



BEST PRACTICES FOR PROPERTY PROTECTION & LOSS PREVENTION

INSURANCE BOARD





INTRODUCTION

PURPOSE STATEMENT

This document provides church facility leaders and/or property/facility managers with practical best practices to reduce property loss exposures and improve resilience. Topics are derived from real world loss experience, NFPA, FEMA guidance, and industry leading recommendations. Each section provides a concise overview, common risk factors, and actionable steps to enhance integrity, continuity, and stewardship of church facilities and heritage assets.

ABSTRACT

Faith-based properties present unique risks due to their diverse operations, from worship services and community outreach to kitchens, offices, and aging infrastructure. Loss trends show recurring exposures in areas such as electrical systems, hot work, water damage, and lithium-ion battery use. This document compiles best practices to help church administrators and maintenance staff proactively manage these risks. By following these principles, organizations can protect heritage structures and ensure long-term mission continuity. These sections align with NFPA standards, FEMA recommendations, and industry experience across thousands of faith-based facilities.

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BEST PRACTICES

Building Maintenance

1

Churches often have unique maintenance challenges compared to other properties. Intermittent occupancy, aging infrastructure, and reliance on volunteers can lead to overlooked issues that increase risk of loss. A structured building maintenance program helps preserve the property, ensures integrity for congregants, and minimizes costly disruptions.



COMMON RISK FACTORS

- ❑ Deferred maintenance: Roof leaks, worn-out HVAC, and outdated electrical systems.
- ❑ Blocked gutters and drainage: Water intrusion and freeze damage risks.
- ❑ Electrical hazards: Lack of clearance around panels, overloaded circuits, outdated wiring.
- ❑ Unmaintained roofs and exteriors: Contributing to water intrusion and structural deterioration.
- ❑ Seasonal neglect: Frozen pipes, unheated spaces, and lack of winterization.
- ❑ Limited documentation: Inconsistent recordkeeping due to staff or leadership turnover.



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ Maintain 36 inches of clearance around electrical panels per NFPA and OSHA requirements.
- ❑ Schedule annual infrared (IR) scans of electrical systems to detect overheating and prevent fires.
- ❑ Conduct roof inspections at least twice a year (spring and fall) and after severe storms.
- ❑ Inspect and test sump pumps, boilers, and furnaces before seasonal use. Keep gutters, downspouts, and drainage systems free of debris.
- ❑ Ensure mechanical and boiler rooms remain free of storage and combustibles.
- ❑ Establish pest control and moisture management programs.
- ❑ Document all inspections, repairs, and contractor visits to ensure continuity through leadership transitions.



LOSS HISTORY and LESSONS LEARNED

- ❑ Water damage is one of the most frequent claims: roof leaks, frozen pipes, and clogged drains are recurring causes.
- ❑ Electrical fires in churches often trace back to outdated wiring, overloaded circuits, or poor maintenance.
- ❑ Roof collapses from snow loads and deferred repairs have led to large losses in older sanctuaries.
- ❑ Heating system failures and unmaintained boilers have contributed to both fire and water-related incidents. Proactive maintenance reduces fire and water losses: NFPA data shows that properties with documented preventive maintenance programs have significantly fewer large-loss fires and water damage claims.
- ❑ Roof and drainage are critical points: FEMA post-disaster assessments highlight that clogged gutters, neglected roofs, and failed flashing details are among the top causes of water intrusion during storms.
- ❑ Winterization is essential: Frozen pipe losses are among the most frequent claims in churches and schools. NFPA recommends insulation, heat tracing, and regular checks of heating systems in vulnerable areas.
- ❑ Electrical reliability prevents disruption: NFPA studies show that preventive electrical inspections, including IR thermography, significantly reduce the risk of arc faults and service interruptions.
- ❑ Documentation supports recovery: FEMA emphasizes that records of inspections, repairs, and contractor work greatly improve insurance recovery and FEMA disaster assistance after an event.
- ❑ Insurance Board recorded losses:
 - ❑ Water supply line burst from not being properly drained and insulated before winter. Total paid \$178,328.72.
 - ❑ Tree that should have been removed due to age and proximity to the church blew over in a storm onto the church. Total paid \$386,540.80.

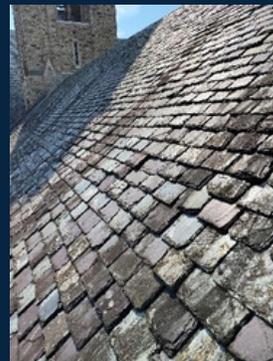
Boiler Under Repair



Boiler Past Inspection



Maintained Roof



Clean Boiler Room



BEST PRACTICES

Commercial Cooking Equipment

2

Commercial kitchens face heightened fire and property loss exposures when best practices are not followed. Strong fire protection and risk reduction comes from discipline and routine practices and procedures.

COMMON RISK FACTORS

- Metal baffles are installed where fryers and open grills are located next to one another. Grease build-up in hoods and ducts due to infrequent cleaning, this includes the roof top exhaust fans.
- Lack of baffles in cooking areas, between the open flame grill and fryer and equipment not under the exhaust hoods.
- Flexible gas connections made of rubber or plastic, which can crack, leak, or fail under stress.
- Fire suppression systems are left untested, leaving hidden impairments until an incident occurs and not being in accordance with (National Fire Protection Association) NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operation.

Equipment Not Under Exhaust Hood



No Metal Baffle Installed



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- Metal baffles are installed where fryers and open grills are located next to one another.
- Regular hood cleanings performed by qualified contractors, with cleaning frequency matched to cooking volume.
- Metal braided hoses for all cooking equipment connections, reducing the chance of rupture or leakage.
- Semiannual fire suppression system inspections by licensed vendors, with monthly visual checks in between.
- Documented cleaning schedules and equipment maintenance logs kept on file for accountability.

