



KITCHEN AND FOOD SAFETY

Tips for Reducing Food-Related Risks



As an organization dedicated to the well-being of others, you know food and fellowship go hand-in-hand.

Nothing inspires camaraderie and a sense of community quite like a good meal — which is why it's essential to make sure the food you prepare and serve is safe.

To help safeguard you, your staff and the people who depend on your services, our industry experts at GuideOne Insurance have created this guide to help you handle food as safely as possible. From preventing foodborne illnesses to keeping a clean kitchen, our kitchen and food safety guide will help you keep your social events safe.

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FOODBORNE ILLNESS

According to the Centers for Disease Control and Prevention, one in six Americans becomes ill from consuming contaminated foods or beverages each year. This condition is known as foodborne illness, and is also commonly referred to as foodborne disease, foodborne infection or food poisoning.

Those infected with the illness will experience flu-like symptoms, such as nausea, vomiting, diarrhea or fever. It is important to know infants, young children, pregnant women and their unborn babies, older adults and people with weakened immune systems are at a greater risk of being more seriously affected by foodborne illness.

The Cause of Foodborne Illness

Microorganisms, which are naturally found in the environment, become a part of our food supply, and can cause foodborne illness. They are found in raw meat, fresh produce and cross-contaminated items. The most common types of foodborne illness-causing microorganisms are:

- + Bacteria and viruses
- + Parasites
- + Mold, toxins and contaminants
- + Allergens

Upon consuming contaminated food or drinks, the body has a negative reaction called gastroenteritis, which is an irritation among the stomach and intestines. This reaction causes the flu-like symptoms previously described. While most individuals easily recover from the illness, some may face the risk of kidney failure, chronic arthritis, brain and nerve damage or death. The harmful organisms that cause foodborne illnesses affect each individual differently.

Treating Foodborne Illness

Treating food poisoning or foodborne illness is a natural process. The symptoms experienced when someone has food poisoning are the body attempting to rid it of the harmful microorganisms. Consider these tips when healing from food poisoning:

- + Do not take over-the-counter anti-diarrhea drugs unless suggested by your doctor.
- + Stay hydrated and drink electrolyte-rich liquids, such as Gatorade, broth or coconut water.
- + Once you are able to easily ingest liquids, slowly begin eating foods that are easy to digest, such as bananas, rice, applesauce or toast.
- + Get a lot of rest.

Stop Foodborne Illness in Your Kitchen

Preventing foodborne illness begins in the kitchen and during food prepping, serving and storing. Make sure any individuals handling food in the kitchen are working with clean hands and using safe food practices.

Take precautions to ensure none of your members, staff, volunteers or visitors fall ill to foodborne illness. With the proper steps, these illness cases can be prevented.



FOOD PREPARATION, SERVING AND STORAGE

Whether it's preparing potluck dinners, lunch for a children's group or a meal for a charitable fundraiser, if you work or volunteer at a community organization, you may find yourself in the kitchen at some point.

Even though your employees and volunteers have the best intentions when preparing or serving food, an accidental oversight could cause a massive case of food poisoning. The Centers for Disease Control and Prevention estimate that every year approximately 76 million people in the United States become ill from harmful bacteria in food. Of these, about 5,000 die.

To minimize food risks, a written policy regarding food preparation and food safety should be developed and all employees and volunteers who work in your kitchen should receive training on these procedures.

Kitchen Sanitation

A clean kitchen is critical to safely preparing and serving food. The guidelines below will help you keep your kitchen sanitized.

- + An agreement with a professional pest control service should be in place for the kitchen area. This is not a service that should be provided by inexperienced staff members or volunteers.
- + Mechanical dishwashing equipment should be in good repair and temperature gauges should be monitored and documented.

- + Garbage should be removed from the building after each meal.
- + Garbage containers should be located an adequate distance away from the building.
- + All food contact surfaces and utensils need to be cleaned and sanitized.
- + Appropriate sanitizing solution should be used in correct concentrations. Bleach is not approved for sanitizing food contact surfaces.
- + Employees and/or volunteers handling food should wash their hands frequently and correctly, should not use aprons or towels to dry hands after washing and should not handle, prepare or serve food if they have an apparent illness.

Food Preparation

The first step in safely serving food is safely preparing the food. Follow the steps below to ward off illness-causing bacteria and keep your community safe.

