

According to the U.S. Fire Administration (USFA), arson is the leading cause of fires in the United States, resulting in more than \$1 billion in property loss each year. In one recent year, the USFA reported that approximately 30,500 intentional structural fires occurred.

At GuideOne Insurance, arson is one of the leading causes of fires along with open flames, electrical and lightning. The mental and emotional loss of a church building due to arson can be as great as the physical damage itself. For churches insured by GuideOne, the average damage incurred in arson incidents exceeded \$450,000 in a recent year.

Your facility can decrease the chances that an arsonist will strike by undertaking an arson and crime prevention program. This fact sheet provides information on why churches and religious organizations are vulnerable to arson and what they can do to protect themselves from this crime.

Why Churches and Religious Organizations Are Vulnerable

- Buildings are often unoccupied.
- Activity schedules are predictable.
- Security systems are often lacking.
- Arsonists, vandals and other criminals may target churches because of their beliefs.

Reducing the Risk of Arson

To help reduce the risk of arson, consider the following precautionary measures:

Building Exterior

- Illuminate exterior buildings, doors and parking lots from sunset to sunrise.
- Consider the installation of motion-activated lighting near doors and windows.
- Keep doors and windows locked when the building is unoccupied.
- Trim shrubs and tree limbs around windows and doors to eliminate potential hiding places for arsonists and criminals.
- Ladders should not be stored outside the building at the end of the day. Instead, secure ladders and tools in a locked shed/outbuilding or inside the building. If this is not possible, secure ladders outside with a high quality chain and lock.
- Keep track of and limit the disbursement of building keys. Consider installation of a keyless electronic entry system.



The photo above demonstrates how to properly store a ladder outside the building using a good quality lock and chain that is securely attached to the buildings concrete foundation.

Arson Prevention Continued

- Make sure that exterior doors are of solid core (not hollow) construction and are outfitted with quality deadbolt locks and, if hinged on the outside, tamper-proof hinges.
- Use wire-mesh glass in windows for additional protection from break-ins.
- Keep the property free from boxes, leaves, trash, wood and other potentially combustible debris.
- Consider installing video security cameras at entrances and other key areas.
- Park church vehicles in differing locations on the property throughout the week to vary routine.
- Trash containers should be kept as far away as possible from the building.



The photo on the left shows a trash dumpster that is overflowing and too close to the building. If vandals were to intentionally set fire to the dumpster, there is a high likelihood that it would spread to the building.

Building Interior

- Consider using timers for lights and/or radios during evening hours. Timed use of interior entry lights overnight should be considered.
- Make sure that flammable liquids are stored in a U.L. listed fire cabinet away from any heat sources, such as heating equipment.
- If possible, install a central station monitored security/fire detection system. Also consider a fire sprinkler suppression system.
- Make sure that smoke and heat detectors are operational and that fire extinguishers are in place and have been regularly serviced.
- Restrict access to areas containing valuable or combustible materials by locking interior doors.

General Precautions

- Ask neighbors to alert police if anything suspicious is seen on church property.
- Develop positive relationships with local law enforcement and invite them to patrol the property during the overnight hours.
- Establish a "Church Watch" program in which members volunteer to drive through the property at various times throughout the week.

Arson Prevention Checklist

Checklists can be an effective tool to provide a safer environment. Answer the following questions relating to external, internal, and awareness measures you can take to determine how well your facility is safeguarded to discourage unauthorized entry and encourage early fire detection. A "NO" answer indicates an area that may warrant further examination.

External Measures	Yes	No
Does lighting sufficiently illuminate all sides of buildings and parking areas?	<input type="checkbox"/>	<input type="checkbox"/>
Do all exterior doors have deadbolt locks and non-removable hinge pins?	<input type="checkbox"/>	<input type="checkbox"/>
Is a process in place to make sure that building doors and windows are locked when it is unoccupied?	<input type="checkbox"/>	<input type="checkbox"/>
Is access to roofs, fire escapes and outside stairways limited to authorized persons?	<input type="checkbox"/>	<input type="checkbox"/>
Is shrubbery trimmed to prevent it from being used for hiding?	<input type="checkbox"/>	<input type="checkbox"/>
Are loose materials and trash removed from the grounds daily?	<input type="checkbox"/>	<input type="checkbox"/>
Are windows and glass entries protected with wire mesh or bars? (Note that for emergency purposes, window bars must be able to be opened from the inside)	<input type="checkbox"/>	<input type="checkbox"/>
Is there fencing or controlled access to the property?	<input type="checkbox"/>	<input type="checkbox"/>
Is access to crawl spaces and basement entry points secured?	<input type="checkbox"/>	<input type="checkbox"/>