Metal Baffle Installed



Metal Braided Hoses



LOSS HISTORY and LESSONS LEARNED

- Metal baffles are installed where fryers and open grills are located next to one another.
- Regular hood cleanings performed by qualified contractors, with cleaning frequency matched to cooking volume.
- Metal braided hoses for all cooking equipment connections, reducing the chance of rupture or leakage.
- Semiannual fire suppression system inspections by licensed vendors, with monthly visual checks in between.
- Documented cleaning schedules and equipment maintenance logs kept on file for accountability.
- Insurance Board recorded losses:
 - Grease fire in parsonage while tenant was cooking. Total paid \$257,676.53.
 - Propane gas grill fire spread to aiding hall roof overhang and continued up the roof truss. Total paid \$510,593.00.

BEST PRACTICES

Electrical Preventative Maintenance

3

Electrical systems are critical to church operations, powering lighting, HVAC, sound systems, and life-safety equipment. Many churches operate in older buildings where wiring and panels may not have been updated in decades. Preventative maintenance ensures reliability, reduces fire risk, and extends equipment life. Regular inspections and thermal imaging can identify issues before they result in outages or costly losses.

COMMON RISK FACTORS

- Overloaded circuits from concerts, events, or seasonal decorations
- Lack of clearance around electrical panels (less than the required 36 inches).
- Aging wiring or uninspected breaker panels in older sanctuaries.
- Absence of scheduled infrared (IR) scans to detect overheating components.
- Deferred maintenance on backup generators, UPS systems, or transfer switches

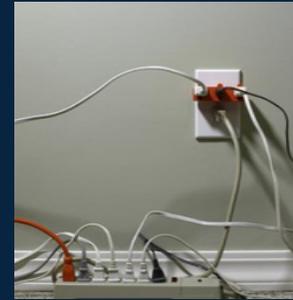
ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- Maintain 36 inches of clearance, unobstructed access around all electrical panels per NFPA 70 (NEC).
- Conduct annual infrared (IR) thermographic scans of panels, breakers, switchgear, and bus ducts to identify hot spots.
- Schedule annual inspections of wiring, switchgear, and grounding systems by a licensed electrician.
- Label circuits clearly and keep updated electrical drawings for emergency responders and contractors.
- Replace damaged cords immediately; avoid extension cords for permanent use.
- Test and maintain backup power systems (generators/UPS) at least annually, including fuel, batteries, and loading testing.
- Keep electrical rooms clean, dry, and used only for electrical equipment.

Inadequate Clearance at Electrical Panels



Improper Extension Cord Use



Adequate Clearance at Switchgear



Secured Electrical Panel Area



LOSS HISTORY and LESSONS LEARNED

- NFPA data shows electrical distribution and lighting equipment cause ~10% of church fires annually, often from faulty wiring or overloaded circuits.
- Total loss incidents have occurred where outdated panels lacked clearance for inspections and repair.
- Infrared scans have repeatedly caught overheating breakers or loose terminations that could have sparked fires.
- Insurance Board recorded losses:
 - Suspected electrical fire resulted in significant fire and smoke damage. Total paid \$1,250,000.
 - Failed electrical wire/cable under the floor caused a fire near the entrance. Total paid \$736,258.00.

BEST PRACTICES

Emergency Response Procedures

4

Churches must prepare for emergencies that threaten both people and property. From fire and weather events to vandalism or system failures, clear emergency response procedures ensure quick action and reduced damage.

COMMON RISK FACTORS

- No written emergency response plan or lack of training among clergy, staff, or volunteers.
- Contractors and service providers not pre-identified for urgent repairs (roofers, plumbers, electricians).
- Unmarked shut-off valves or switches, delaying water, gas, or power isolation during an emergency.
- Lack of adequate security around the property including locked doors/windows, security cameras, intrusion alarms, security, and more.
- No official weather monitoring and plan to limit impact to the facility in the event of severe inclement weather.
- No coordination with local fire and police departments regarding access to older or complex buildings.

Blocked Roof Drains



Non-Impact Windows/ Hurricane Shutters and Exposed to the Elements



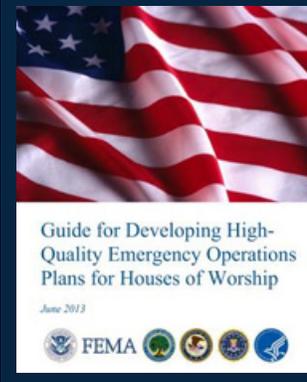
ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- Implement a formal emergency response plan with dedicated individuals assigned to specific roles/responsibilities. Annual training should be provided.
- Create a formal list of qualified service providers who can assist with urgent repairs (after hours). Company names and contact information should be listed and updated regularly.
- Create a map of main utility shut-off points (gas, power, domestic water, sprinklers, etc.).
- Ensure security protocols are formalized and prioritized based on need and available budget.
- Actively monitor weather conditions during peak seasons (Hurricane, Tornado, Snow, etc.). Proactively mitigate the events (i.e., impact rated shutters, sandbags, roof drain cleaning, snow load monitoring).
- Invite emergency personnel to conduct pre-incident planning visits and training on an annual basis. Ensure after-hours access is provided (i.e. Knox Box)

Adequate Security Monitoring



FEMA Guide for Houses of Worship



LOSS HISTORY and LESSONS LEARNED

- Dedicated roles and responsibilities ensure individuals remain clear on what duties they have during emergencies or weather-related events. Utility shut-off maps and adequate training on their locations have proven to limit total loss during emergencies.
- Proactive preparedness during impending natural catastrophe events will help limit loss and downtime, with quicker restoration of operations and services. Based on the event, various stages of planning should occur at 96 hours, 72 hours, 48 hours, and 24 hours from impact.
- Insurance Board recorded losses:
 - Church was broken into causing damage to doors which then caused water damage, doors to church were old and susceptible to break in. Total paid \$63,198.95.
 - Parsonage vandalized and items stolen, no surveillance or security systems in place. Total paid \$44,650.61.