+ Clean

- Wash your hands with warm, soapy water for 20 seconds before and after handling food.
- Wash fruits and vegetables with cold water before using. There is no need to wash or rinse meat or poultry.
- Wash cutting boards, dishes, utensils and countertops with hot, soapy water before and in between using each food item.

+ Separate

- Use one cutting board for produce and a separate board for meat and poultry to reduce the risk of salmonella and other bacteria-causing illnesses. Using different colored cutting boards for different food items will help reduce cross-contamination.
- Separate raw, cooked and ready-to-eat foods while shopping, preparing or storing. Never place cooked food on a plate that previously held raw meat, poultry or seafood.
- Keep juices from different food items from mixing.

+ Cook

- Only use foods before the “use by” date.
- Marinate meat, seafood and poultry in the refrigerator in a covered, non-metallic container.
- To properly thaw frozen meat, it’s best to plan for slow, safe thawing in the refrigerator. Allow about one day for every five pounds of meat to thaw in the refrigerator.
- Immediately dispose of commercial canned foods that are leaking, bulging, swollen, look damaged or cracked, spurt liquid or foam when opened, or are discolored, moldy or smell bad.
- According to research by the United States Department of Agriculture (USDA), one out of every four hamburgers turns brown before it reaches a safe internal temperature. The only safe way to know if meat, poultry and egg dishes are done is to use a food thermometer. On the following page are USDA- recommended safe minimum internal temperatures. Measure with a good thermometer.

USDA-RECOMMENDED SAFE MINIMUM INTERNAL TEMPERATURES

145° F	Whole cut meat: beef, veal, lamb and pork (allow meat to rest for at least three minutes before carving or consuming)
160° F	Ground meat: beef, veal, lamb and pork
165° F	All poultry (whole and ground)
160° F	Egg dishes
145° F	Fish
160° F	Ground beef
160° F	Pork
165° F	Poultry, whole and chicken breasts
145° F	Steaks and roasts

Food Serving

Now that your food is prepared, it's serving time. The tips below are important for keeping foodborne illness at bay.

- + When someone brings food from home, be sure it is heated or refrigerated until it is served.
- + Don't serve home-canned foods. Most outbreaks of foodborne botulism are caused by home-canned foods.
- + When hosting a buffet, do not mix new food with existing food.
- + Use separate platters for holding raw and cooked food.
- + Food should not be left out at room temperature for more than two hours (one hour if it's more than 90 degrees Fahrenheit outside). Remember, many foods brought from home will already have been out for a significant period of time.
- + Hot foods should be refrigerated within two hours of cooking.
- + Reheat leftovers to 165 degrees Fahrenheit or above. Food should be reheated only once.
- + When being served, hot foods should be kept at 140 degrees Fahrenheit or above and cold foods at 40 degrees Fahrenheit or below.
- + Use separate utensils for each food item during cooking and serving.
- + Use disposable gloves when handling ready-to-eat foods without utensils.

Food Storage

Finally, if there are any leftovers from serving or preparing the meal, follow these tips for storing it safely:

- + Label all leftover foods with a date.
- + Most refrigerated leftovers should be used in three to five days.
- + Don't ever taste food to check for freshness. When in doubt, throw it out.
- + If using coolers, food should only be consumed if there is still ice in the cooler and the food is cooled to refrigerator temperature.

- + Refrigerator temperatures should range from 34 to 40 degrees Fahrenheit. Foods spoil rapidly above 40 degrees Fahrenheit.
- + Check refrigerator and freezer temperatures periodically and keep a log of who checked temperatures and the dates they were checked.

By following these recommended food safety tips, you make your kitchen safer while potentially preventing a case of food poisoning (or worse). Be proactive in protecting the people who enter your facility and make sure your kitchen is as safe as possible.

Transporting Food

Many organizations host summer picnics or barbecues to facilitate fellowship in the warmer months. Consider these guidelines for transporting food safely at your next picnic, potluck or barbecue.

