

RISK REDUCTION REVIEW

EXPERT PERSPECTIVES IN FIRE SAFETY

NO. 12

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ISSUE NO 12



FIRE
PROTECTION
SYSTEMS

LITHIUM ION
BATTERIES

CRR/FIRE
SAFETY

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HISTORICAL FIRES

Welcome to the Risk Reduction Review

Welcome to the December 2024 edition of the Risk Reduction Review, where we explore critical advancements and reflections in fire and building safety. This month's newsletter includes insightful discussions, timely case studies, and actionable strategies tailored for building and fire safety professionals.



Inside this issue:

- **Lithium-Ion Battery Fires:** Explore key incidents, emerging risks, and essential safety measures to address hazards in residential, commercial, and public spaces.
- **Construction Site Fires:** Insights from 16 reported cases in December, highlighting vulnerabilities and prevention strategies for residential and industrial projects.
- **Fire Sprinkler Saves:** A detailed look at 46 incidents where sprinkler systems protected lives and minimized property damage.
- **Historical Fire Tragedies:** Lessons from the Winecoff Hotel fire of 1946 and the Our Lady of the Angels School fire of 1958, and their lasting impact on fire safety standards.
- **Podcast Spotlight:** An engaging discussion with Michael O'Brian on leadership in community risk reduction and the evolving role of fire safety professionals.

For a deeper dive into the discussions and case studies featured in this edition, please refer to the detailed articles provided. Follow our journey at the <https://www.riskreductionreview.com/> and on [LinkedIn](#).

Navigating Fire Safety in a Battery-Powered World

Fire Chief of the Brighton Area Fire Authority

Michael O'Brian

ICC REGION I RADIO



In the latest episode of ICC Region I Radio, I sat down with [Chief Michael O'Brian, Fire Chief of the Brighton Area Fire Authority and Director of Fire and Life Safety](#) for the International Association of Fire Chiefs. Together, we discussed pressing topics like lithium-ion battery safety, evolving building codes, and the critical role of Community Risk Reduction (CRR) in keeping communities safe. These discussions shed light on the challenges and opportunities shaping the future of fire safety.

Understanding the Risks of Lithium-Ion Batteries

Lithium-ion batteries power much of our modern world, from smartphones to electric vehicles.

But as Chief O'Brian points out, these powerful devices come with risks like thermal runaway, catastrophic failures, and improper disposal. Managing these hazards requires a comprehensive approach:

- **Educating the Public:** Communities need guidance on safe battery use, proper disposal, and recognizing counterfeit products.



- **Advancing Codes:** Updates in the 2024 International Fire and Building Codes address safety measures for battery storage and recycling.
- **Training Firefighters:** First responders must be equipped with the knowledge and tools to handle battery-related incidents effectively.

Chief O'Brian emphasizes that preparation, proper gear, and collaboration between departments are essential for tackling these challenges head-on.

Advancing Fire Codes for Today's Challenges

Building codes are evolving to meet the demands of our rapidly changing world. The 2024 updates include significant changes aimed at addressing battery safety. These advancements focus on:

- Improved sprinkler and alarm systems for battery storage.
- Emergency response plans tailored to battery hazards.

Chief O'Brian highlights how engaging in the consensus-driven code development process is key to creating practical, equitable solutions.

Collaborating for Community Risk Reduction

Community Risk Reduction (CRR) is more than a buzzword—it's a game-changer in public safety. The upcoming 2025 International Association of Fire Chiefs CRR Leadership Conference will bring together professionals from across the globe to share strategies and solutions. Attendees can expect to:

- Identify risks unique to their communities.
- Use data-driven approaches for targeted interventions.
- Build partnerships that enhance safety on every level.

Chief O'Brian encourages departments to use CRR as a tool to unite stakeholders and proactively address emerging risks like battery-related hazards.

Ready to dive deeper? Listen to the full episode of ICC Region I Radio. Search for "ICC Region I Radio" on your favorite podcast platform or access the episode directly here.