Internal Measures	Yes	No
Are foyer and hall lights left on at night?	<input type="checkbox"/>	<input type="checkbox"/>
Are windows and doors equipped with proper locks, jams and/or deadbolts?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a central station alarm system for notification of fire, smoke or breach of security?	<input type="checkbox"/>	<input type="checkbox"/>
Are personnel assigned to secure the building daily (for example, locking doors and windows and activating security systems)?	<input type="checkbox"/>	<input type="checkbox"/>
Are personnel assigned to check for unauthorized occupants?	<input type="checkbox"/>	<input type="checkbox"/>
Are building keys controlled by a strict sign-out policy and marked "do not duplicate?"	<input type="checkbox"/>	<input type="checkbox"/>
Are locks changed or re-keyed when keys cannot be retrieved?	<input type="checkbox"/>	<input type="checkbox"/>
Are valuable objects and combustible materials securely locked away from sight?	<input type="checkbox"/>	<input type="checkbox"/>

Arson Prevention Continued

Awareness measures build teamwork and ownership attitudes among members	Yes	No
Do the police routinely check the premises?	<input type="checkbox"/>	<input type="checkbox"/>
Is a "Church Watch" program in place?	<input type="checkbox"/>	<input type="checkbox"/>
Are staff and members made aware of building use, security and fire prevention measures?	<input type="checkbox"/>	<input type="checkbox"/>
Have neighbors been asked to report any suspicious activity on church property to the police?	<input type="checkbox"/>	<input type="checkbox"/>

(Updated 04.13.10)

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A fuse is a device designed to stop the flow of current in order to protect the circuit and equipment when it is overloaded as a result of too many appliances and/or equipment on the circuit. It also provides protection when a short circuit develops in a wire or a ground fault.

Fuses are common in church buildings primarily due to the fact that they are older and were originally built with electrical services protected with fuses. Even if the main electrical service has been updated to circuit breakers, the use of fuse-protected sub-panels is fairly common.

Fuses can be safe, however, it is recommended that fuses be replaced and updated to circuit breakers. If this is not feasible, the following safety precautions should be followed:



Typical screw-in fuse panel.

Electrical Inspection

The presence of fuses indicates that the electrical service was installed prior to 1970 and is over 30 years old. This wiring was installed to meet the electrical needs at that point in time. With the added power demands in today's world, such as appliances, and office and audio visual equipment, this older wiring may not be adequate. A certified electrician or licensed electrical contractor should be hired to inspect the electrical system. This inspection will identify the electrical demands needed and any corrections that are necessary. This should be completed, at a minimum, once every three years.

Tamper Proof Fuses

More often than not, a blown fuse is the result of an overloaded circuit. This means that there is too much electrical demand on the circuit. If the fuse is continually blowing, there is a much more serious problem, and a certified electrician or licensed electrical contractor should be hired to correct the problem.

However, an all too common practice to stop a fuse from continually blowing is to install a higher-rated fuse in the circuit. For example, replacing a 15-amp fuse with a 20-amp fuse. This is a recipe for disaster, as this allows for more current into the circuit than it was designed for, which can lead to overheating of the wire and probable fire.

To prevent mismatching or over fusing of the circuit, Fustat® fuses – also called type “S” tamper-proof fuses – should be installed for all screw-in fuse panels. These come in different amperage sizes, and each tamper-proof fuse will only screw into the correct tamper-proof base. This will prevent installing a higher-rated amp fuse into a lower amp-rated circuit.