- + If you're traveling a long distance with a food dish, take nonperishable items, like bread or cookies.
- + When transporting a hot or cold dish, pack it in an insulated cooler to keep it at the right temperature.
- + Set out smaller dishes and replenish them as needed. This can help keep your dish at a safe serving temperature.
- + Keep hot foods at a minimum of 140 degrees Fahrenheit. Consider a chafing dish, crock pot or warming tray.
- + Keep cold foods on ice or replace them often to maintain a temperature of 45 degrees Fahrenheit or colder.
- + Don't leave foods at room temperature for more than two hours.
- + If you refill empty platters of meat or dairy-based foods, replace or wash them prior to refilling. Remaining food particles that have been sitting at room temperature may contaminate the fresh food.
- + Leave ready-to-eat foods containing eggs, meat and dairy products in the fridge until you serve them. This includes cream pies and cakes frosted with cream cheese or whipped topping.
- + If some of your guests are running late, hold some of the temperature-sensitive foods to serve when they arrive. Keep the hot foods in the oven and the cold foods in the refrigerator.
- + Serve dips with a spoon to discourage double dipping.



FOOD ALLERGIES

According to Food Allergy Research and Education (FARE), food allergies affect up to 15 million people in the United States. The National Center for Health Statistics indicates four out of every 100 children have a food allergy, and the prevalence is increasing. This medical condition can cause life-threatening situations, especially if it is not managed properly. There are only eight foods that account for 90 percent of allergic reactions related to food in the United States: peanuts, tree nuts, milk, eggs, wheat, soy, fish and shellfish. It is important to be aware of potential food allergies and know how to respond in an emergency.

Symptoms of an Allergic Reaction

Symptoms of an allergic reaction can range from mild to severe. Some symptoms can lead to the life-threatening condition called anaphylaxis, which can affect a person's breathing and blood circulation. While some signs may appear within a few minutes of eating an allergen, others could become evident hours later.

+ Mild Symptoms Include:

- Hives
- Eczema
- Redness of skin around the eyes
- Itchy mouth or ear canal
- Vomiting, diarrhea or stomach pain

+ **Severe Symptoms Include:**

- Obstruction of airways due to swollen lips, tongue or throat
- Shortness of breath
- Drop in blood pressure (feeling faint, confused, weak)
- Weak or “thread” pulse
- Loss of consciousness

Severe symptoms, alone or in combination with milder systems, may be signs of anaphylaxis and require immediate treatment. The American Academy of Allergy Asthma & Immunology has developed an Anaphylaxis Emergency Action Plan.

Responding to an Allergic Reaction

Various treatments and drugs can be used when responding in an emergency, depending on the severity of an allergic reaction. For mild symptoms, those with allergies may carry over-the-counter or prescribed antihistamines to relieve itching or hives. In cases with severe symptoms, an injection of epinephrine or a visit to the emergency room may be necessary.

People with allergies often carry an epinephrine auto injector, also known as an EpiPen. An EpiPen allows someone to inject a single dose of medication when experiencing severe allergic reaction symptoms. However, those actively suffering from an allergic reaction may not be able to administer the medication themselves. It is therefore a good idea to educate employees and volunteers on the use of an EpiPen in the event of a serious allergic reaction. For minors with known food allergies, have a discussion with their parent or guardian about responding to a reaction and secure consent for the administration of medication in an emergency situation.

Implement a Food Allergy Plan

It is important that organizations take the necessary precautions to protect children in the event of an emergency. The National School Board Association has created a comprehensive policy guide for the management of food allergies in schools, which can also be used for community organizations. The following are some ideas that can be implemented in management of food allergies:

- + Create a health service plan that identifies children with allergies. Monitor and update this plan periodically to comply with state and federal privacy/confidentiality laws.
- + Develop individual management plans for each child with a food allergy. The child’s plan should include a healthcare plan and an emergency care plan. Individuals to include in its development should be a registered nurse, parents, nutrition staff and other healthcare providers. Regularly update plans according to the child’s age.
- + Manage access to student medication. State laws outline details for storage, access and administration, but always make sure medication is easily accessible in case of an emergency.
- + Follow all state and federal privacy and confidentiality laws in communication plans and adjust plans to meet any parent requests.

- + Provide adequate training and professional development for staff. For healthcare plans and emergency care plans to be effective, all personnel should be properly trained on how to react in a situation.
- + Offer education and awareness resources to members. Qualified personnel should provide information to increase the knowledge about food allergies. Parents of children with food allergies also can present valuable information.
- + Monitor and evaluate the food allergy policy. This should be done every year at a minimum.