Listen Now on [Apple Podcast](#), [Spotify](#), or [iHeart Radio](#)
Watch on [YouTube](#).



December Lithium-Ion Battery Fire Incidents



In December 2024, 25 lithium-ion battery fire incidents were reported across various settings, from residential homes to commercial establishments. These incidents underscore the critical importance of proper battery handling, storage, and safety measures. Notable trends include the continued e-bike battery fires and the significant risks posed by charging batteries improperly or using uncertified chargers.

Residential Fires

- **Ravenswood, Western Australia:** Lithium-ion battery fire destroyed a family home, leaving five people homeless and causing injuries.

- **Lviv, Ukraine:** A battery explosion caused a basement fire in a residential building, extinguished within 17 minutes.
- **Portland, New York, USA:** An overheated battery pack caused a house fire, contained with minimal damage.
- **Lettsworth, Louisiana, USA:** A garage fire from a charging lithium battery destroyed a home and tragically claimed a family pet.
- **Hillsboro, Oregon, USA:** A go-kart battery exploded, resulting in a house fire that displaced a family and their eight pets.

Commercial and Industrial Fires

- **New Delhi, India:** A fire at a battery manufacturing facility injured 14 people, including 13 firefighters.

- **Bushwick, Brooklyn, USA:** An e-bike battery fire devastated multiple businesses, causing significant financial losses.
- **Lancaster, Ohio, USA:** A fire at a battery recycling facility, linked to stored used batteries, was quickly contained.
- **Northampton, Massachusetts, USA:** A battery explosion in a CVS drive-thru highlighted risks during improper usage.

Public Spaces and Vehicles

- **Chapel Hill, North Carolina, USA:** An electric bus fire prompted the suspension of the entire fleet of 10 electric buses.
- **Calgary, Alberta, Canada:** A battery pack short-circuited in an airport lounge, leading to evacuation.
- **Boise, Idaho, USA:** A charging electric skateboard caught fire at a Dutch Bros coffee shop.

Significant Impact Cases

- **Boise, Idaho, USA:** A truck fire caused by a lithium jump starter claimed the life of a toddler and injured a family.
- **Manhattan, New York, USA:** An e-bike shop fire required an all-hands FDNY response and reignited due to damaged batteries.

Lithium-ion batteries, while integral to modern life, pose fire risks when

improperly handled or damaged. December's incidents highlight recurring issues:

- **Improper Charging Practices:** Fires in Portland, Lettsworth, and Hillsboro illustrate the dangers of overcharging and using uncertified chargers.
- **Improper Storage:** The Manhattan e-bike shop fire and the recycling facility incident in Lancaster underscore the risks of storing damaged or unregulated batteries.
- **Public Safety Concerns:** Fires in buses, airports, and coffee shops show the broader implications for community safety.

Recommendations:

- **Follow Manufacturer Guidelines:** Always use certified chargers and avoid overcharging or modifying devices.
- **Enhance Awareness:** Educate communities about the risks of thermal runaway and the importance of proper battery disposal.
- **Invest in Fire Safety Measures:** Equip buildings with fire suppression systems, as seen in San Francisco and Hong Kong, where sprinklers effectively contained fires.
- **Regulatory Compliance:** Ensure battery production and recycling adhere to strict safety standards.

Fire Sprinkler Saves in Action: December Highlights



In December 2024, fire sprinklers played a crucial role in mitigating 46 fire incidents across various settings, from residential apartments to industrial facilities. These incidents show the importance of sprinkler systems in safeguarding lives and property. Notable trends include the effective containment of fires in multifamily residential properties and the prevention of catastrophic losses in industrial and commercial facilities.

Residential Properties:

- **Bellevue, WA:** A sprinkler system extinguished an apartment fire, preventing further spread but causing water damage that displaced multiple units.

- **Romeoville, IL:** A balcony fire was contained, ensuring the safety of occupants and limiting damage.
- **Chesterfield, VA:** A stove fire was extinguished in an apartment, with minimal disruption to other residents.
- **Kenosha, WI:** Sprinklers controlled an attic fire in an assisted living facility, ensuring safe evacuation of all residents.
- **Columbus, OH:** A senior apartment fire was contained, protecting other residents despite critical injuries to one occupant.