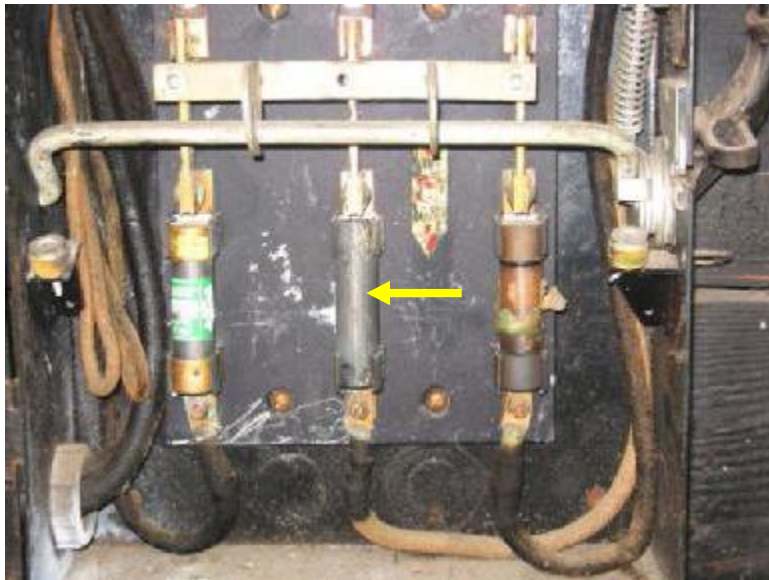
Fustat® fuses, (also called type S) as shown in the image above, are not interchangeable, meaning you cannot install a 20-amp fuse into a 15-amp base. The base adapter on the right screws into any fuse socket



Screw the Fustat® into the base adapter (as shown above), and then screw the combined assembly into the socket on your electrical panel. The next time you unscrew this fuse, its base adapter will stay in place and will only accept the Fustat® fuse in the correct amp rating

Fake Fuses

The ability to insert copper/metal tubes (fake fuses) with cartridge-style fuses is an extremely dangerous situation, since this does not provide over current protection. If the circuit is not protected, you are increasing the potential for a fire to occur, arcing and electrical shock. If a fuse has to be replaced, always install properly matched fuses. If the fuse is continually blowing, as earlier discussed, this is an indication of a more serious problem and should be corrected by a certified electrician or licensed electrical contractor.



This image shows a piece of metal tube that was inserted in the middle circuit. This is being used as a conductor and was most likely installed because the existing fuse kept blowing. This practice should never be done.

Renewable Fuses

A renewable fuse is a cartridge-style fuse. If the fuse is blown, the cap is unscrewed, and the link can be replaced, allowing the fuse to be reused. Once the link has been replaced, the mechanical connection between the link and the fuse cap can become loose, dirty, corroded or otherwise faulty, resulting in a connection that can generate heat in the hundreds of degrees and cause the insulation on the conductor to deteriorate. Once the conductor makes contact with the metal of the panel or the conduit, a short circuit occurs, which can result in arcing and fire. Renewable fuses should not be used and should be replaced with one-time use standard fuses.



A renewable fuse is a cartridge style fuse that can be identified by labeling (image on left) and/or by the end caps that can be unscrewed (image on right)



This image shows a renewable fuse and its components. The element is inserted into slots on the top and bottom of the fuse, and the threaded caps screw on and apply pressure to the element. (Photo courtesy of Hartford Steam Boiler)

Fuse Clip Clamps

Fuse clip clamps – also known as torpedo or depth charge clamps – were originally used on submarines and some warships in World War II. Their purpose was to prevent fuses from coming out of the clips during depth charges or other explosions. Today, these are used in some older buildings in an attempt to compress the clip to the fuse blade. This is an indication that the clamp does not have enough compression to make solid contact with the fuse cartridge blade, which can lead to resistance to current flow. This makes the clamp and blade elevate in temperature, and can lead to fire. These clip clamps should not be used and a certified electrician or licensed electrical contractor should be hired to replace the clips.



This image shows a clip clamp being used to eliminate the heating that was actually being caused by high resistance connections inside the fuse. The real problem is the clips do not have enough compression and should be replaced (Photo courtesy of Hartford Steam Boiler).

The presence of fuses in the electrical system indicates older wiring, and every attempt should be made to replace fuses with circuit breakers. If this is not financially feasible, and the above mentioned guidelines are followed, your chances of an electrical loss from fuses will be reduced.

(03.01.11)

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Some of the most common electrical hazards are often the easiest to identify and control, and are not cost prohibitive to correct. However, if left unchecked, they can lead to a major fire event for your church and congregation. The following will show the most common electrical hazards found in churches today and how to control them.