Protection Checklist

FARE has developed a checklist for parents in a guidance document for managing food allergies in a school setting. While the checklist is intended for parents, community organizations can take advantage of the information as well when developing an allergy protection plan. Consider the following:

- + Become informed and educated.
- + Prepare and provide information on the child's food allergy and medication.
- + Build a team of individuals who can help, such as a nurse, teachers, administrators, parents and the child's peers.
- + Help ensure appropriate storage and administration of medication.
- + Help reduce food allergens in the classroom.
- + Consider what is being served at meals and other activities.
- + Address transportation issues for the procedure of managing food allergies in vehicles going to and from off-site events.
- + Plan ahead when organizing an off-site event.
- + Prevent and stop bullying.
- + Assist the child with self-management.

An additional resource that may be helpful is *Life Threatening Food Allergies in School and Child Care Settings*, developed by the British Columbia Ministry for Children and Families. It presents scenarios involving food allergies, such as snack time, recess and bullying, and discusses how such situations could be handled.

Food allergies are a serious medical concern in all environments. It is crucial to be aware of the symptoms and how to react. Furthermore, ensuring that staff, parents and children are educated and aware of food allergy situations can help prevent allergic reactions.



COMMUNITY GARDEN FOOD SAFETY

Managing a community garden is an easy way for any organization to give back to the community by growing fruits or vegetables for those less fortunate. Community gardens can create a learning experience, use skills or provide a space to enjoy hobbies for staff, volunteers and organization members. However, it is important to implement good agricultural practices (GAPs). Fresh fruits and vegetables are often the source of foodborne illnesses, so the U.S. Food and Drug Administration has identified GAPs for the best prevention against foodborne illness-causing pathogens.

Choosing a Site

There are many factors to consider when choosing a site for your garden, such as access to clean water sources, soil composition and the history of the land.

The history of the land is important because you should look for indications of hazards existing in the soil. You'll want to consider past circumstances that could have contaminated the soil, or if it is in a location that collects or has collected polluted runoff.

Analyzing the Soil

According to the U.S. Department of Agriculture, it is essential to test your soil before finalizing a garden site. Doing so will help you determine nutrient levels, fertilizer requirements, pH measure, lime or other necessary amendments needed, and the presence of lead, arsenic or other heavy metals.

The state and safety of the garden soil will not only affect the individuals working in the garden, but also those who will be eating the harvest. If the testing indicates a need for amendments, factors to consider include:

- + Persistence of amendment in the soil
- + Soil texture
- + Salinity
- + Salt content
- + pH of the amendment

Some gardeners will choose to use pesticides to protect their sites, and others may choose to have a pesticide-free environment. However, it should be noted that the higher the level of pesticide exposure, the more risk a gardener may be poisoned or become ill. Remember to keep soil amendments, pesticides and other chemicals in a space away from children, and post chemical use instructions on the packaging.

The Importance of Hand Washing

For the safety of garden workers and persons eating garden harvest, it is important to always enforce proper hand washing practices. Individuals should always wash their hands:

- + After using the toilet
- + After touching garbage or compost
- + Before and after treating a wound
- + Whenever hands are dirty

Be sure to use clean running water with soap when washing your hands, and single-use towels when drying. If the garden does not have access to running water, wear disposable single-use gloves while harvesting.

Watering and Irrigation Practices

The best recommendation for watering your garden is to use a regulated, treated water source. Regardless of water source, be sure to test the water and collect as much information about its source as possible. Testing results can be gained from the water provider, or you can offer a sample to be tested to a reputable lab facility. Testing is important to ensure it does not contain traces of heavy metals, chemicals or pathogens that could ultimately affect your produce.

While they can be easy to access, be cautious of unregulated water sources, including rivers, streams, irrigation ditches, wells or ponds. These sources are not treated or tested, so ensure it is safe to use before doing so.

This also includes rain barrels used to collect storm water runoff. Furthermore, if rain barrels are used on your property to collect water and minimize erosion, make sure your roof is runoff safe. Factors to determine if it's safe include:

- + Area climate
- + Roof age
- + Roofing materials
- + Area air quality
- + Slope of roof
- + Temperature

Do not use rain barrel water for any purpose without properly testing it beforehand.

