



# Church safety solutions

April 2007

## Special points of interest

- Learn how to avoid costly roof repairs
- Conducting a roof inspection
- Lessons of loss—learn how a Florida church survived a hurricane

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**Next month!**  
Learn how to protect volunteers during work camps and church projects

## Peeling the layers off roof damage

Roofs provide churches the physical cover that support their ministry. Unfortunately, roofs are often out of sight and, as such, out of mind.

In this publication, we will discuss how to identify problems relating to deteriorating roofs and a few steps that church administration or business committee members can take to protect an important physical asset.

It is always advisable that only qualified personnel be allowed on the roof of any church property, including the chapels,

*(Continued on page 2)*



Workers help clean up at the Elba United Methodist Church. FEMA Photo date: 3/9/1998 ID:9351

## Keep your roof healthy

Churches are encouraged to hire a licensed and insured roofing contractor to complete a bi-annual roof inspection and conduct routine maintenance. In this case, an ounce of prevention can go a long way.

A bi-annual roof inspection and routine care will prolong the life of the roof and help ensure the structure can better survive a severe storm or wind gust. Using volunteers to complete these tasks may seem like an economical way to accomplish this important task, but church leadership should consider alternatives to placing unqualified workers in harms way.

Before hiring a licensed contractor, evaluate their performance with the Better Business Bureau at <http://www.bbb.org>. Look for length of experience and any claims of alleged delay in completing service, failure to provide promised service, inferior quality of provided service or damages incurred because of delivery service.

### At a glance...

The roof inspector should look at the entire roof, looking for loose or missing flashing, missing shingles, large areas of discoloration

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## Peeling the layers off roof damages *(continued)*

Christian education centers, fellowship halls and any other church-owned or leased property. If properties are leased, check with the landlord or review the lease agreement to determine who has responsibility for maintenance of the property. Regardless of responsibility, church leaders (administration, board of elders, board of trustees and pastors) should be aware that roof damage could potentially make the property unsafe for occupancy and limit their ability to provide worship services and/or Christian education services.

In 2005, Zurich church insured's lost over \$4.6 million in damages to roof structures. The most frequently occurring causes of roof damage relate to wind and water damage resulting from poor roof condition. The single largest cause of loss to churches insured by Zurich over the last five years has been roof damages and subsequent water leaking into the building. While there are many types of roofing materials and inherent problems with each, we will review a few common problems that can be remedied. When roof structures are compromised, churches can incur additional environmental concerns, such as mold growth.

### Characteristics of roof damage – what does it look like?

**Alligatoring** is the deterioration of the roofing surface due to age. The roofing surface loses its elasticity and begins to look like cracked leather. A licensed and insured contractor should repair this type of roof



The roofing surface loses its elasticity and begins to look like cracked leather.

damage as quickly as possible, because it is likely the surface of the roof will no longer keep water off the under-layment and begin to rot the roof deck and joists.

**Blistering** is a problem caused by water seeping into a layer of the roofing material and has the appearance of a bubble or blister.

**Chalking** is a condition that leaves a powdery surface on the roofing material similar to chalk dust. It is the result of a dirty roof and oxidation of the roofing material. Cleaning the roof surface will remove the powdery substance and dirt that can degrade the roofing material. However, in extreme cases this may indicate the roofing material has outlived its ability to keep water out and requires replacement.

**Pooling**, also known as ponding, is the collection of water in low areas on the roof structure. Water will find its natural low point.

## Peeling the layers off roof damages *(continued)*

Roof drains are intended to allow water to flow off the roof. If a roof exhibits pooling problems it may simply mean a roof drain is clogged with leaves or trash. In one roof damage claim, wedding streamers were the culprit. In extreme cases, it could mean the roof support joists are sagging due to water damage. In either case, the roof should be inspected by a qualified contractor before a leak develops.

**Fishmouthing** is a problem that occurs when roofing felt edges become water soaked or will no longer stick to the rest of the roof.

The damage leaves a rippling appearance similar to the open mouth of a fish.

A totally degraded roof structure exhibits signs of massive deterioration and may exhibit one or all of the problems mentioned earlier.

Other common areas of concern result from flashing being damaged or torn away. When roof flashing becomes damaged, it will permit water to leak under the roofing material.



When roof flashing becomes damaged, it will permit water to leak under the roofing material.

## Keep your roof healthy *(continued)*

or sunken areas in the middle of the roof. Discoloration could signal an algae problem and a sagging, sunken roof could mean rotting plywood or roof joists below.

The contractor should clean all the debris from the roof, gutters and roof drains, being careful not to damage the shingles. Debris not only holds water, but can also clog roof drains, which can deteriorate the roof. Debris should be carefully swept off asphalt shingle roofs. The small sanded granules on asphalt shingles can come off very easily. Knocking these will shorten the life of the roof.

Shingle keyways (spaces between shingles) should be inspected for signs of deterioration



“When roof structures are compromised, churches can incur additional environmental concerns such as mold growth.”

or collection of debris, dirt or even mold. Installation of shingles should never have overlapping keyways that could allow water to seep through to the felt or plywood deck.