BEST PRACTICES

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Fire Protection & Fire Alarm Systems

Fire is one of the greatest risks facing churches, especially since many are historic buildings containing wood construction, stained glass, pipe organs, and irreplaceable art. Modern fire protection systems, alarms, sprinklers, extinguishers, and kitchen suppression provide essential defense. Yet these systems only work if properly installed, inspected, and maintained. Because churches are not staffed 24/7, early detection and reliable suppression are critical to preventing a small fire from becoming a total loss.

COMMON RISK FACTORS

- ❑ Fire Alarms: Systems not monitored, disconnected, or with dead batteries.
- ❑ Sprinklers: Shut valves, frozen piping in unheated areas, or systems not tested regularly.
- ❑ Fire Extinguishers: Expired tags, missing units, or staff unfamiliar with how to use them.
- ❑ Kitchen Suppression: Grease build up, discharged systems not recharged, or lack of inspection after volunteer cooking events.
- ❑ Gaps in Coverage: Heritage churches with no automatic sprinkler protection in sanctuaries, organ lofts, or chapels.

ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ Fire Alarm Systems (NFPA 72: National Fire Alarm and Signaling Code)
 - Ensure alarms are monitored 24/7 by a central station.
 - Test systems monthly to conduct annual inspections by a licensed contractor (NFPA 72 requires functional testing & documentation)
 - Replace backup batteries as required and keep inspection records.
- ❑ Automatic Sprinklers (NFPA 13: Standard for the Installation of Sprinkler Systems & NFPA 25: Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems)
 - Keep all control valves locked, supervised, and accessible (NFPA 25).
 - Protect piping in attics or unheated wings from freezing with insulation or heat tracing.
 - Follow quarterly, annual, and 5-year inspection and testing requirements (NFPA 25).
 - Ensure sprinklers are not obstructed and maintain clearances below deflectors (NFPA13)
- ❑ Fire Extinguishers (NFPA 10: Standard for Portable Fire Extinguishers)
 - Place extinguishers in visible, accessible locations throughout the church, kitchens, and mechanical rooms.
 - Conduct monthly visual inspections (staff/volunteers) and annual professional inspections (NFPA 10).
 - Train staff and volunteers on the PASS technique (Pull, Aim, Squeeze, Sweep)
- ❑ Kitchen Suppression Systems (NFPA 96: Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations)
 - Ensure all commercial kitchen hoods have UL-300-compliant wet chemical suppression systems (per NFPA 96 requirements).
 - Conduct semiannual professional inspections and cleanings of hoods, ducts, and filters.
 - Post instructions and train volunteers on activating the manual pull station.
 - Never operate cooking equipment if suppression is offline or overdue for service.

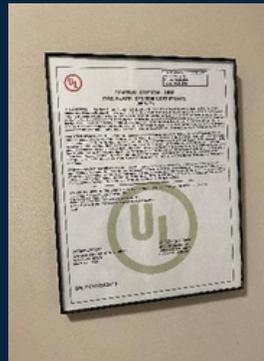
Inadequately Maintained Fire Sprinkler System



Missing Caps on Fire Department Connection



NFPA 72 Compliant Fire Alarm Monitoring



"All Systems Normal" Fire Alarm Panel





EMERGENCY RESPONSE and PROPERTY PROTECTION MEASURES

- If Fire is Detected
 - Evacuate immediately and dial 911. Do not assume alarms or sprinklers alone will control the fire.
 - If safe, use a fire extinguisher on small fires while awaiting the fire department.
- System Activation
 - If sprinklers or suppression systems activate, allow them to run until the fire department shuts them down. Do not close valves prematurely (NFPA 25 guidance).
 - Be aware that most sprinklered fires are controlled by 1-2 sprinkler heads, significantly reducing fire and smoke damage compared to uncontrolled fire spread (NFPA 13 annex).
- Post-Incident
 - Contact contractors to reset alarms, recharge suppression systems, and inspect sprinklers.
 - Document the incident in your church's maintenance/property log and notify insurance.
 - Schedule follow-up inspections and system repairs if deficiencies are found.



LOSS HISTORY and LESSONS LEARNED

- Automatic fire protection system drastically reduces losses.
- Monitoring is essential since churches are vacant most of the time.
- Maintenance lapses (valves shut, frozen pipes, expired extinguishers) lead to failures.
- Kitchens are a top ignition source in churches.
- Training staff and volunteers to use fire extinguishers and pull stations makes a difference in early response.
- U.S. religious properties experience an estimated 3,100 structure fires per year, causing ~\$48 million in direct property damage (NFPA).
- 29% of fires in churches start from cooking equipment, with 21% from heating equipment (NFPA 2017-2021)
- Less than 10% of U.S. churches have sprinklers, yet NFPA data shows sprinklered fires result in 79% less property damages on average.
- Most fires in sprinklered buildings are controlled by 1-2 sprinkler heads (NFPA 13 case data).
- Frozen sprinkler piping in unheated attics and wings is a recurring cause of suppression failure in cold climates. Fire
- extinguishers in churches are frequently found without monthly or annual inspections, contrary to NFPA 10 requirements.
- Insurance Board recorded losses:
 - Sprinklers froze and burst in attic causing major interior water damage. Total paid \$106,565.00.
 - One of the sprinklers of the fire suppressant system malfunctioned. Total paid \$15,000.00.

