

SECTION 3.2 PREVENTING ACCIDENTS AND INJURIES

Restaurant and foodservice managers and employees should know how to protect themselves and their guests from a variety of sources of accidents. Fire, of course, is a major hazard. A large number of accidental fires in restaurants are caused by faulty electrical wiring and equipment, candles on guest tables, and fireplaces in the dining room and kitchen. Other sources of fire are heat lamps, heating equipment, hot-holding equipment, coffeemakers, teapots, hot oil, cooking surfaces with open flames, and water splashing into an outlet. There are four important aspects to fire safety: prevention, detection, extinguishing, and training.

Other sources of accidents and injuries in foodservice are cuts, sprains, strains, and falls. These are preventable if you take the steps to avoid or prevent them.

Study Questions

After studying Section 3.2, you should be able to answer the following questions:

- What electrical hazards contribute to accidental fires?
- What are the different classifications of fires and fire extinguishers?
- With what frequency should equipment be cleaned in order to help prevent fires?
- What actions should be taken in the event of a fire at a foodservice operation?
- How do you clean up spills on the floor?
- What are the steps to use ladders safely?
- What are the steps to proper lifting and carrying procedures to avoid injuries?
- What are the correct and safe uses of knives?

[fast fact]

Did You Know...?

According to OSHA, restaurant and foodservice operations report almost 13,000 injuries involving at least one missed day of work each year.

Fire Hazards

One-third of all accidental fires in restaurants are due to either faulty electrical wiring and equipment or improper use of equipment. Always check for hazards before using any electrical appliance. See Figure 3.10.

Employees can take other precautions to prevent fires. Prevent grease fires, for example, by scheduling regular cleaning for walls and work surfaces; ranges, fryers, broilers, and microwave and convection ovens; heating, air-conditioning, and ventilation units; and hoods and filters. Some health departments require that restaurant and foodservice operations use a professional company specializing in cleaning equipment. Inspect hoods and ducts weekly and clean them as often as necessary to remove grease buildup. In addition, a qualified contractor should professionally clean this equipment every six months. Figure 3.11 shows a hood ventilation system.

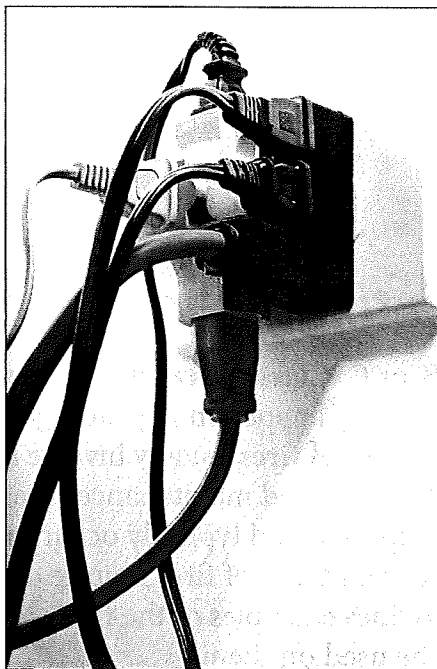


Figure 3.10: Electrical fires can be caused by having too many plugs in an outlet or extension cord.



Figure 3.11: A hood ventilation system is installed over cooking equipment to remove vapors, heat, and smoke.

To maintain safe conditions, keep all flammable items and materials away from heat sources, such as ranges and hot-water heaters. In addition, store all linens and food in dry storage boxes, and store paper goods away from corrosive materials, such as acid cleaners or bleaches.

[fast fact]

Did You Know...?

If a small grease fire starts on a grill, in the oven, or over the stovetop, sprinkle it liberally with baking soda.

Classes of Fires and Fire Extinguishers

All restaurant fires are classified as A, B, or C. **Class A fires** usually involve wood, paper, cloth, or cardboard and typically happen in dry-storage areas, dining areas, garbage areas, and restrooms. **Class B fires** usually involve flammable liquids and grease and usually start in kitchens and maintenance areas. **Class C fires** usually involve live electrical equipment and typically occur in motors, switches, cords, circuits, and wiring. Different types of fires require different types of fire extinguishers. Table 3.4 provides examples of the three classes of fires and the extinguishers that should be used on them.

