ACING THE EXAM

NFPA 96: Fire Prevention in Commercial Kitchens

[painting]

[sandblasting and pressure washing]

[cleaning]

[duct and kitchen systems]

[duct and kitchen systems]

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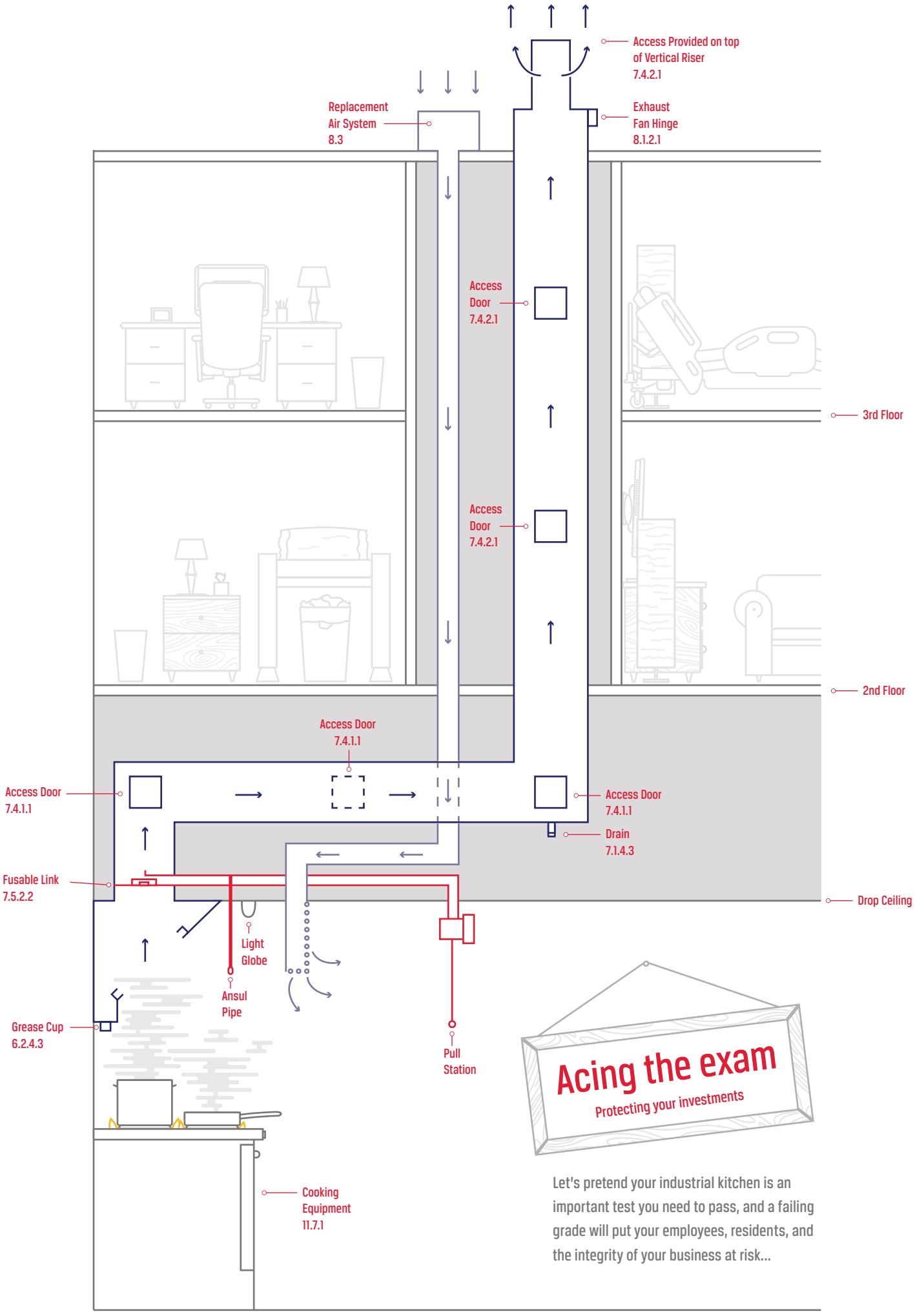
The frontrunner behind the scenes.



Acing the exam

Protecting your investments

Let's pretend your industrial kitchen is an important test you need to pass, and a failing grade will put your employees, residents, and the integrity of your business at risk...

Acing the exam: NFPA 96

A four-chapter crash course to commercial kitchen safety.

By Tom Clark, Certified Exhaust Cleaning Specialist

Ever since your elementary school days, doing your homework has been the key factor in making the grade. Years later, it still counts. **Let's pretend your commercial kitchen is an important test...and you need to pass. Let's also add that failing will put your business and employees at risk.** Who's giving the crash course to help you pass test? That would be the National Fire Prevention Association (NFPA). They've been running the show since 1896 and have learned a few things along the way, so listen up.