Missing Covers

Missing covers on junction boxes, switches and outlets expose energized circuits, creating arc flash, shock, and electrocution hazards. In addition, missing covers provide a path of entry into the interior of the enclosure, allowing dust, dirt, and debris to accumulate. Missing covers could allow metallic objects to fall into the circuits that could arc or lodge in a way that presents a hazard when the enclosure is opened. Covers should be provided for all these items.



Broken/Unsupported Light Fixtures

Light fixtures should be permanently mounted to the base and show no signs of damage. Light fixtures that are hanging unsupported by wiring, puts undue stress on the electrical connections. These two conditions present the potential for an electrical short, which can produce sparks that can ignite combustibles.



This image shows a broken light fixture. This exposes the wiring to physical damage, dust, dirt and moisture accumulation.



This image shows a light fixture that is unsupported, which puts undue stress on the electrical connections.

Circuit Breakers

A circuit breaker is a protective device designed to protect the circuit and equipment when it becomes overloaded as a result of too many appliances or equipment on the circuit, as well as when a short develops in a wire. The following safety precautions should be taken to prevent an electrical fire or damage associated with circuit breakers:

- All electrical breaker panels should be equipped with an appropriate cover and remain closed. Missing covers expose the circuits to dust and physical damage. If an arc or short circuit would occur, the cover will contain the sparks from igniting surrounding combustibles.
- There should not be any missing breakers or other openings between breakers. These openings allow for the potential for electrocution, physical damage, and dust and dirt to accumulate in the circuits. Spare clips should be installed in any openings in the breaker panel.
- Breakers must never be taped or physically secured in the “ON” position. If the breaker is not allowed to trip, or cannot be manually tripped, the wiring could overheat, increasing the chances of a fire.
- The electrical panel should be indexed, identifying each individual circuit breaker. The directory must identify the various receptacles, general area, or equipment serviced by each circuit breaker. This will allow for quick de-energizing of a circuit under emergency situations.



Image above shows breakers taped in the ON position. This practice should never be done.



Image above shows open spaces in the electrical panel. Spare clips should be installed in these spaces.

Housekeeping

Electrical equipment can and does fail, often catastrophically, with arcing that produces large amounts of heat. Any combustible material in the vicinity of the arc flash can be ignited. The following housekeeping rules should be followed in electrical equipment areas:

- Access to electrical rooms should be limited to authorized maintenance or operations personnel that understand the importance of maintaining a clean, well-ventilated electrical area.
- Electrical equipment areas should be kept dry and equipment needs to be protected from moisture. When evidence of moisture contamination is noted, equipment should be examined for damage and necessary repairs made. The source of the moisture needs to be identified and eliminated.
- Electrical equipment areas should be clean and protected from dust and dirt. When evidence of dust and dirt is noted, equipment should be examined for damage, cleaned and any necessary repairs made.
- Placing storage items too close to electrical panels or near electrical equipment will restrict air circulation and impede proper cooling. Excessive heat buildup will result in premature failure and shortened service life. Storage must be no closer than 36 inches to the electrical panels, electrical equipment, ventilation vents and openings. A concerted effort should be made to reduce the number of unused items and to store items in a neat and orderly fashion.



Storage and housekeeping practices next to this electrical panel greatly increase the chances for a severe electrical fire. Note the heavy fire load associated with all of the combustible materials present.

As you can see, some of the most common electrical hazards found require only a small amount of time and effort to control. By following the safety precautions outlined above, your chances of having a fire resulting from an electrical issue are greatly reduced.

(02.21.11)

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The use of temporary wiring can most likely be found in every religious organization due to increased electrical demands and lack of available electrical outlets, especially in older buildings. Temporary wiring for definition purposes will include extension cords, power strips, multiple outlet adapters and inadequate wiring. Temporary wiring is an easier and less expensive solution than having additional electrical services installed however; “temporary” usually becomes the permanent solution, and can lead to electrocution, short circuit, overloading and fire. Take this recent loss for example:

During a funeral service, the church’s electronic carillon system was not tolling properly. The pastor returned to the church later that afternoon only to find the driveway blocked by fire trucks and a fire burning in the sanctuary. Investigation found that a lightweight extension cord was run under the carpet of a doorway and was supplying power to the carillon control box for the past 20 years. Years of foot traffic slowly broke down the insulation on the cord, allowing the wires to come in contact with each other. This caused a short circuit and arc, which started the carpet on fire and spread quickly to the sanctuary. Estimated dollar loss was \$1.4 million.