Compost Practices

Composting is a way to garden and limit your negative effect on the environment. However, it can supply pathogens to your produce if it is not handled correctly. Consider these recommendations:

- + To ensure it is safe, use a long-stemmed thermometer and make sure the compost generates temperatures over 130 degrees Fahrenheit for at least five days.
- + Make sure the organic matter is fully composted before using it in your garden.
- + Turn the compost at least once per week.
- + Avoid leaving food scraps on top of your compost pile.
- + When purchasing compost, check that the supplier is a reputable source.
- + Use an appropriate compost container before contents are added to the garden.
- + Keep compost downhill from the garden and away from fence lines.

For additional tips on composting, visit the United States Environmental Protection Agency website.

Protecting Your Garden

Gardens can be attractive to animals and pests, such as deer, birds and rabbits. To prevent them from spreading foodborne illness-causing microorganisms to your harvest, consider one or more of the following design tactics:

- + **Tall Fence** – A physical fence will help keep rodents, deer and other animals out of your garden, preventing the presence of droppings and foodborne illness-causing microorganisms.
- + **Electric Fence** – An electric fence has the same effects as a physical fence, and may be favored by gardeners, but they can be more expensive.
- + **Repellents and Sprays** – Repellents and sprays can be used to keep out pests if a fence is not possible. Maintain records of application to see the proper amount is being used.
- + **Scarecrows** – Fences and sprays may detract pests on the ground, but scarecrows can be helpful in keeping out birds.
- + **Trimmed Branches** – Maintaining branches may limit the chances of birds nesting in trees near your garden.

Garden Tools and Cleanliness

Use precautions while using tools to maintain and harvest your garden. Consider the following:

- + Wash all tools used in gardening, including hands, scissors, knives or other tools to remove fruits and vegetables. The best practice is to use one-use only gloves when harvesting.
- + Store clean tools and containers in a location that cannot be accessed by animals.
- + Regularly wash and sanitize containers.
- + Do not reuse plastic bags.
- + Do not place harvest in any container that has not been sanitized.
- + Clean or wash harvest in a location that has a clean and sanitized workstation, utensils and hands.
- + Do not wash harvest until it is time to be consumed.

Working with Volunteers

Many community gardens rely on volunteers to maintain the garden during harvest season. Garden managers should ensure that garden volunteers are following food safety guidelines and any other procedures the organization chooses to enforce. Review the following tips for managing volunteers:

- + Develop procedures to follow and post them where volunteers will be regularly reminded of them.
- + Conduct an orientation for gardeners discussing rules, procedures and other important information to know.
- + Explain why procedures should be followed and emphasize the importance of food safety guidelines.
- + Ensure all volunteers' questions are answered, and offer them a way to ask questions when they have them.
- + Managers should serve as role models. Set the standard for how volunteers should work.

Safe Gardens Give the Most

Whether your organization is using a garden to benefit members of your own or groups in the community, managing a garden is beneficial to many. However, it's important to keep safety in mind when harvesting fruits and vegetables. To keep your gardeners and those enjoying your harvest safe, remember to implement good agricultural practices.



COMMERCIAL KITCHEN FIRE SAFETY

Commercial grade kitchens are a common feature found in many community organizations today. When an organization chooses to add the responsibility of operating a commercial grade kitchen, many safety considerations should be addressed, including fire safety. Below are specific issues associated with providing adequate fire safety for your organization's kitchen.

Commercial Kitchens

Commercial cooking operations are defined as kitchens that have cooking equipment that produce grease and grease-laden vapors. This includes flat grills, charbroilers and deep fat fryers. The typical residential range (electric or gas) would not be considered a grease producing appliance. Other equipment, such as ovens, microwaves and steam kettles also fall into the non-grease producing appliance category. The following is information regarding two of the most common types of equipment that produce grease and/or grease-laden vapors.

+ Deep Fat Fryers

- Deep fat fryers are a major cause of kitchen fires. Oil can splash and easily come into contact with an open flame from an adjacent piece of cooking equipment, such as a gas-fired range top. A 16-inch clearance must be maintained between the deep fat fryer and the open flame cooking equipment. If a 16-inch clearance is not possible, a vertical steel barrier extending 12 inches above the top of the deep fat fryer or open flame appliance(s) can be used as an alternative means of protection.

- The normal temperature range for food service frying is 325 to 375 degrees Fahrenheit. As the oil temperature increases, so does the risk of an accidental grease fire. All deep fat fryers should be equipped with a high temperature limiting device, which will shut off the fuel or energy in the event the cooking oil exceeds a temperature of 475 degrees Fahrenheit.