Commercial and Industrial Properties:

- **High Point, NC:** Sprinklers contained a fire in a downtown building, avoiding significant damage.



- **Lincoln, NE**: A manufacturing facility fire was contained to one room, ensuring operational continuity.
- **Tupelo, MS**: A fire in a Goodyear plant was nearly extinguished by sprinklers, highlighting their efficacy in industrial settings.
- **Sandwich, MA**: A commercial fire was quickly controlled, preserving property and minimizing recovery time.

Educational and Public Spaces

- **Hastings, MN**: A school fire was suppressed, protecting over 1,200 students and staff.
- **Richland, WA**: A high school garbage fire was extinguished before causing greater harm.
- **Norfolk, VA**: A rehab facility fire caused by an electric wheelchair was contained, minimizing risk to vulnerable residents.

Significant Impact Cases

- **Eugene, OR**: A suspicious fire at The Rink Exchange was confined to a single area, sparing the rest of the facility from major damage.

- **Spokane, WA**: A sprinkler system successfully extinguished an apartment fire, preventing it from spreading across multiple floors.

Fire sprinklers are an indispensable component of modern fire safety systems, effectively mitigating the risks associated with residential, commercial, and industrial fires. December's incidents illustrate their value in multiple contexts:

1. **Life Safety**: The timely activation of sprinklers in multifamily residences, such as in Bellevue, WA, and Columbus, OH, protected lives by containing fires to their point of origin.
2. **Property Protection**: Industrial and commercial settings benefited from sprinkler systems that limited operational downtime and prevented extensive property losses, as seen in Lincoln, NE, and Sandwich, MA.
3. **Community Impact**: Sprinklers in public spaces, such as schools and rehab facilities, ensured the safety of large groups, often preventing what could have been disastrous events.



Building a Safer Future: Lessons from Recent Construction Site Fires



In December 2024, 16 construction site fire incidents were reported across various settings, from residential homes under construction in Iowa to industrial facilities in China. These incidents demonstrate the critical importance of fire safety measures in construction projects. Notable trends include fires caused by electrical malfunctions and improper storage of combustible materials, as well as devastating impacts such as loss of life and significant property damage.

Residential Construction Sites

- **Cedar Falls, IA, USA:** A fire in a basement caused minor damage to an unoccupied home under construction.

- **Honor, MI, USA:** A fire destroyed a home under construction; the cause is under investigation.
- **Cochrane, AB, Canada:** Fires destroyed two homes under construction and damaged two others.
- **Landis, NC, USA:** A fire spread between two apartment buildings under construction, with significant damage.
- **Kernersville, NC, USA:** A house fire caused a roof collapse and minor damage to nearby structures.

Commercial and Industrial Construction Sites

- **Shamshabad, Telangana, India:** A fire broke out on the fourth floor of an under-construction industrial building; no injuries were reported.



- **Savannah, TN, USA:** A hotel under construction was destroyed in an early-morning fire; the Tennessee Bureau of Investigation is involved.
- **Taichung, Taiwan:** A fire in a food-processing facility under construction claimed nine lives.

Infrastructure and Public Construction Sites

- **Noida, Uttar Pradesh, India:** A short circuit caused a fire in a crane at the Noida International Airport construction site; no injuries occurred.
- **Poonamallee, Chennai, India:** An electrical fire damaged a metro rail construction site.

Significant Impact Cases

- **Lamont, CA, USA:** A fire destroyed the under-construction Templo Sinai Church; no injuries were reported.
- **Olathe, KS, USA:** A large fire at an apartment complex under construction led to a partial collapse.
- **Niagara Falls, ON, Canada:** A fire caused \$75,000 in damage to a

- vacant house under construction.

To reduce construction site fire risks:

1. Address Electrical Hazards:

Conduct regular inspections of temporary electrical installations and equipment to prevent short circuits, as seen in [Noida](#) and [Poonamallee](#).