## Attachment of rooftop equipment

Rooftop equipment can become detached during high winds. Water can then enter the building at the openings left by the displaced equipment. The displaced equipment can then blow around the roof structure and can puncture and tear roof coverings, allowing additional damage to occur from water leaking into the building, further impacting a church's ability to further their ministry.

Equipment blown off a roof can damage buildings and injure people. Protective vents may also allow water to damage air conditioning condensers and fans to the extent they may no longer provide service to the building.

A licensed roofing contractor can provide advice about how to secure rooftop equipment so costly damages can be avoided.

If you aren't sure whether your church is at risk from high winds, check with your local building official, city engineer or planning and zoning administrator. They can tell you whether you are in an area where these high-wind events occur. In addition, they can usually tell you how to protect your business from high winds.



Several of the equipment screen panels were blown away. Loose panels can break glazing and puncture roof membranes.



## Special supplement – roof maintenance checklist

Use the following checklist to ensure your roof is maintained. It is highly recommended churches use a licensed roofing contractor rather than a volunteer or church staff member to conduct the inspection.

- ☐ Are there any missing or damaged roof shingles?
- ☐ Roof flashing is the number one source of leaks and related damages. Is all flashing securely attached and seams caulked to prevent water seepage?
- ☐ Does the roof have any curled or rippled shingles?
- ☐ Is rooftop equipment mounted properly, i.e., vents, HVAC equipment, steeples secured to the roof with tie downs to prevent lifting from wind?
- ☐ Is the roof excessively soiled?
- ☐ Are there signs of algae growth on any component of the roof or drains?
- ☐ Are gutters clean of debris such as leaves, branches and trash so run-off water from the roof can flow to the ground?
- ☐ Does the roof have any sunken areas, standing water or evidence of pooling?
- ☐ Does the roof excessively flex while walking across the surface?
- ☐ Are there any interior signs of water damage on ceilings? Water-stained ceilings or ceiling tiles?

Note deficiencies and steps to be taken to correct problem areas:



# Lessons of loss

The following information is provided from claims arising out of damages sustained to church roofs.

## The damages

Church building interior - After sustaining wind damage to a church roof, water penetrated the building, which resulted in staining of a wooden ceiling in the sanctuary. The water and wind damage caused a loss of over \$25,000 and the inability of the pastor to hold services in the church facility while repairs were being performed.

The best of intentions can sometimes go awry. During a work project, sponsored by the church business committee, church volunteers began re-roofing the main building of the church. Well into the project a sudden storm blew through the area. The church parishioners tried to protect the building with plastic tarps; however, the winds proved to be too strong for the workers. Strong winds blew the tarps off the roof and allowed heavy rains to enter through a 12-foot hole, causing water damage to the ceiling, carpeted floor and pews. The resulting damages cost more than \$22,000.

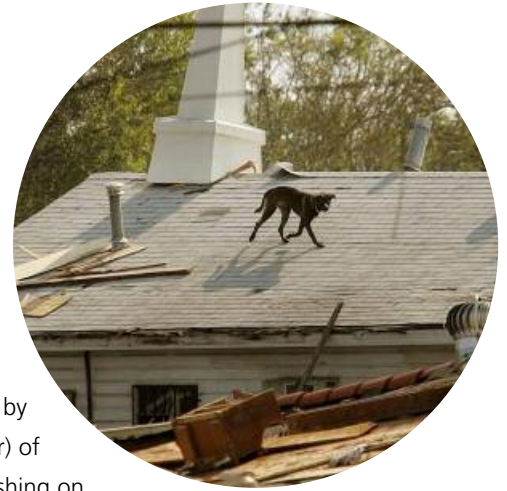
During a damage inspection with a church trustee, a leak was discovered in the ceiling of the sanctuary office and the administrative office building. A large wind and hailstorm blew through the area of which no specific date could be determined. Following the storm, an inspection of the roof over the sanctuary and offices revealed no storm-related damages. There was also no damage to metal vent caps or turbine vents. There was no hail damage to AC screens or metal edges on either roof. As such, no damages occurred because of the

hailstorm. The damage inspection revealed the damages were caused by deterioration (normal wear and tear) of the caulking applied to the step flashing on the brick veneer between the church sanctuary. Because the caulking applied to the flashing was cracked, it allowed water to leak into the interior of the building.

## The solutions

Beyond the recommendations previously stated in this newsletter, a few additional steps and preventive measures will protect the life of a roof structure.

- Church buildings should have their roofs inspected at least twice a year to ensure the structure will withstand exposure to rain.
- Roof inspections should also be conducted following severe windstorms to ensure shingles, flashing and roof top equipment is intact.
- Funds should be set aside by the church administration/business committee to ensure roof maintenance and minor repairs are conducted as they become necessary. Minor preventive maintenance can prolong the life of a church roof and prevent more costly repairs.
- Beyond actually observing water in the building, look for signs of water damage within the interior of the building following a storm, such as stained ceilings, blistering plaster walls and the odor of mold.
- Don't forget to look at roof flashing during roof inspections. Damage to roof flashing is one of the most common forms of damage, permitting water to leak under the roofing material.



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