Extension Cords

- Never cut off the ground pin to connect a three-prong appliance cord to a two-wire extension cord or receptacle. Use only three-wire extension cords for appliances with three-prong plugs.
- If an extension cord’s insulation has been damaged, remove the cord from service. Never try to repair a damaged extension cord with electrical tape.
- Never plug multiple extension cords into each other.
- If the cord feels hot or if there is a softening of the plastic, the cord is drawing too much power and the plug wires or connections are failing, which could present a fire or shock hazard. The extension cord should be discarded and replaced.
- Extension cords should never be nailed down, stapled, run through walls, under rugs or across doorways.
- Avoid placing cords where someone could accidentally trip over them.
- Never use an extension cord while it is coiled, looped or tied in a knot.
- Never place an extension cord where it is likely to be damaged by heavy furniture or foot traffic.
- Use special, heavy-duty extension cords that are designed for high wattage appliances, such as air conditioners and freezers.
- Purchase extension cords from reputable distributors and retailers, and check the product to ensure that a nationally recognized testing laboratory, such as Underwriters Laboratories (UL) or Canadian Standards Association (CSA) has certified the product.
- Outside, use extension cords rated for outdoor use.



Power Strips

Power strips are really an extension cord with multiple receptacles. These are most commonly used where multiple outlets are needed such as for office and audio/visual equipment. The safety precautions outlined for extension cords also should apply for power strips. Additional precautions for power strips include:

- Only use power strips that have a built-in circuit breaker that will trip if overloaded or shorted.
- Do not plug high power demand appliances, such as refrigerators, microwave ovens or wall air conditioning units, into power strips. These types of appliances should each have a separate electrical outlet.
- If the power strip feels hot, it should be discarded and replaced. This is a good indication that the electrical load is too high and should be evaluated.
- Do not locate a power strip in any area where the unit would be covered with a rug, furniture, or any other item that would inhibit air circulation.
- Under no circumstances should one power strip be plugged into another power strip, also known as daisy chaining. If the electrical demand gets to that point, it is definitely time to call an electrician.



This image shows two power strips that have been plugged into each other, also called daisy chaining. This practice should not be permitted.

Multiple Adapters

Multiple adapters also allow for plugging in several appliances at once and more often than not are not protected with a built in breaker. This can cause overloading and overheating of the circuit. Multiple adapters are not recommended for use.



Inadequate Wiring

Do it yourself temporary wiring is never recommended. Consider these reasons:

- Wiring extension cords directly into electrical panels is in violation of national and local electrical codes.
- Making your own extension cords or power strips has no testing conducted by nationally recognized testing laboratories and may not be properly sized for the voltage and current.
- Improperly installed electrical equipment or spliced wiring also should be identified as temporary.
- Any condition that will involve creating your own temporary wiring solutions should be immediately removed from use.



This image shows several wiring hazards; a “homemade” extension cord on the floor that is run under a doorway, which has an outlet installed at the end, that has a power strip plugged into it that is supplying power to a window air conditioning unit. This is a fire just waiting to occur.

Temporary wiring should be just that, temporary. The use of extension cords, power strips, multiple adapters and homemade variations of such, indicate that additional electrical services are needed. They are not designed to be installed in a permanent manner, and if this becomes the case, a licensed electrical contractor should be hired to install additional electrical services.

Commercial grade kitchens are a common feature found in many churches today, as religious institutions are providing meals for daycares, soup kitchens, meals on wheels and other similar operations. When a church chooses to add the responsibility of operating a commercial grade kitchen, many safety considerations should be addressed, including food safety, employee and volunteer safety, and fire safety. This fact sheet addresses the specific issues associated with providing adequate fire safety for your church 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, char broilers 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.



This photo illustrates the correct installation of a metal baffle plate between the open flames from the range and the deep fat fryer. Metal baffles should be used only when there is not sufficient space available to provide a 16-inch clearance between the deep fat fryer and any source of open flames.

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. (NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.)
- Local fire officials also should be consulted, as additional requirements under county and/or municipal codes could 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.



The photo to the left is an example of kitchen appliances that are properly equipped with an appropriate hood and ventilation system.

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.