BEST PRACTICES

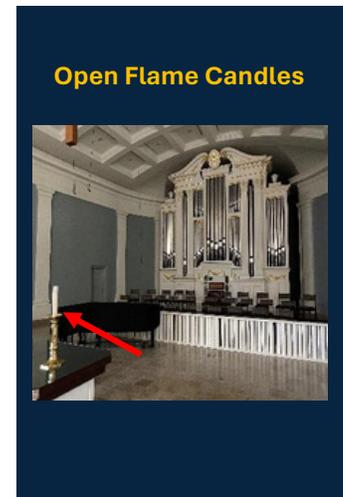
Hot Work

6

Church facilities face heightened risk during hot work (welding, cutting, soldering, roofing, etc.) and open flame activities, such as candle use and incense burning. With combustible pews, historic wood finishes, and often older construction, fires can spread quickly if precautions are not followed.

COMMON RISK FACTORS

- Lack of hot work permits and oversight when contractors or volunteers perform maintenance or repairs.
- Use of candles, incense, and vigil lamps near flammable altar cloths, pews, or decorations.
- Welding, roofing, or grinding work performed without fire-resistant shields in sanctuaries, attics, or basements.
- Inadequate fire watch or extinguishers during events with open flames (Christmas, Easter, weddings).
- Improper storage of candles, oil, and matches in sacristies or storage closets.



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- Implement a formal hot work permit program for all welding, roofing, soldering, and cutting activities.
- Restrict candle use to designated, supervised areas with drop protectors, metal holders, and non-flammable bases.
- Provide fire-resistant shields and relocate combustibles before hot work begins.
- Assign a fire watch with extinguishers for both construction projects and during high-volume services using candles/incense.
- Require contractors to provide proof of insurance, training, and compliance with NFPA 51B.



LOSS HISTORY and LESSONS LEARNED

- On average, hot work results in nearly 4,000 structure fires each year, resulting in ~\$300 million of property damage.
- Of fires involving hot work, 44% occurred in non-home properties. Welding torches accounted for 52% of these fires, and soldering accounted for 9%.
- For non-home properties, the most common area of origin was exterior roof surface (12%).
- The #1 leading factor contributing to ignition was heat sources too close to combustibles and hot work occurring too close to combustible material.
- Insurance Board recorded losses:
 - o Candle left burning after service on Sunday, resulting in a small fire. Total paid \$153,079.00.
 - o Spark from welding torch, causing fire/smoke damage to stained glass window. Total paid \$89,140.00.

BEST PRACTICES

Leak Detection and Monitoring

7

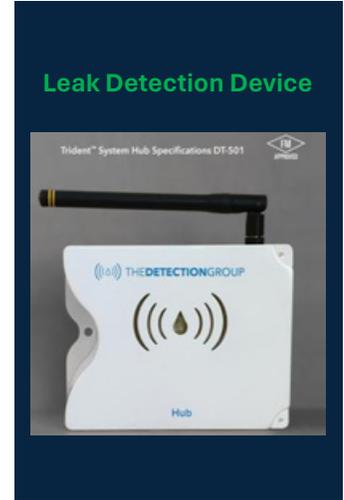
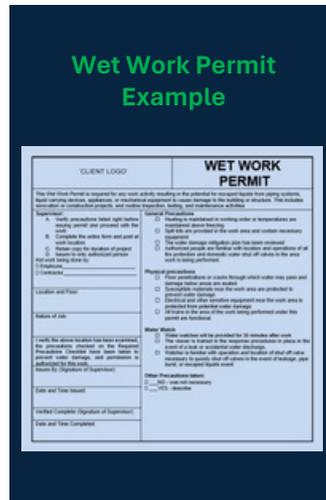
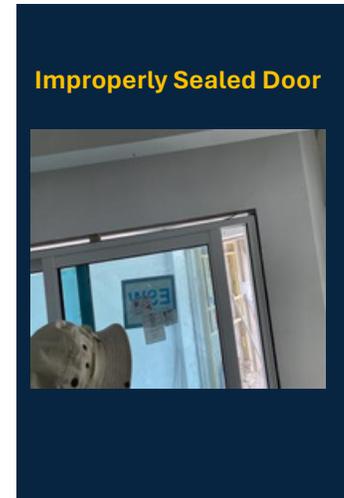
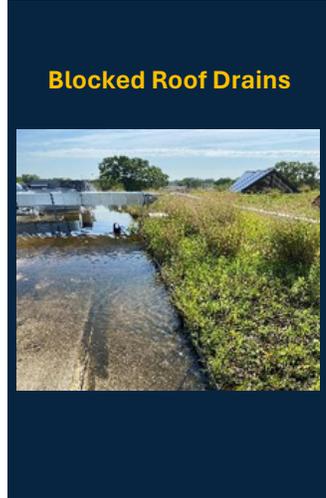
Water damage is one of the most frequent and costly losses in churches, often surpassing fire. Leaks from roofs, plumbing, and HVAC systems can destroy sanctuaries, archives, and pipe organs while forcing long closures.

COMMON RISK FACTORS

- Roof leaks near stained glass, vaulted ceilings, and historic woodwork going undetected until significant damage occurs.
- Frozen pipes in unoccupied wings, chapels, or basements during cold weather events.
- Hidden leaks from restrooms, kitchens, or baptisteries not regularly inspected.
- Sump pump or dehumidifier failures in basements and crawlspaces leading to flooding or mold.
- Lack of monitoring in seldom-used classrooms, parish halls, or rectories.

ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- Install leak detection systems with alarms in mechanical rooms, basements, kitchens, and near pipe organs.
- Implement Wet Work Permits for plumbing or contractor activity.
- Use automatic shut-off valves for domestic and sprinkler systems where appropriate.
- Inspect roofs, gutters, and downspouts regularly to prevent rainwater intrusion.
- Perform weekly walk throughs of underutilized or seasonal spaces, documenting findings.
- Maintain heating in winter months to prevent pipe freezing, even during low occupancy periods.
- Store archives, hymnals, and valuable artifacts on raised shelving or non-porous platforms.



LOSS HISTORY and LESSONS LEARNED

- Water damage represents ~24% of all commercial property claims, making it one of the most frequent and costly categories of property loss.
- Impacts from water damage can extend beyond repair costs:
 - Service interruption: Shuttered service offerings or complete shutdowns.
 - Insurance consequences: Higher premiums, exclusions, or non-renewals.
- Roof drain failures and clogged gutters are cited by FEMA as leading causes of roof collapse and major water intrusion.
- Insurance Board recorded losses:
 - Pipe Frozen burst causing water damage in the church. Total paid \$902,972.
 - Pipes burst, causing water damage in two buildings. Total paid \$2,177,201.27.
 - Sprinklers froze and bust in attic causing major interior water damage. Total paid \$106,565.00.

BEST PRACTICES

Lithium-Ion Battery Equipment, Scooters, Tools & Bikes

8

Lithium-ion batteries power many church items, cordless tools, e-bikes, scooters, and some AV gear. They also present a significant fire risk. If overheated or damaged, a cell can enter thermal runaway, producing intense flames, toxic smoke, and re-ignition even after flames appear out. Most incidents happen while charging indoors, often at night or in unattended rooms. Fires can spread rapidly, ignite nearby combustibles, and overwhelm portable extinguishers. In churches, where charging may occur in maintenance rooms, offices, or storage; one event can cause major property loss, disrupt services, and endanger congregants.



COMMON RISK FACTORS

- ❑ Charging scooters, e-bikes, or tools inside the church without supervision or ventilation.
- ❑ Using non-UL-listed chargers or mismatched cords.
- ❑ Storing multiple batteries together in maintenance rooms, offices, or classrooms.
- ❑ Continuing to use damaged, swollen, or overheating batteries.
- ❑ No fire separation between charging spots and worship/assembly areas.



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ Do not charge large lithium-ion devices (e-bikes, scooters, power tools) inside church facilities. Charge outdoors in a covered, ventilated location, away from exits and combustibles.
- ❑ If indoor charging is truly unavoidable, use a designated, supervised area with smoke detection and no combustibles nearby.
- ❑ Use only manufacturer-approved, UL-listed chargers and equipment.
- ❑ Prohibit overnight charging; unplug after full charge.
- ❑ Store batteries cool, dry, ventilated—never in boiler/mechanical rooms, offices, corridors, or near exits.
- ❑ Inspect routinely for swelling, heat, odor, damage, or frayed cords. Remove questionable units from service.
- ❑ For multiple units, consider fire-resistant charging/storage cabinets.
- ❑ Post clear signage: “No Charging Indoors” or “Approved Charging Area Only.”



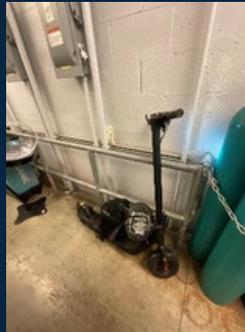
LOSS HISTORY and LESSONS LEARNED

- ❑ Charging indoors is the leading hazard: Most lithium-ion battery fires occur while devices are charging, especially in unattended or overnight conditions.
- ❑ Thermal runaway is difficult to control: Once a battery overheats, flames spread rapidly and can reignite even after suppression.
- ❑ Supervision and location matter: Charging in unsupervised areas, near combustibles, or in multi-use rooms increases property loss risk.
- ❑ Approved equipment is critical: Non-UL-listed chargers, damaged cords, or mismatched power supplies are common causes of ignition.
- ❑ Church environments add risk: Because facilities are not staffed 24/7, fires can grow undetected until alarms activate or neighbor’s notice.
- ❑ Federal Emergency Management Agency’s (FEMA) 2024 Lithium-Ion Battery Safety Bulletin highlights that over 200 fires annually in the U.S. are now linked directly to E-Bikes or E-Scooters, a number doubling year over year since 2020.
- ❑ The NFPA Fire Protection Research Foundation reports that battery-related ignition events across all occupancies have risen nearly 400% since 2017, with mobility devices accounting for the majority of small-scale consumer fires.

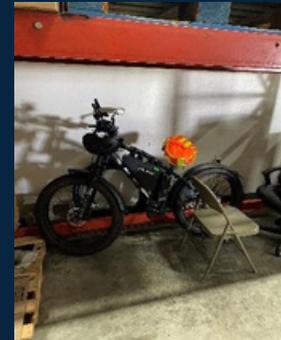
ADDITIONAL RESOURCES

- ❑ <https://www.usfa.fema.gov/prevention/home-fires/prevent-fires/batteries/>
- ❑ <https://www.nfpa.org/events/fire-prevention-week>
- ❑ <https://batteryfiresafety.org/#section-1>

Improper Storage Near Compressed Cylinders



Improper E-Bike Charging and Storage



Adequate Exterior Storage/ Charging



Nationally Recognized Testing Agencies



BEST PRACTICES

Plan Review for Churches and Multi-Building Campus

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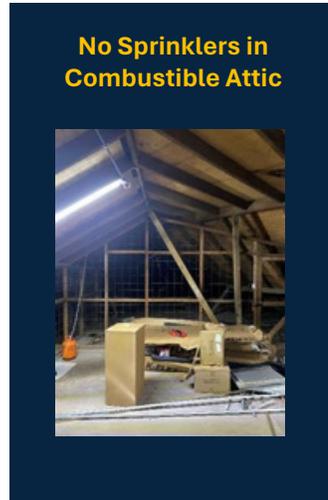
Plan reviews are a critical step in ensuring that new construction, renovations, or system upgrades within church properties meet current fire protection and building code requirements. Churches often have unique layouts, mixed occupancies (assembly, education, offices, and residential), and older or historically significant structures. Conducting a proper plan review before work begins helps identify design flaws, non-compliance with NFPA codes, and potential risks that could lead to costly retrofits.