+ Flat Grills/Griddles

- Flat grills and griddles are typically used for frying hamburgers and bacon. When used for this type of cooking, grease and grease-laden vapors will be produced. To adequately control the fire hazard associated with these types of cooking operations, two fire protection components must be installed: a hood and ventilation system and an automatic extinguishing system.

Hood and Ventilation System

A kitchen hood and ventilation system will include an exhaust hood or canopy, ductwork, fan system and a means of providing adequate make-up air. This system will effectively remove the heat, grease and grease laden vapors from the cooking area.

+ Installation

- The hood and ventilation system should be professionally installed according to National Fire Protection Association Standard 96.
- Local fire officials also should be consulted, as additional requirements under county and/or municipal codes may apply.
- The hood must be equipped with the appropriate grease removal filters. Only baffle style filters comply with NFPA 96 and should be used in cooking operations that produce a moderate to heavy amount of grease. Mesh filters are not appropriate for commercial cooking operations and do not comply with NFPA 96. Filters should be cleaned regularly to prevent the build-up of grease.
- Lighting units should be equipped with tight fitting protective globe lights with steel enclosures that are mounted on the outer surface of the hood. All electrical equipment should be installed in accordance with NFPA 70 National Electric Code by a licensed electrician.

+ Maintenance

- Hoods, grease-removal devices, fans, ducts and other equipment should be serviced by a qualified contractor at intervals necessary to prevent the accumulation of grease. Frequency of cleaning will depend upon the amount of grease observed during an inspection. A six-month interval is standard, but unusually heavy grease accumulation may require more frequent cleaning.
- A written cleaning schedule should be established indicating the methods of cleaning and the time intervals.
- Following the inspection or cleaning, a label indicating the date cleaned and the name of the servicing company should be prominently displayed. It is recommended that this label be attached to the exterior of the hood in a visible location.



AUTOMATIC EXTINGUISHING SYSTEM

An automatic extinguishing system controls and extinguishes fires without human intervention. When properly installed, these systems are highly effective in safeguarding against loss of life and property. Review the following safety guidelines to ensure your automatic extinguishing system is functioning appropriately.

Automatic Extinguishing System

- + All cooking equipment that produces grease or grease-laden vapors should be equipped with an approved automatic extinguishing system.
- + The automatic extinguishing system should meet the Underwriters Laboratory (UL) 300 standard. UL 300 went into effect in 1994 as the result of the high temperature oils used in cooking today. Dry-chemical systems do not adequately extinguish grease fires associated with using these high temperature cooking oils.
- + The automatic extinguishing system should be inspected and serviced every six months by a qualified contractor.
- + A minimum of one manual activator should be installed. The activator is to be used if a fire occurs and the automatic extinguishing system fails to activate.
- + The manual activator must be accessible in the event of a fire and located along a route of egress from the kitchen area.
- + Kitchen staff must be properly trained on the proper operation of the manual activator.
- + The automatic extinguishing system must be inter-connected to an automatic fuel/power shut off that cuts all fuel/power from the cooking equipment immediately after the automatic extinguishing system is activated.
- + Prohibit the operation of cooking equipment when the extinguishing system or exhaust system is non-operational or otherwise impaired.

General Housekeeping

- + The kitchen's floors and walls around cooking appliances need to be periodically cleaned to prevent the accumulation of grease. Frequency of cleaning will depend upon the frequency and type of cooking being conducted, however, a minimum of once a week is recommended.
- + Floor and wall coverings surrounding the cooking equipment need to be of an appropriate material that will prevent grease saturation and be easy to clean and maintain. Examples of appropriate material include ceramic tile on floors or stainless steel on walls.



FIRE EXTINGUISHERS

When used properly, a portable fire extinguisher can save lives and property by putting out a small fire or controlling it until the fire department arrives. Portable extinguishers are intended to be used for those fires in the incipient stage when the fire has just started and is easily extinguishable, but are not designed to fight large or spreading fires.

Fire extinguishers are an excellent first line of defense in containing fires, but are only useful under certain conditions, including:

- + If the appropriate type and size of fire extinguisher is available;
- + If the operator understands how to use the extinguisher;
- + If the extinguisher is properly located within the building; and
- + If the extinguisher is in good condition and fully charged.

