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Bridging Fire Protection Design and Insurance Risk Management for Nonprofits



Meeting code requirements is not enough. For nonprofits with valuable assets, engaging your insurance carrier during the design phase can save money, reduce risk and protect irreplaceable collections.

Imagine a heritage museum installs a state-of-the-art storage system to increase capacity, only to discover after construction that it requires additional fire protection not included in the original design.

The result: costly retrofits, delayed occupancy and the risk of not getting insurance.

Scenarios like this arise when an occupancy change alters the required protection. As an example, adding a storage system increases combustible loading, triggering higher sprinkler design criteria under both code and insurance. A system that once met code may now need upgrades to meet both.

For nonprofits managing valuable properties or irreplaceable assets, this difference can create unexpected costs and significant risk. "Bringing your carrier into the design process early aligns compliance and insurability before the design or protection features become difficult or expensive to revise," says Deborah Freeland, Area SVP and Senior Property Risk Engineer, Gallagher.

Key insights

- Early carrier involvement prevents costly redesigns.
- Design to minimum code requirements may not offer full property protection.
- Understanding how insurers assess potential loss supports stronger design decisions.
- Factors such as building use, construction and hazards need to be considered during design to help meet property protection standards.
- Having a full emergency response and business contingency plan can facilitate recovery after a loss.





Understanding the gaps: Important points to note

Many nonprofits assume a contractor or code consultant's design will automatically satisfy the insurance carrier. In practice, contractors often design to minimum standards and lowest cost unless directed otherwise. While this approach may meet code requirements, it may not provide the needed level of protection for buildings and their contents. Therefore, ensuring adequate protection systems, fire-rated construction and appropriate environmental controls is essential.

Code compliance vs insurability

Codes are designed to protect people. They establish the minimum life safety standard a jurisdiction considers acceptable. Property protection, however, requires a different lens.

As Freeland notes, "Insurers evaluate how a fire could damage the nonprofit's facility, spread within the building, damage property and equipment, or impact operations. Their perspective centers not only on how people exit safely, but on what remains afterward."

This risk-based approach considers occupancy configuration, potential fire spread, susceptibility of contents to damage, storage layouts and potential future use of the space — factors rarely covered in a code review. A fully compliant design can still leave an organization facing increased exposure, higher premiums or difficulty obtaining coverage.

Codes are just one of the many tools used. Insurers also reference non-adopted or international standards, carrier engineering guidelines and data from testing and research organizations. Incorporating these sources grounds design choices in real-world fire behavior, suppression performance and loss experience.

Modern features that complicate insurability

While some technologies and building materials increase efficiency and sustainability, they raise fire risk from an insurance perspective. Examples include:

- Roof-mounted solar panels increase fire risk to the unprotected roof structure and, therefore, to the building itself.
- Lithium-ion battery energy storage systems introduce the risk of [thermal runaway](#) and require specialized compartmentation, detection, ventilation and suppression.
- Plastics and foam insulation accelerate fire spread, smoke and heat release.
- High-density or automated storage systems result in high combustible loading and blocked flue spaces that call for enhanced protection beyond code minimums.

"Without early carrier involvement, these features often lead to redesigns, expensive retrofits or reduced insurability once the project is complete," adds Freeland.

Loss scenarios: What you need to know

Property insurers use loss scenario modeling to evaluate how a fire could affect a building and its contents. Although terminology varies by carrier, two key concepts shape underwriting decisions, pricing and coverage availability:

Normal loss expectancy (NLE) represents the expected loss under normal conditions, assuming all protective systems function as intended. This calculation considers sprinkler performance, detection systems and typical fire department response. It helps insurers assess financial exposure and set deductible limits. NLE considers mitigating factors and measures in place to minimize risk.

Probable maximum loss (PML) estimates the worst-case loss an insurer might face under a property insurance policy. This might happen when a key fire protection element is impaired and the fire department's response is delayed. Examples include:

- Loss of firefighting water supply
- A system taken offline for maintenance
- Fire spreading between closely spaced buildings
- A design feature or occupancy condition that accelerates fire growth

PML helps insurers understand how significant a loss could be under unfavorable yet realistic conditions. These assumptions influence risk appetite, reinsurance needs and insurability.

When evaluating NLE and PML, underwriters assess the organization's risk profile and financial exposure. Three questions guide that evaluation:

- 1** How much capital can the carrier place at risk?
- 2** What level of reinsurance is required?
- 3** What pricing structure supports the potential loss?



Involving the carrier early helps ensure your protection systems are designed to achieve the desired level of protection and reduction in loss exposure.

— **Deborah Freeland**

Area SVP and Senior Property Risk
Engineer Gallagher



From museums to churches: Why different designs require different approaches

Specific environments and materials demand tailored fire protection approaches. Start by understanding the building construction, what the structure will contain and how each element reacts to heat, smoke and suppression agents.