Table 3.4: The Three Classes of Fires and the Appropriate Type of Extinguisher for Each




 <p>Ordinary Combustibles</p>	<p>Class A (Ordinary combustibles)</p> <ul style="list-style-type: none"> • Wood, paper, cloth, and cardboard • Most often occur in food storage rooms, dining areas, restrooms, and refuse storage areas • Type A, or A/B/C extinguishers may be used on a class A fire • Examples: Fire in trash can; cigarette igniting a tablecloth; plastic container that comes in contact with a range burner or hot griddle. See Figure 3.12.
 <p>Flammable Liquids</p>	<p>Class B (Flammable liquids)</p> <ul style="list-style-type: none"> • Flammable liquids, gases, grease, oil, shortening, pressurized cans • May occur in kitchens (deep-fat fryers) and maintenance areas • Only B/C extinguishers containing the dry chemicals sodium bicarbonate or potassium bicarbonate should be used on deep-fat fryer fires • If a class B fire does not occur in a deep-fat fryer, any A/B or B/C extinguisher can be used • Examples: Flames from a grill igniting grease deposits on a hood filter in the kitchen; aerosol cans stored near a heat source exploding. See Figure 3.13.
 <p>Electrical Equipment</p>	<p>Class C (Electrical equipment)</p> <ul style="list-style-type: none"> • Live electrical equipment, cords, circuits, motors, switches, wiring • Only those B/C and A/B/C extinguishers containing nonconductive materials, such as carbon dioxide, should be used on electrical fires • Examples: Fire in a toaster; frayed cord igniting while a machine is operating; fire in the motor of a grinder. See Figure 3.14.

Figure 3.12: Class A extinguisher.**Figure 3.13:** Class B extinguisher.**Figure 3.14:** Class C extinguisher.

A fire safety expert can help identify the right types of fire extinguishers for a restaurant or foodservice establishment. All types of extinguishing systems work by using one or more of four ways to put out a fire:

1. Remove the fire's fuel supply.
2. Deny it oxygen.
3. Cool the fire's fuel below its combustion point.
4. Disrupt the flame's chain reaction by using a dry chemical extinguisher.

Dangers of Deep Fryers

Deep fryers can create several challenges for employee safety. They can cause burns, as the hot fat can splatter onto an arm or face. They may also contribute to other hazards as well. For instance, tiny particles of oil often land on the floor surrounding the fryer, making it slippery. Even smaller particles of oil can build up in hoods which can lead to grease fires if the hoods are not properly cleaned. However, many guests love deep-fried food. How can operations protect employees while meeting customer demand?

Some restaurants and foodservice establishments are making deep fryers safer by installing closed-system frying technology. See Figure 3.15. These systems can automatically clean out deep fryers when the computer senses that they have become too dirty. Of course, employees can also trigger these cleanings. In either case, employees do not actually have to touch the hot oil, because the system filters the oil inside the body of the fryer. Some systems take this a step further and pump discarded oil directly out to a storage tank outside the building, where it can be picked up, usually by a waste-oil removal company. Then the system pumps clean, fresh oil into the fryers from a separate tank. A few systems can even use the old oil to supply some of the operation's power needs.

In terms of employee safety, there are a number of benefits to closed-system fryers. Workers are less likely to slip on spilled oil or to injure themselves carrying heavy containers of fresh oil in to refill fryers. Employees also do not have to filter hot oil, which reduces the risk of major burns. Other benefits include less wasted oil, fewer materials to recycle or throw away, and reduced labor costs.

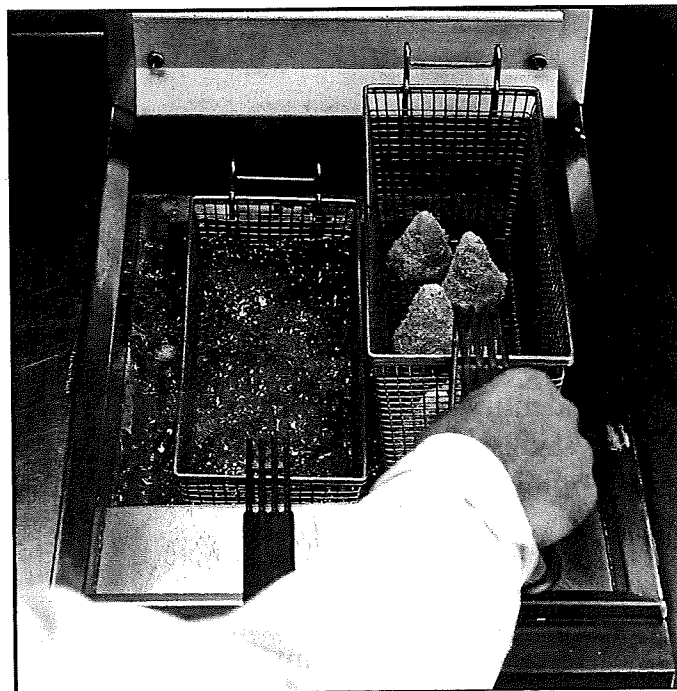


Figure 3.15: Closed-system deep fryers are safer than regular fryers.