Selecting the Appropriate Type and Size of Fire Extinguisher

There are four basic types or classes of fire extinguishers, each of which extinguishes specific types of fire. Newer fire extinguishers use a picture/labeling system to designate which types of fires they are to be used on. Older fire extinguishers are labeled with colored geometrical shapes with letter designations. The following indicates the different types of extinguishers that are available:

- + **Class A Extinguishers** will put out fires in ordinary combustibles, such as wood and paper. The numerical rating for this class of fire extinguisher refers to the amount of water the fire extinguisher holds and the amount of fire it will extinguish.
- + **Class B Extinguishers** should be used on fires involving flammable liquids, such as grease, gasoline, oil, etc. The numerical rating for this class of fire extinguisher states the approximate number of square feet of a flammable liquid fire that a non-expert person can expect to extinguish.
- + **Class C Extinguishers** are suitable for use on electrically energized fires. This class of fire extinguisher does not have a numerical rating. The presence of the letter "C" indicates that the extinguishing agent is non-conductive.
- + **Class D Extinguishers** are designed for use on flammable metals and are often specific for the type of metal in question. There is no picture designator for Class D extinguishers. These extinguishers generally have no rating nor are they given a multi-purpose rating for use on other types of fires.
- + **Class ABC Multi-Purpose Extinguishers** are suitable for use on ordinary combustibles, flammable liquids, or electrical equipment and are designated with the letters ABC.
- + **Class BC Extinguishers** are carbon dioxide extinguishers for use on flammable liquids and electrical equipment.
- + **Class K Extinguishers** are designed for use on fires that involve vegetable oils, animal oils or fats in cooking appliances. This is for commercial kitchens, including those found in restaurants, cafeterias and caterers.
 - Wet chemical fire extinguishers are the best portable extinguisher available for kitchen operations. They operate in the same manner as a UL 300 pre-engineered restaurant fire extinguishing system. The agent discharges as a fine mist, which helps prevent grease splash and fire re-flash, while cooling the appliance.
 - The fire extinguisher should be located no more than 30 feet from the cooking area.

Many people are unaware that the majority of portable extinguishers are best suited for fighting very small or confined fires (in a wastebasket, for example). Large extinguishers can be heavy and difficult to operate. An ABC-rated extinguisher is sufficient for most kitchens, but if your organization has a commercial kitchen, consider installing a K-rated extinguisher.

Operating Fire Extinguishers

Employees and volunteers need to be trained on how to properly operate a fire extinguisher. This training should not only include how to use a fire extinguisher, but when to use it.

- + A fire extinguisher should only be used to fight those fires in the incipient stage when the fire has just started and is easily extinguishable.
- + A fire extinguisher should never be used to fight large or spreading fires, as these fires should only be handled by professional firefighters.
- + Understand that most portable extinguishers discharge completely in as few as eight seconds, so they would be of little or no use in controlling a larger fire.

- + Before you begin to fight the fire:
 - Make sure everyone has left, or is leaving the building.
 - Call the fire department.
 - Determine if the fire is confined to a small area and is not spreading.
 - Know what is burning, as there may be something in the fire that could explode, producing highly toxic smoke. Using the wrong type of extinguisher also could potentially spread the fire.
 - Be sure you have an unobstructed escape route to which the fire will not spread.

To Operate a Fire Extinguisher, Use the Following P.A.S.S. Technique:

- + **Pull** the pin at the top of the extinguisher. The pin releases a locking mechanism and will allow you to discharge the extinguisher.
- + **Aim** at the base of the fire, not the flames. This is important — in order to put out the fire, you must extinguish the fuel.
- + **Squeeze** the lever slowly. This will release the extinguishing agent in the extinguisher. If the handle is released, the discharge will stop.
- + **Sweep** from side to side. Using a sweeping motion, move the fire extinguisher back and forth until the fire is completely out. Operate the extinguisher from a safe distance, several feet away, and then move toward the fire once it starts to diminish. Be sure to read the instructions on your fire extinguisher, as different fire extinguishers recommend operating them from different distances. Remember: aim at the base of the fire, not at the flames.