Using the NFPA as a trusted resource is part of the equation here at Performance Industrial.

The NFPA represents the gold standard in fire safety and we advocate for the spread of the valuable knowledge it provides. In 2014, the NFPA published an updated version of its NFPA 96: *Standard for Fire Ventilation Control and Fire Protection of Commercial Cooking Operations.* In it, the NFPA outlines safety requirements for commercial kitchen equipment and exhaust systems. These requirements look at your system's:

- Design
- Installation
- Inspection
- Maintenance
- Hood Specifications
- Grease Removal Devices
- Exhaust Duct Systems
- Fire Suppression Systems
- Clearance to Combustibles

We believe in creating cleaning procedures based on these safety requirements. But, to break things down even further, **we've combined experience in the field with information from the International Kitchen Exhaust Cleaning Association (IKECA) to provide recommendations for interpreting the NFPA 96. Studying these points will keep your commercial kitchen clean and safe.**

As you read over the points below be sure to reference the diagram provided on page two.

Chapter 1: Grease Drip Trays–Referencing NFPA 6.2.4.1 – 6.2.4.3

- The requirements outlined in this section mandate the presence of a grease tray beneath the lower edges of grease filters (6.2.4.1). These trays need to be kept to the smallest possible size in order to collect grease (6.2.4.2). The tray should be pitched into an enclosed metal container not exceeding 3.8L (1 gal) in volume (6.2.4.3).

- **We recommend that grease drip trays be emptied daily**. This will keep them from overflowing and leaking onto cooking equipment. It will also keep the drip tray from becoming so full that grease gets sucked into the duct.

Chapter 2: Exhaust Duct Systems–Referencing NFPA 7.1.4.3 – 7.5.2.2

- **Drains should be provided at low points in horizontal ducts** (7.1.4.3). These drains must be continuously welded to the exhaust duct or existing grease duct drains in accordance with the terms of your listing type as well as the manufacturer's installation manual (7.1.4.3.1).

- **The ideal spot for a drain is where your ductwork shifts from horizontal to vertical, the lowest point in your system.** This drain is also helpful when cleaning a vertical stack because water can be drained before it reaches any access doors. And, for the most effective cleaning, access doors should be mounted on opposing sides of the ductwork (Ex: the first access door on the right, the second on the left, etc.).

- **One commonly overlooked rule in the NFPA pertains to the size of cleaning access panels.** If an opening 508mm by 508mm (20in by 20in) cannot be provided, there must be an opening available for cleaning every 3.7m (12ft) (7.4.1.1 – 7.4.1.2).

- **Where personnel entry is possible on vertical ductwork, access needs to be provided at the top of a vertical riser.** This accommodates vertical descent into ductwork (7.4.2.1). If vertical access is not possible, each floor should have adequate access for cleaning (7.4.2.2). **Without floor-by-floor access, a visual or photo inspection will not be accurate as visibility is greatly reduced.** Where vertical grease ducts are not easily accessible from the floor or a 3m (10ft) stepladder, there must be a work platform with safe access to openings (7.4.2.3).

- It is not required for duct-to-hood connections to have a liquid-tight continuous external weld (7.5.2.2). In duct-to-hood connections it's commonplace to join the seam with high-heat silicone, which often is not liquid-tight. However, the use of a non liquid-tight seal will allow for grease to leak onto the hood below and, in turn, electrical outlets and sockets. As fire suppression is usually nonexistent in these areas, you may be at risk of fire. Checking light globes for grease pooling is one easy way to identify this. **As a preventative measure, Performance Industrial recommends that all of your duct-to-hood connections be liquid-tight, despite it not being a required by NFPA.**