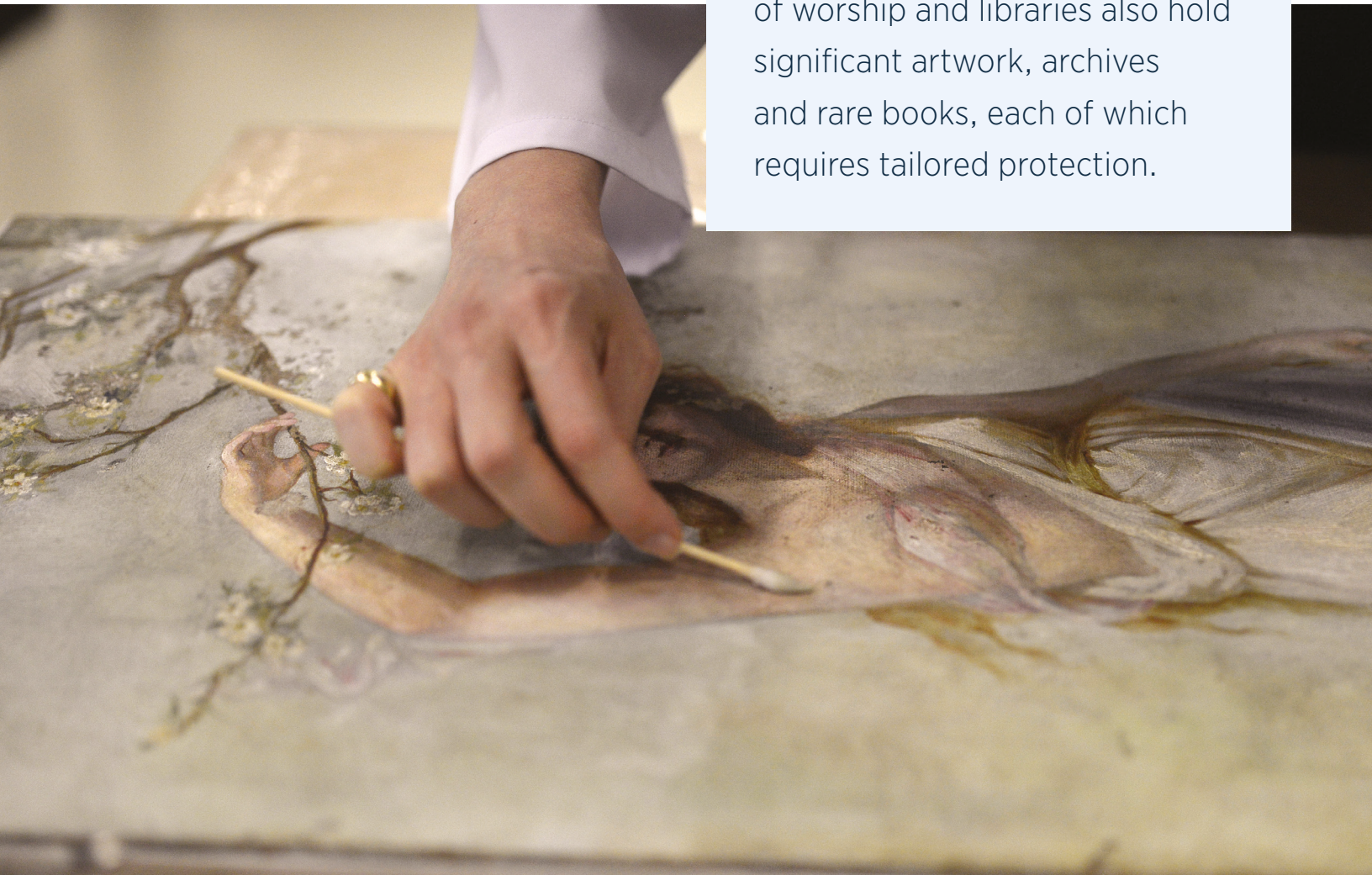
As an example, for museums or artwork special consideration may be needed for the following:

Key considerations

- Assess the unique vulnerabilities of different types of artwork (e.g., paintings, sculptures, textiles and photographs) to fire and suppression methods.
- Water-sensitive materials like watercolors and photographs require protection strategies that limit moisture, whereas oil paintings may tolerate different methods.
- Textiles and natural history specimens often require specialized detection and environmental controls to address how these materials burn or degrade.

- Certain fire extinguishing agents can chemically break down during a fire and damage surfaces like glass, metal or marble.
- Other agents may adversely impact the environment or affect temperature and humidity.
- Wet collections stored in ethanol or other flammable liquids require distinct containment, ventilation and fire protection measures due to their unique ignition and burn characteristics.

Historic structures add another layer of complexity. Protecting the historic fabric — the irreplaceable architectural elements — is essential. Many office buildings, churches, places of worship and libraries also hold significant artwork, archives and rare books, each of which requires tailored protection.





Gallagher's recommendations: Helping protect your key operations

Across diverse nonprofit environments, the following steps can consistently strengthen your protection and insurability:

- Bring the carrier and broker into the project early so expectations are integrated before specifications are finalized.
- Proactively develop emergency response plans that prioritize the protection and recovery of high-value or irreplaceable items.
- Educate staff on the fire risks associated with modern materials and technologies used in storage and display — such as LED lighting, automated storage systems and climate control systems. Explore fire suppression systems that minimize damage to sensitive materials, such as waterless systems (e.g., inert gas or clean agent systems) for water-sensitive materials or artworks.
- Emphasize the importance of maintaining up-to-date valuations and detailed documentation of historic building components, fine art collections or other valuables to ensure adequate insurance coverage and faster claims processing.
- Identify the institution's highest value items and tailor protection accordingly.
- Clarify what you want to preserve after a fire. This vision helps guide design choices.
- Include the desired protection level in the initial specifications to avoid late-stage change orders.
- Consider future uses of space, as protection needs differ for display, storage and public assembly.
- Evaluate where items are stored, including off-site facilities. These spaces often contain more value yet receive less design attention.
- Define layout and occupancy patterns to align protection with real operational risk.
- Maintain emergency planning for the property as well as the safety of individuals. Assign responsibilities, identify priority items and coordinate with the fire department.

Effective fire protection design begins with understanding what is most at risk, how the organization balances cost with protection goals and what the institution wants most to save. Allowing these priorities to shape design before specifications are finalized supports both a resilient protection strategy and long-term insurability.

With deep technical risk engineering experience, Gallagher helps nonprofits ensure their fire protection strategies meet property insurance requirements and support continuity of business operations.



Nonprofit Insurance and Consulting



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