Locating Your Fire Extinguishers

- + At least one Underwriters Laboratory UL-listed portable fire extinguisher, with a minimum rating of 2A, should be provided for every 3,000 square feet of floor space. The extinguishers need to be placed so that they are readily accessible and the travel distance to any extinguisher is no more than 75 feet.
- + Fire extinguishers need to be hung on brackets or placed on a shelf in an area where they will not be blocked or damaged. Use signs or other markings to alert personnel of the location of the extinguishers. Mark all fire extinguisher locations on the emergency evacuation diagram of your building.

Maintaining Your Fire Extinguishers

Fire extinguishers should be maintained at regular intervals (at least once a year), or when specifically indicated by a manufacturer's recommendations. Servicing is intended to give maximum assurance that an extinguisher will operate effectively and safely. It includes a thorough examination and any necessary repair, recharging or replacement. It also will normally reveal the need for hydrostatic testing of an extinguisher. Fire extinguishers should be pressure tested (a process called hydrostatic testing) after a number of years to ensure that the cylinder is safe to use. Consult your owner's manual, extinguisher label or the manufacturer to see when yours may need such testing. A general inspection also should be conducted when extinguishers are initially placed in service and thereafter at approximately 30-day intervals. A service tag should be attached to every fire extinguisher indicating the date of the most recent annual servicing. Generally, the back of most service tags provide an area for the individual conducting the monthly general inspection to sign and date it indicating when the inspection was performed.

The monthly inspection should check for the following:

- + The extinguisher is not blocked by equipment, coats or other objects that could interfere with access in an emergency;
- + The pressure is at the recommended level. On extinguishers equipped with a gauge, the needle should be in the green zone, not too high and not too low
- + The nozzle or other parts are not damaged.
- + The pin and tamper seal (if it has one) are intact.
- + There are no dents, leaks, rust, chemical deposits and/or other signs of abuse/wear. Wipe off any corrosive chemicals, oil or other foreign material that may have deposited on the extinguisher.

Consult the manufacturer's recommendations, as brands and types of extinguishers may differ. Individuals conducting the monthly inspections should document in writing that the monthly inspection was performed.

Prevention is Key

Fire extinguishers are valuable tools in preventing fires. By following the tips and recommendations in this fact sheet, your organization will be better prepared to handle those small, but potentially hazardous fire situations that could lead to a larger disaster.

GLOSSARY

Allergen – A substance that causes an allergic reaction.

Anaphylaxis – Exaggerated allergic reaction to a foreign protein resulting from previous exposure to it.

Antihistamines – Any certain compounds or medicines that neutralize or inhibit the effect of histamine in the body, used chiefly in the treatment of allergic disorders and colds.

Botulism – A sometimes fatal disease of the nervous system acquired from spoiled foods in which botulin is present, especially improper canned or marinated foods.

Chafing Dish – An apparatus consisting of a metal dish with a lamp or heating appliance beneath it, for cooking or keeping it hot at the table.

Compost – Decayed organic material used as a plant fertilizer.

Foodborne Illness – Also known as “foodborne disease,” “foodborne infection” or “food poisoning”; common public health issue; caused by consuming contaminated food or beverages.

Gastroenteritis – Inflammation of the stomach and intestines, typically resulting from bacterial toxins or viral infection and causing vomiting and diarrhea.

Good Agricultural Practices (GAPs) – Voluntary audits that focus on best agricultural practices to verify that fruits and vegetables are produced, packed, handled and stored in the safest manner possible to minimize risks of microbial food safety hazards (U.S. Food and Drug Administration).

Incipient Stage – The initial or beginning stage of a fire.

Microorganism – A microscopic organism, especially a bacterium, virus or fungus.

Parasite – An organism that lives in or on another organism (its host) and benefits by deriving nutrients at the host’s expense.

Pathogens – Any disease-producing agent, especially a virus, bacterium or other microorganism.

RESOURCES

The American Academy of Allergy Asthma & Immunology Anaphylaxis Emergency Action Plan

FoodSafety.gov

Centers for Disease Control and Prevention – Food Safety

United States Department of Agriculture

Food and Allergy Research & Education

Food and Allergy Research & Education Checklist for Managing Food Allergies at School

Mayo Clinic

The National School Board Association Food Allergy Policy Guide

British Columbia Ministry for Children and Families Life Threatening Food Allergies in School and Child Care Settings

Environmental Protection Agency Tips for Composting

A Handbook for Beginning and Veteran Garden Organizers: How to Reduce Food Safety Risks

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