Handheld portable fire extinguishers can be used for small fires—those smaller than 3 feet tall and/or wide—but the person using the extinguisher must know the correct way to handle it. Larger fires are a job for the fire department. Portable fire extinguishers are marked with the type of fire they fight. A good practice is to identify the specific areas of the kitchen and facility where different types of fire extinguishers should be located. Table 3.5 lists the types of material in various portable extinguishers.

Water-Based Extinguishers	<ul style="list-style-type: none"> • Rechargeable from a clean water source. All recharging and testing should be done by an approved fire extinguisher servicing company. • Use them on class A fires only.
Aqueous Film-Forming Foam Extinguishers	<ul style="list-style-type: none"> • Reduce temperature and supply of oxygen to the fire. • They must be protected from freezing. • Use on class A or A/B fires. • Do not use on deep-fat fryer fires.
Carbon Dioxide Extinguishers	<ul style="list-style-type: none"> • These contain a gas-based mixture that leaves no residue. • They are limited in range. • They may deplete the user's oxygen supply. • Use them on class B or C fires.
Dry Chemical Extinguishers	<ul style="list-style-type: none"> • They interrupt the chemical action that sustains fire. • They are available in A/B/C and B/C. • Only B/C types should be used on deep-fat fryer fires.

All employees should know where extinguishers are located in an operation and what types they are. It is important that all fire extinguishers be clearly and properly labeled so the user can quickly identify the class of fire for which the equipment will be used. Train employees on safe use of portable fire extinguishers. A simple way to remember how to use a fire extinguisher is the PASS system. Figure 3.16 illustrates the PASS system.

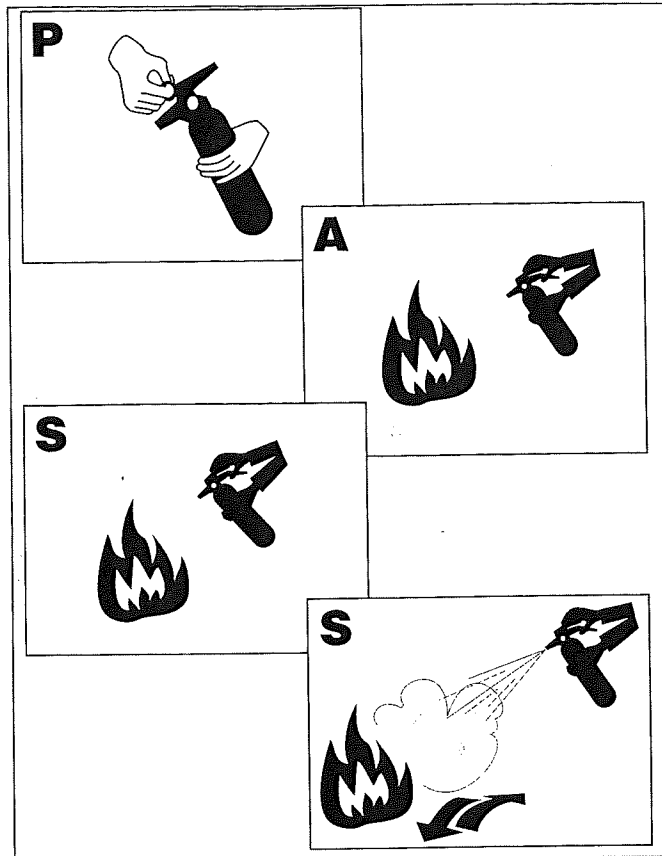


Figure 3.16: Use the pass system.

P = Pull the pin

A = Aim at the base of the fire

S = Squeeze the trigger

S = Sweep from side to side—stand 6 to 8 feet away from the fire when spraying

When fighting a fire, always leave a way to escape.

Make sure employees only use an extinguisher after they have been trained and always follow the instructions on the extinguisher. Many local fire departments will come out and provide demonstrations and training in the correct ways to use fire extinguishers.

Routinely check for discharged or damaged fire extinguishers. Replace any that are not working properly. Make sure that each fire extinguisher has a current, dated inspection tag. A fire extinguisher inspection checklist and calendar are helpful.

Any fire extinguisher that has been used or that has discharged any material must be serviced and recharged. Any fire extinguisher that shows any visible damage, has a missing pin or seal, or has a blocked nozzle should be completely replaced.

Automatic systems operate even when no one is in the facility. Automatic sprinklers provide an early and effective response to fire. Special kitchen sprinkler systems are required by the National Fire Protection Association (NFPA) for deep-fat fryers, ranges, griddles, and broilers. These systems usually include a type of heat detector that releases dry or wet chemicals, carbon dioxide, or inert gases.