2. Improve Combustible Material Storage:

Ensure that flammable materials, such as insulation and foam panels, are stored safely and away from ignition sources, as highlighted by the fires in [Rongcheng](#) and [Taichung](#).

3. Fire Suppression Readiness:

Equip sites with fire extinguishers, sprinklers, or suppression systems where feasible, especially for larger projects.

4. Establish Safety Protocols and Plans:

Train workers on fire prevention and emergency response while implementing site-specific fire safety plans that include evacuation routes, equipment maintenance, and hot work protocols.

5. Secure Sites After Hours:

Implement security measures to deter unauthorized access, vandalism, and arson.

Adopting these measures can significantly reduce risks and enhance safety for workers and projects.

The Winecoff Hotel Fire: Lessons That Shaped Modern Fire Codes

On December 7, 1946, the tragic Winecoff Hotel fire claimed 119 lives, highlighted significant gaps in building fire safety and led to transformative changes in fire codes. Despite being built as a "fireproof" structure under the 1911 building codes, the lack of automatic sprinklers, exterior fire escapes, fire doors, and an enclosed stairwell allowed the fire to spread unchecked, demonstrating how critical these features are for occupant safety (Szymanski, n.d.).

The Winecoff Hotel fire serves as a reminder that labeling a building as "fireproof" without multiple layers of active and passive fire protection is misleading. The tragedy occurred at a time when hundreds of guests—including teenagers attending a youth conference—were staying at the hotel, adding to the tragedy. When the fire broke out, the absence of basic safety

features, such as accessible fire exits and sprinklers, contributed to a catastrophic situation where many were unable to escape, resulting in people desperately jumping from windows to avoid the flames.

The lessons learned from the Winecoff fire have shaped modern building codes to prioritize redundancy in safety features and emphasize the importance of adequate escape routes. We now recognize that effective fire protection systems must be comprehensive, involving automatic detection, suppression, and clear egress paths. Fire doors, multiple exit routes, and protected stairwells are now standard requirements that are enforced to ensure that occupants can safely exit in an emergency (Szymanski, n.d.).

The Winecoff fire serves as a somber reminder that codes must evolve, and enforcement must be thorough to prevent such tragedies from recurring. This incident underscores the necessity of continuous learning and improvement in fire safety standards.

👉 [Click here to read the full article from Tim Szymanski, The Winecoff fire: Our nation's deadliest hotel fire. Firehouse.](#)

👉 [Click here to watch the video documentary.](#)



Our Lady of the Angels: A Tragedy That Transformed Fire Safety

On December 1, 1958, the Our Lady of the Angels School in Chicago became the site of one of the most devastating school fires in U.S. history, tragically claiming the lives of 92 children and three nuns. This event shocked the nation and became a turning point for fire safety, driving significant changes in fire codes and prevention strategies.

The fire spread rapidly through an open stairwell, fueled by highly flammable finishes and a lack of critical safety features such as fire doors and automatic sprinklers. Despite existing knowledge of these hazards, the building was "grandfathered" and exempt from updated safety codes. This decision to not require corrections to these well-documented risks resulted in a preventable loss of life. These risks included:

Outdated fire codes exempted the building from critical upgrades, leaving its occupants vulnerable.

Well-documented dangers like open stairwells and flammable interiors were not required to be corrected.

The lack of direct connection between the school's alarm system and the fire department caused critical delays.

Insufficient fire drills left staff and students unprepared for a crisis.

In the wake of the tragedy, sweeping reforms were implemented to prevent similar disasters:

- Stairwell Enclosures to contain fire spread.
- Automatic Sprinkler Systems in high-risk areas.
- Fire-Resistant Construction for walls and corridors.
- Mandatory Fire Drills to enhance preparedness.
- Direct Alarm Connections for quicker emergency responses.

👉 [Click here to watch the documentary](#)

👉 [Click here the story from Bruce Hensler A failure of imagination: The Our Lady of the Angels School tragedy.](#)