A comprehensive plan review involves coordination between architects, contractors, and the Authority Having Jurisdiction (AHJ), often including the fire marshal and insurance risk consultant, to evaluate fire suppression, alarm, egress, electrical, and structural plans before construction or installation occurs.

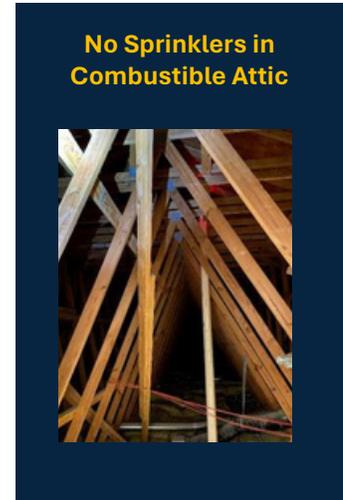


COMMON RISK FACTORS

- ❑ Incomplete documentation: Missing or inconsistent architectural, MEP, or fire protection drawings during submittal often delay review and lead to Omission of fire protection systems- Sprinklers or alarms left out of design drawings or improperly sized due to incorrect hazard classification.
- ❑ Undersized or noncompliant egress-Inadequate exit widths or door swings for large assembly spaces.
- ❑ Electrical and mechanical conflicts-Unreviewed drawings leading to penetration through rated assemblies or unsealed fire barriers.
- ❑ Change orders without review-Field modifications made after approval (e.g., storage mezzanines, lighting changes) that void compliance or sprinkler coverage.
- ❑ Historic or multi-building campuses-Differing code years and system compatibility issues between old and new additions.



No Sprinklers in Combustible Attic



No Sprinklers in Combustible Attic



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ Engage early: Submit design documents to local building and fire officials, as well as your insurance carrier's engineering team, during the schematic or 50% design phase.
- ❑ Cross-disciplinary review: Have architectural, electrical, mechanical, and fire protection plans reviewed together to ensure systems integrate correctly.
- ❑ Follow applicable codes: Ensure compliance with NFPA 13, NFPA 72, NFPA 101, NFPA 70 (NEC), and local building codes.
- ❑ Document approvals: Maintain stamped drawings, submittals, and correspondence from AHJs and consultants for future reference and insurance verification.
- ❑ Conduct field verification: After plan approval, verify that installations (sprinkler heads, alarms, fire barriers, etc.) match approved drawings during construction inspections.
- ❑ Re-review for renovations: Treat any remodel, expansion, or major system change as requiring a new plan review.



Marsh Plan Review Letter



Applicable Code References



LOSS HISTORY and LESSONS LEARNED

- ❑ Post-construction deficiencies: Many loss investigations reveal issues that could have been prevented through plan review, such as unprotected concealed spaces or unmonitored alarm zones.
- ❑ Delayed occupancy permits: Churches have faced project delays and additional costs when missing plan reviews required by the AHJ.
- ❑ Insurance claims: Several insurers report higher fire and water damage losses in facilities that skipped plan reviews or deviated from approved drawings.
- ❑ Historic church incidents: Fires in heritage sanctuaries have been worsened by incompatible system retrofits, e.g., outdated wiring not caught during renovation design.
- ❑ Key lesson: Early, documented plan reviews reduce rework, minimize hazards, and protect both the congregation and the church's financial investment.
- ❑ Large loss: Fires in unsprinklered, combustibile attics often result in total losses.

BEST PRACTICES

Solar Panel Installation & Maintenance

10

Many churches are adopting solar energy to reduce utility costs and demonstrate environmental stewardship. While solar systems can be highly beneficial, improper design, installation, or maintenance can introduce fire, electrical, and water-damage risks. Ensuring compliance with national standards, maintaining roof integrity, and planning for first responder access are key steps to safe, reliable installations.



COMMON RISK FACTORS

- ❑ Improper roof penetration leads to water intrusion and hidden leaks.
- ❑ Overloaded or incompatible electrical connections to existing service.
- ❑ Panels are not installed with sufficient clearance, leading to overheating or trapped debris.
- ❑ Fire risk from poorly installed or damaged inverters, combiner boxes, or wiring.
- ❑ Lack of coordination with local fire service for roof access and disconnect labeling.
- ❑ Hail, wind uplift, or debris impact damaging panels in storm-prone areas.



ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ Use certified installers familiar with NFPA 70 (NEC) Article 690 and UL 1703/1741 listed equipment.
- ❑ Provide clear labeling of disconnect switches and inverter shutoff's for first responders.
- ❑ Maintain at least 3 feet of clearance pathways on roofs for firefighter access per NFPA 1 / IFC.
- ❑ Perform annual infrared scans on inverters and electrical connections to detect hotspots.
- ❑ Inspect roof penetrations yearly to ensure flashing and seals remain watertight.
- ❑ Install monitoring systems to detect faults, ground issues, or reduced performance.
- ❑ Ensure racking systems are rated for local wind/snow loads and regularly inspected.



LOSS HISTORY and LESSONS LEARNED

- ❑ Insurance data shows that solar electrical failures and roof leaks are among the top drivers of post-installation claims in houses of worship.
- ❑ Fires have been traced to inverter cabinets where connections loosen over time without maintenance.
- ❑ Storm events have dislodged panels, causing secondary roof leaks and water damage when systems were not properly anchored.