This photo shows ductwork from a cooking area that has a heavy accumulation of grease. Maintaining and cleaning the hood and ventilation system is crucial, as the buildup of grease can become a serious fire hazard. The hood and ventilation system should be inspected and cleaned by a certified contractor every six months.

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 only a qualified contractor.



These photos are examples of two different brands of automatic extinguishing systems that contain a liquid extinguishing agent. Ansul and Range Guard are two well known manufacturers. Also, note the inspection tag on the unit to the left. This is the inspection tag that the servicing company will leave after they service the system every six months.

- 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.



These photos are examples of manual activators that should be used if the automatic extinguishing system fails to activate. This device should be installed away from the cooking surface, next to an entrance/exit for the kitchen. Kitchen staff should be aware of this manual activator and trained on its use. Also note the inspection tag. Many fire service companies will place these tags on the manual activator to indicate current servicing.

- 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.

Fire Extinguishers

- Wet chemical fire extinguishers are the best portable extinguisher available for kitchen operations. K-rated extinguishers are recommended for commercial kitchens. They operate in the same manner as a UL300 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.
- Fire extinguishers should be maintained at regular intervals; at a minimum of once per year, or when specifically indicated by a manufacturers recommendations. Maintenance should be conducted only by an approved/licensed contractor. Servicing is intended to give maximum assurance that an extinguisher will operate effectively and safely.



These pictures are of a portable K-rated fire extinguisher. A class K fire extinguisher is designed to better control grease and other kitchen related fires. If a kitchen contains any grease producing appliances, a portable Class K-rated fire extinguisher should be installed in the kitchen in a visible and easily accessible location.

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.

In the United States, a fire occurs in a home or building every 80 seconds; and arson is the leading cause of all commercial building fires. The thought of a fire is especially terrifying for a church. Even a small fire can cause smoke and water damage that shuts the church down for weeks. And, if the church is severely damaged or destroyed, the ministry could be disrupted indefinitely.

An automatic fire sprinkler system is one of the most effective methods of controlling or suppressing a fire. When sprinklers are present, the average property loss per fire is cut by one-half to two-thirds, compared to fires where sprinklers are not present. Sprinklers are generally highly reliable; and when present in the fire area, they operate in all but seven percent of fires large enough to activate the system. Human error was a factor in almost all of the failures.

This fact sheet will cover items that should be addressed to help ensure your sprinkler system will properly function if an accidental fire would occur.

Inspection and Servicing

- ❑ Have an annual inspection and service performed by a fire protection contractor.

- Service should include an annual flow test.
- Keep records of these tests on file.

- ❑ Train the church custodian, maintenance personnel, or members of the Church Safety and Security Team to visually inspect the sprinkler system each month.

- Training to make the monthly inspection can be obtained from the sprinkler service company.
- The monthly inspection should at a minimum include the following:

- The area around the sprinkler system shut-off valve is clear of obstacles.
- The sprinkler main control valve should be in the open position.
- Sprinkler heads should be inspected for deficiencies.
- The fire department connection on the exterior of the building should be unobstructed and have appropriate caps covering the connection.
- If the sprinkler system is monitored with a central station fire alarm, test the station alarm.



This photo is an example of a sprinkler system main valve. Note the inspection report attached to the sprinkler main. The report will contain information on the sprinkler system, when it was last inspected, and details regarding the inspection.

- Protect the sprinkler system pipes from freezing during cold weather.
 - Wet pipe sprinkler systems are at the greatest risk of freezing during extreme cold temperatures. If the system may be exposed to temperatures below 40 degrees Fahrenheit, provide heat to prevent the system from freezing. The use of temporary heating units, such as space heaters or salamanders, is **not** recommended.
 - Monitor the air temperature at all times by placing thermometers in the coldest areas of the buildings. These should be checked frequently.
 - Adding anti-freeze solution to the system can be done as long as the proper ratio of water to anti-freeze is maintained. Contact your sprinkler service contractor for specifics.
 - If a dry pipe system is installed, make sure the dry pipe valve control room is provided with heat.

Sprinkler Heads

Sprinkler systems are designed to strategically locate sprinkler heads throughout the building to provide full protection by overlapping the sprinkler heads coverage area.

The sprinkler heads are set to operate as soon as the air temperature surrounding the head reaches a factory set temperature, which is generally set at 160 to 165 degrees Fahrenheit. Many fires will generate this temperature in as little as 45 seconds.