An operation's fire extinguishing systems must be kept fully charged and inspected regularly. This includes automatic, mechanical, and portable extinguishers, sprinklers, and alarms. Any product that is found to be in unsatisfactory condition should be replaced immediately.

Fire Detection Devices

Smoke and heat detectors require a dependable source of electricity (either from batteries or from being connected to the wiring), a loud alarm, and a test button. Most detectors work by reacting to heat, smoke, or flame. **Smoke detectors** require a flow of air in order to work well, so they should not be located in "dead" spaces, such as the end of a hall or between ceiling beams. Smoke detectors should not be used in food preparation areas. **Heat detectors** detect fires where there is no smoke. They are activated by the significant increase of temperature associated with fire. **Flame detectors** react to the movement of flames. A fire safety expert should install and maintain all fire detection devices. Table 3.6 provides a description of common fire detection devices.

Table 3.6: Common Fire Detection Devices	
Smoke Detectors	
Ionization detectors	This uses a small electric current to detect combustion particles from smoke, heat, or flames.
Photoelectric detectors	This uses a beam of light located inside the device to react to smoke or flame.
Heat and Flame Detectors	
Thermostats	This contains a metal strip or disk that closes against an electric contact and starts the alarm when a preset temperature is reached.
Rate of rise detectors	This triggers an alarm when the temperature rises faster than a preset number of degrees per minute.
Flame detectors	This uses infrared and ultraviolet sensors that respond to the movement of flame, or to its radiant energy.

Should You Fight a Fire?

The most important rule for fighting a fire is to **ask yourself if you are in danger**. The only fires that employees of restaurants or foodservice operations ought to tackle are small ones, such as a fire in a single pan or a fire in a trash can. It is possible to smother a fire in a pan or use a fire extinguisher to put out a fire in a trash can.

[fast fact]

Did You Know...?

In the event of a fire or flames in a pan:

1. Slide a lid over the pan—that will smother the flames.
2. Turn off the heat source.
3. Leave the lid on the pan until the pan is cool.

Remember: If there is any doubt that you can fight a fire safely, the best response is to set off an alarm and evacuate immediately. If the fire is electrical or from an unknown source, notify the fire department even if the fire appears to be out.

While sometimes you can successfully fight a small fire alone, you should never put yourself or others at risk. According to the National Fire Protection Association (NFPA), do not attempt to fight a fire if the following events occur:

- The smoke is extremely thick.
- The fire is too hot for you to get close enough to fight it effectively.
- The fire is greater than 3 feet across.
- There are potentially hazardous substances near the fire.
- You do not have the correct type of fire extinguisher for the fire at hand.
- You do not know how to use the fire extinguisher.

When you make the decision that you cannot fight the fire alone, take the following steps:

1. Call the fire department.
2. Begin evacuating staff and guests.
3. Turn off the gas valve to prevent escalation. (Most restaurant and foodservice operations have a large valve that turns off all gas to the kitchen.)
4. Meet other employees at the preassigned meeting place.

5. Make sure that all persons have safely escaped.
6. When the fire department arrives, inform a firefighter if anyone is missing; do not reenter the building yourself.

[trends]

No More Smoking in the Workplace

A major trend in the foodservice industry has been the increase in state and local laws banning smoking in workplaces, including restaurants and bars. In 2009, Wisconsin became the 26th state to pass such a law. A 2007 poll found that 54 percent of Americans favored banning indoor smoking in restaurants, while 29 percent favored bans for bars as well.

Arizona first enacted indoor air laws in 1973, and San Luis Obispo in California became the first city in the world to ban all indoor smoking in public places in 1990. However, until the last decade, many cities with smoking bans exempted restaurants and bars, requiring them to offer separate smoking and nonsmoking sections. Today bans are more likely to include restaurants and foodservice operations, even bars.

So far, it is hard to tell whether the bans have affected the health of workers and customers. Advocates on both sides point to different research. Since a ban on smoking in restaurants and bars was enacted in New York City in 2004, restaurant incomes and numbers of employees have increased, and hospital admissions for heart attacks have decreased. On the other hand, some researchers have found that there is no statistical relationship between workplace smoking bans and rates of death or hospital admissions. Another aspect to consider is that operations that can prove that they had experienced "significant economic hardship" from smoking bans have sometimes been allowed to permit smoking again.

What will be the effect of smoking bans on employee safety and the restaurant and foodservice industry? For now, it seems too early to know. Fortunately, researchers will continue to do their best to answer the question.

Preventing Burns

A burn is a type of injury. In the restaurant and foodservice industry, most burns are caused by heat. Burns are classified as being first, second, or third degree. The degree refers to the severity of the burn. Table 3.7 describes each degree of burn and the treatment for it.