Inadequately Secured in Storm-Prone Region



Exposed Wiring Susceptible to Damage



Adequate Inverters & Disconnect Labeling



Adequate Firefighter Access along the Array



BEST PRACTICES

Valuable Property & Heritage Protection

11

Churches often contain items of great cultural, artistic, and historic significance, stained glass windows, pipe organs, religious artwork, sculptures, memorials, and archives. Unlike standard building materials, these items are often irreplaceable and have deep meaning for the congregation and wider community. Losses from fire, water, vandalism, or theft can be devastating, not only financially but spiritually. Proactive steps in fire prevention, security, environmental control, and documentation are critical to safeguarding these treasures for future generations.



COMMON RISK FACTORS

- ❑ Fire Damage: Heat, smoke, and water from firefighting can irreparably harm artwork, wood carvings, and organs.
- ❑ Water Intrusion: Roof leaks, plumbing failures, or flooding can stain, warp, or destroy fragile items.
- ❑ Vandalism and Theft: Valuable metals, art, and religious artifacts are prime targets.
- ❑ Environmental Deterioration: Humidity, temperature swings, dust, and pests can damage wood, fabrics, and paintings.
- ❑ Structural Hazards: Falling masonry or glass breakage during storms can impact heritage features.

Historic Construction Susceptible to Damage



Construction Features Susceptible to Damage



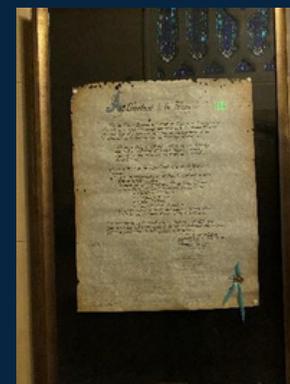
ROUTINE BEST PRACTICES and APPLICABLE GUIDANCE from NFPA

- ❑ If Fire or Water Damage Occurs
 - Evacuate safely and call 911 immediately.
 - Do not attempt to remove fragile artwork or stained glass during the emergency.
 - After the event, secure the site to prevent theft or further damage.
- ❑ Stabilization & Recovery
 - Contact professional conservators for guidance on drying or stabilizing art, textiles, or wood.
 - Use tarps, plastic sheeting, or dehumidifiers to protect items until specialists arrive.
- ❑ Coordination with Experts
 - Keep a call list of local conservators, stained glass restorers, and organ repair specialists.
 - Work with insurance and risk management providers to arrange recovery and restoration quickly.
- ❑ Post-Incident Documentation
 - Record all damage with photos and written notes.
- ❑ Update inventories and property logs after any loss or restoration.

Adequately Protected Art/ Valuables



Adequately Protected Document





EMERGENCY RESPONSE and PROPERTY PROTECTION MEASURES

- Fire Protection
 - Ensure fire detection and sprinkler systems cover heritage areas; where sprinklers aren't possible, consider alternative protection like clean agent suppression for archives.
 - Keep extinguishers accessible and train staff/volunteers in safe use.
- Water & Weather Protection
 - Inspect roofs, gutters, and downspouts regularly to prevent leaks.
 - Store archives, books, or textiles in raised cabinets or shelving above floor level.
 - Use storm shutters or protective glazing for stained glass windows where feasible.
- Security Measures
 - Install monitored alarms and cameras focused on entryways and heritage assets.
 - Keep doors and display cases locked when not in use.
 - Limit access to storage areas where sacred or valuable items are kept.
- Environmental Care
 - Maintain steady temperature and humidity in organ lofts, libraries, and chapels.
 - Clean stained glass, wood carvings, and artwork using only approved methods.
 - Schedule professional inspections of pipe organs and stained-glass panels.
- Documentation & Insurance
 - Create a detailed inventory of all valuable property, including photographs and appraisals.
 - Store copies of records off-site or digitally in secure formats.
 - Review insurance coverage specifically for fine arts, stained glass, and heritage property.



LOSS HISTORY and LESSONS LEARNED

- Heritage assets (stained glass, pipe organs, murals) are irreplaceable; prevention is the only safeguard.
- Water can be as damaging as fire, roof leaks, bursting pipes, and suppression water often destroy valuable property.
- Specialized recovery (conservators, stained glass restorers, organ experts) is required post-loss.
- Insurance covers costs but cannot restore cultural or spiritual value.
- NFPA reports that fire incidents in religious properties disproportionately damage interior wood finishes, stained glass, and decorative art, even when the fire is contained.
- Water damage from roof leaks and frozen pipes is a leading non-fire cause of organ and stained-glass loss.
- Vandalism and theft remain a concern; metal theft (copper roofing, gutters, bells) has caused both direct losses and secondary damage from water intrusion.
- Case reviews show many “heritage losses” are partial damage events (smoke, water, vandalism) rather than full fire destruction, but still result in six-figure restoration costs.
- NFPA emphasizes the importance of documenting and inventorying valuable property for both insurance and recovery planning.