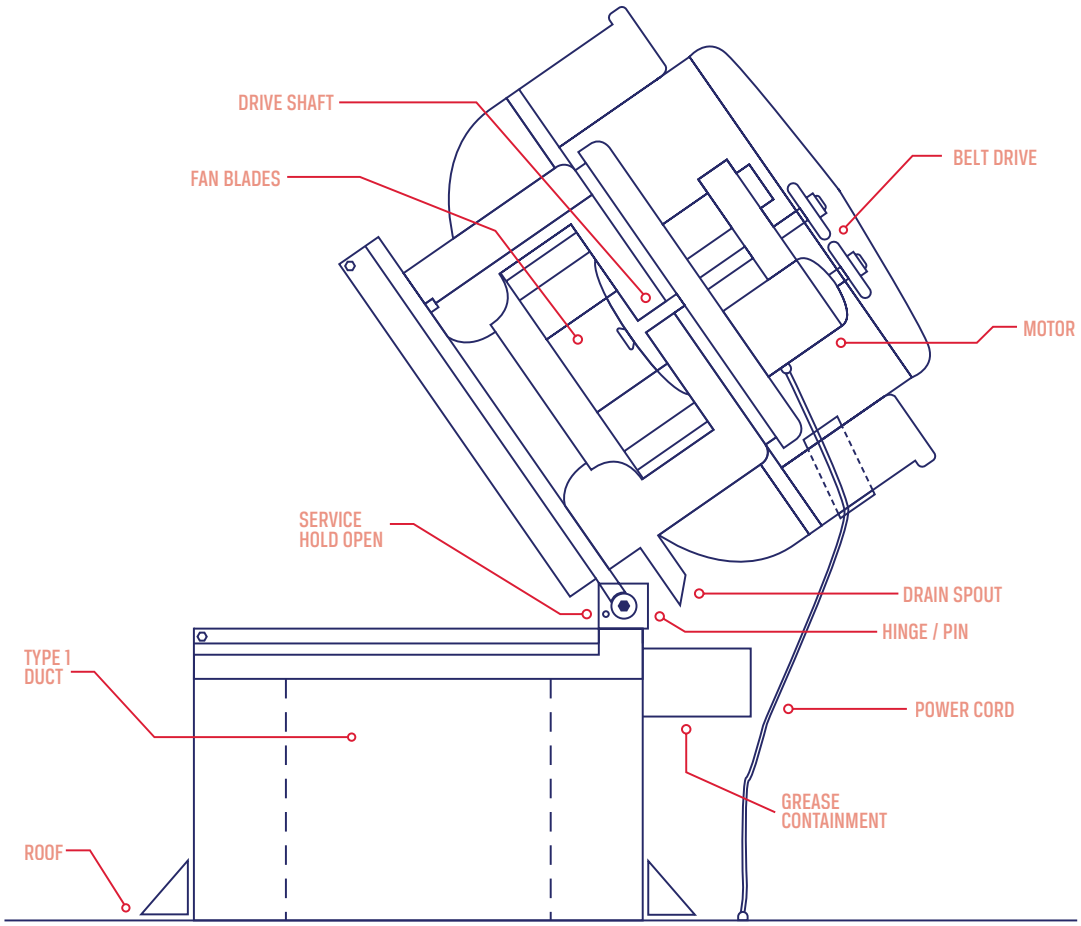
Chapter 3: Exhaust Fans for Commercial Cooking Operations–Referencing NFPA 8.1 – 8.3.1

- Upblast fans with motors surrounded by airstream must be hinged and supplied with flexible, weatherproof electrical cable and service hold-open retainers (8.1.2.1). **When your upblast fan is being inspected, the authority will look to see that both sides of the exhaust fan blades are being cleaned.** Because keeping both sides cleansed of unwanted grease buildup will reduce wear and tear on the fan's bearing system. This will also prevent potentially hazardous friction and damage to electrical wiring, common ignition spots in kitchen fires.

- **In order to safely clean both sides of exhaust fans, a roof or fan hinge kit is a necessary and mandated component in your system. These barn door hinge kits are commonly installed with a cable to stop the fan at the desired height of the hinge. This is not a safe practice nor is it compliant with the NFPA 96.** These hinges are not installed with a service hold-open retainer. The hold-open retainer is a critical preventive safety measure, keeping workers safe during routine cleaning. For an exhaust hinge to be effective, it is important to have enough power cord to actually tip the fan over.

- **Another common mistake occurs when exhaust fans have a power cord on the opposite side of the hinge, preventing the hinge from opening.** It is important that a properly installed hinge allow the fan to open toward the pour spout. This will prevent the application of excess liquid weight during the cleaning process.

- **Replacement air quantity needs to be adequately induced to prevent negative pressures in the commercial cooking area.** The pressure of said air induction cannot exceed a negative pressure of 4.98Pa (0.02 in water column) (8.3.1).



Chapter 4: Inspection, Testing & Maintenance of Equipment–Referencing NFPA 11.4 - 11.7.2

Schedule of Inspections for grease buildup (11.4)

Type or Volume of Cooking	Inspection Frequency
Systems serving solid fuel cooking operations	Monthly
Systems serving high-volume cooking operations, such as 24-hour cooking, charbroiling, or wok cooking	Quarterly
Systems serving moderate-volume cooking operations	Semiannually
Systems serving low-volume cooking operations such as churches, day camps, seasonal businesses, or some senior centers	Annually

› **With regards to the maintenance of your cooking equipment, inspection and servicing needs to be performed at least annually by properly trained and qualified persons (11.7.1).** Cooking equipment that collects grease below the surface, behind the equipment or in cooking equipment flue gas exhaust, such as griddles or char broilers, should be inspected and, if found with grease accumulation, cleaned by a properly trained, qualified, and certified person acceptable to the AHJ (authority having jurisdiction) (11.7.2).

Keeping up-to-date on NFPA standards is just one way that Performance Industrial is working harder for you. The implementation of the latest procedures and best practices is the best way to keep your commercial kitchen safe and clean. We hope our crash course has been a useful exercise in preparing for your next exam!

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