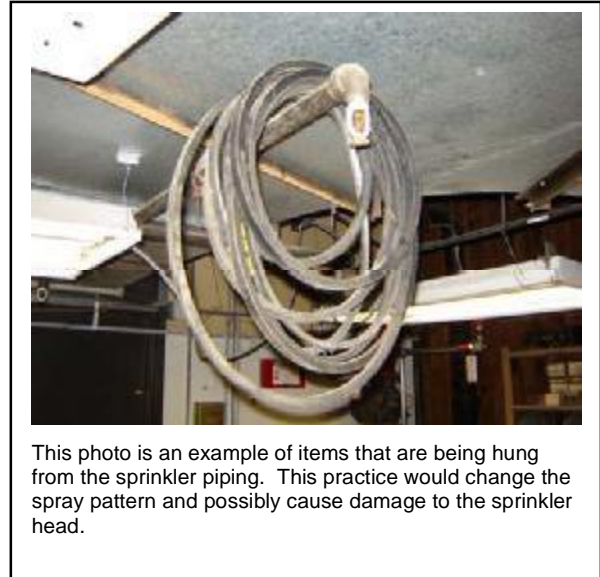


Factors Affecting Sprinkler Heads

Many circumstances can affect sprinkler head effectiveness, including the following:

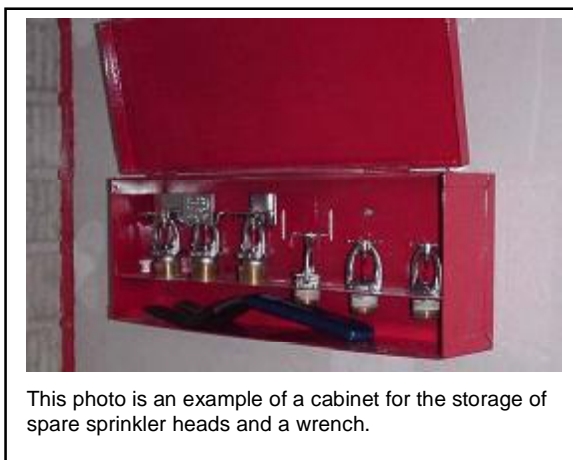
- ❑ **Corroded or painted sprinkler heads** cannot respond efficiently or quickly (or may not operate at all) because corrosion or paint acts as a heat insulator preventing the fusible link from separating.
- ❑ **Old-style sprinkler heads** (not the modern, spray sprinkler head), which are still found in service today, are not capable of providing the fine spray required for an effective system. Many types of sprinkler heads have had manufacturer recalls. Therefore, your system should be inspected to ensure that the sprinkler heads are not a brand that has been recalled. For more information on recalled sprinkler heads, visit the Consumer Product Safety Commission Web site at <http://www.cpsc.gov/cji-bin/prod.aspx> and search for *Sprinklers (Fire)*.

- ❑ **Clearance.** To ensure a sprinkler head will disperse a proper spray pattern, maintain an 18 inch vertical clearance between items being stored and any sprinkler heads.
 - To help keep items from being stored within 18 inches of the sprinkler heads, a good working practice is to draw a horizontal line around the entire closet, 18 inches vertically below the sprinkler heads. This eliminates any question as to how high items can be stacked.
- ❑ **Items being hung from sprinkler heads.**
 - Remove all items being hung from sprinkler heads.
 - Hanging holiday or other decorations from sprinkler heads could result in damaging the sprinkler head, leaving it inoperable, or even changing the spray pattern, making the sprinkler head less effective.



Maintain Spare Sprinkler Heads

- ❑ Maintain no fewer than six spare sprinkler heads on the premises so that damaged sprinklers can be promptly replaced.
- ❑ These sprinklers should correspond to the types and temperature ratings of the sprinklers on the property.
- ❑ Keep the sprinklers in a cabinet located where the temperature to which they are subjected will at no time exceed 100 degrees Fahrenheit.
 - Keep a wrench in the cabinet to be used for sprinkler removal and installation.



To better protect your church against fires and to reduce the possibility of a disruption to your ministry from fire or smoke damage, sprinkler systems are a "must have." By following the tips and recommendations on this fact sheet, your church will be in better prepared to reduce damages from a fire.