Maintenance Intervals

Code & Standard-Inspection Frequencies

12

1. Building Maintenance

Item to Inspect	Frequency	Standard/ Guidance
Roofs, flashing, gutters, drains	Semi-annual +before/after major storms	FEMA 543/551 & NFPA 1
Exterior walls, windows, doors	Annual	FEMA 543
Sump pumps, boilers, HVAC	Annual or Local Fire Code	NFPA 70B & NFPA 1
Electrical panels (clearance 36")	Ongoing + quarterly review	NFPA 70 (NEC)
Pest control/ moisture management	Quarterly	FEMA 551
Documentation of inspections	Continuous	FEMA 551

2. Commercial Cooking Equipment

Item to Inspect	Frequency	Standard/ Guidance
Hoods, ducts, and filters	Quarterly or per cooking volume	NFPA 96
Hood suppression systems	Semiannual	NFPA 17A & NFPA 96
Gas hose connections (metal braided)	Annual	NFPA 96
Baffles and spacing between fryers/grills	Ongoing	NFPA 96
Manual pull stations / fire signage	Semiannual	NFPA 96
Cleaning and maintenance logs	Ongoing	NFPA 1 & NFPA 96

3. Electrical Preventive Maintenance

Item to Inspect	Frequency	Standard/ Guidance
Electrical panels / switchgear clearance	Continuous	NFPA 70
Infrared (IR) thermography scans	Annual	NFPA 70B
Wiring, grounding, and labeling	Annual	NFPA 70B
Extension cords / temporary wiring	Monthly	NFPA 70
Backup power systems (generators, UPS)	Annual	NFPA 110
Electrical rooms (housekeeping, signage)	Monthly	NFPA 70B

4. Emergency Response Procedures

Item to Inspect	Frequency	Standard/ Guidance
Emergency contact lists	Quarterly	NFPA 1600
Evacuation routes and signage	Annual	NFPA 101
Fire extinguisher / alarm training	Annual	NFPA 10 & NFPA 72
Drills and response testing	Semiannual	NFPA 1600 & NFPA 1660
Communication systems (PA, radios)	Monthly test	NFPA 72
Documentation and post-incident review	After each drill or event	FEMA 551

5. Fire Protection & Fire Alarm Systems

Item to Inspect	Frequency	Standard/ Guidance
Fire alarm system monitoring	24/7, test monthly	NFPA 72
Alarm panel functionality	Monthly	NFPA 72
Sprinkler valves, heads, gauges	Quarterly/ Annual/ Five-Year	NFPA 25 & NFPA 13
Fire extinguishers	Monthly visual/ Annual inspection	NFPA 10
Kitchen suppression systems	Semiannual	NFPA 96
System documentation and tags	Ongoing	NFPA 25 & NFPA 72

6. Hot Work

Item to Inspect	Frequency	Standard/ Guidance
Hot work permits	Each activity	NFPA 51B
Fire watch during/ after work	One Hour/ Three hours	NFPA 51B
Fire extinguisher availability	Each hot work area	NFPA 10
Combustible clearance zones	Before each job	NFPA 51B
Permit log and training	Annual	NFPA 51B

7. Leak Detection & Monitoring

Item to Inspect	Frequency	Standard/ Guidance
Water detection sensors	Monthly visual + annual test	FEMA 551
Mechanical room drains and valves	Quarterly	NFPA 25
Pipe insulation / freeze protection	Pre-winter	FEMA 543
Data monitoring system calibration	Annual	Manufacturer & FM DS 4-8
Documentation of alerts and responses	Ongoing	FEMA 551

8. Lithium-Ion Battery Equipment, Scooters, Tools, & E-Bikes

Item to Inspect	Frequency	Standard/ Guidance
Battery charging areas (ventilation, clearance)	Monthly	NFPA 855 & FM DS 5-33 & UL 2272/ 2849
Chargers and cords	Before each use	NFPA 70
Storage of batteries (temperature, containment)	Weekly	NFPA 855
Damaged or swollen batteries	Immediately remove	NFPA 855
Signage and training	Annual	NFPA 855 & FEMA 551

9. Plan Review

Item to Inspect	Frequency	Standard/ Guidance
Design drawings / code compliance	At each new or modified project	NFPA 1 & NFPA 101, NFPA 241
Fire protection and egress review	Before occupancy	NFPA 13 & NFPA 101
Flood or wind design verification	Each major project	FEMA 543/ 551
Documentation / permit archive	Continuous	Local AHJ & NFPA 241
Contractor certification validation	Each submittal	NFPA 1 & FM DS 1-43

10. Solar Panel Installation & Maintenance

Item to Inspect	Frequency	Standard/ Guidance
Inverters and connections (IR scan)	Annual	NFPA 70B & NFPA 1
Roof penetrations / flashing	Annual	FEMA 543
Monitoring systems and fault alarms	Ongoing	NFPA 70
Racking / structural attachments	Annual + post-storm	NFPA 70 & IBC
Firefighter access pathways (3 ft)	Ongoing	NFPA 1 & IFC

11. Valuable Property & Heritage Protection

Item to Inspect	Frequency	Standard/ Guidance
Inventory and documentation (photos, valuations)	Annual + after acquisition	NFPA 909 & FEMA 551
Environmental controls (humidity, temp)	Monthly	NFPA 909
Fire protection of artifacts	Annual	NFPA 909 & NFPA 232
Physical security (locks, cameras, alarms)	Quarterly	NFPA 730
Emergency recovery plan for art / archives	Annual drill	FEMA 551 & NFPA 909

CONCLUSION

The Best Practices for Property Protection & Loss Prevention represents a unified approach to preserving the long-term integrity and mission continuity of church properties. Drawing from NFPA, FEMA, and industry guidance, this document translates technical standards and real-world experience into practical measures that support operational reliability, asset preservation, and responsible facility management.

Across all 12 sections, from maintenance and electrical systems to plan review, heritage protection, and emerging technologies, the emphasis remains on preparedness, documentation, and disciplined facility oversight. These practices not only reduce the likelihood of costly disruptions and property loss but also strengthen organizational resilience and stewardship of valuable structures and contents.

Ultimately, this guide reinforces a proactive philosophy: to anticipate challenges before they impact ministry operations. By implementing these principles consistently and engaging qualified partners where needed, faith-based organizations can protect their facilities, sustain continuity, and preserve their heritage for future generations.



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