 states that welded flange connections are acceptable for grease duct installations.

"The whole point of revising an edition is to improve it," says Lake. "By recognizing the issues that come up with the application of the standard and clarifying them further, we're improving fire protection, which improves safety."

By recognizing newer methods of connecting ducts, NFPA 96 makes it easier for officials to enforce the code and provides a safe environment.

Industry obstacles

Another change to NFPA 96 concerns the wording of placards posted near the manual activation devices of pre-engineered, wet-chemical extinguishing systems.

The technical committee wants restaurant workers to activate the extinguishing systems manually if they don't activate automatically.

"People who work in restaurants aren't trained as firefighters," says Demers. "We want them to pull the handle on a wall, rather than be right in there with a fire extinguisher."

However, many food service workers aren't fluent in English, so the placards' wording has been an obstacle to interpreting their instructions. This situation should change with the 2001 edition of NFPA 96, which allows the placards to be translated into languages appropriate to the restaurant staff.

In addition, the placards' instructions often disagreed. To end the confusion, the committee decided authorities having jurisdiction should make the decision.

The technical committee also reviewed the language in NFPA 96 pertaining to extinguishers.

While earlier editions emphasized that portable extinguishers were to be inspected and cleaned when needed, the new edition has a scheduled maintenance program. As committee member Laurence Caraway, Jr., of Klean Kitchen in Epsom, New Hampshire, says, clarifying inspection and cleaning schedules will improve compliance.

"The authorities having jurisdiction and the insurance field underwriters have started requiring people to have cleaning and inspections done regularly," he says.

NFPA 96 also mandates the certification of hood and duct cleaners, a move Caraway says has been well-received and many insurance companies now insist that certified companies perform hood and duct cleaning.

In addition, the latest edition of NFPA 96 accommodates changes in cooking techniques. More establishments use solid fuels, such as charcoal or wood, for cooking, and NFPA 96 has evolved to cover the specific hazards of this type of cooking. For example, NFPA 96 now requires dedicated exhaust systems for solid fuel cooking equipment. A water- or wet-



Roof fans and exhaust ducts are covered by NFPA 96.

chemical-based extinguishing system must also be installed near solid-fuel cooking equipment.

The clearances NFPA 96 requires for combustibles have also been reaffirmed. After the 1998 edition was adopted, the technical committee created a subcommittee to investigate whether the existing clearances were reasonable and satisfactory. Testing, funded by a grant from the National Fire Protection Research Foundation, was conducted by the Department of Fire Protection Engineering at the University of Maryland.

Caraway, who served on the subcommittee, says that the laboratory burn tests, "proved that an 18-inch (46-centimeter) clearance to combustibles is adequate."

Even with the updates, NFPA 96 is still a prescriptive code and Demers doesn't anticipate that it will become a performance-based code soon.

However, alternative designs are acceptable under NFPA 96's equivalency provision, which allows the authority having jurisdiction to accept the alternative design provided sufficient documentation is presented to indicate that the system, method, or devices are equal or superior to those specified in NFPA 96. ♣