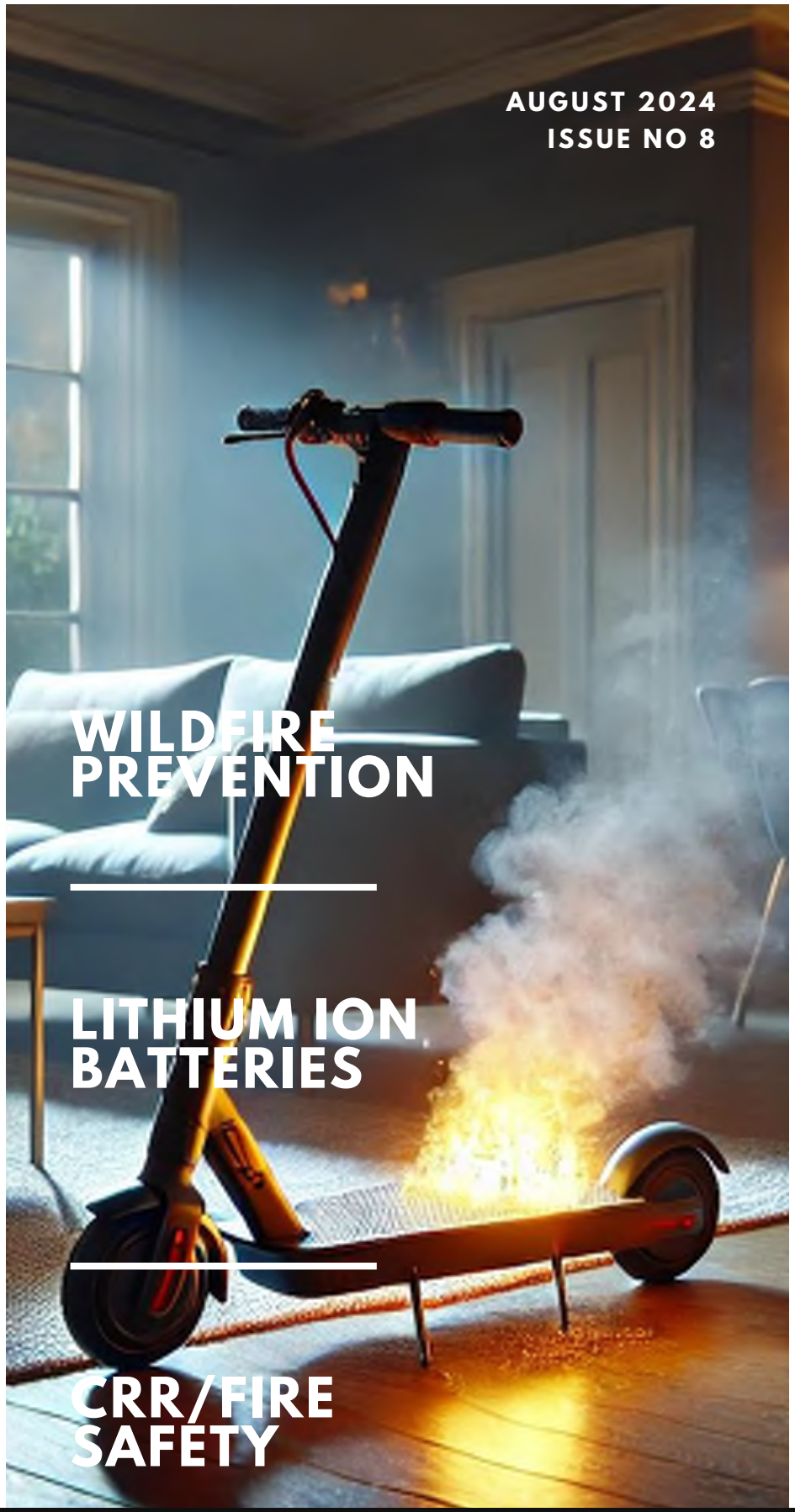
# RISK REDUCTION REVIEW

## EXPERT PERSPECTIVES IN FIRE SAFETY

NO. 8



AUGUST 2024
ISSUE NO 8

## WILDFIRE PREVENTION

## LITHIUM ION BATTERIES

## CRR/FIRE SAFETY

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WILDFIRE PREVENTION



# Welcome to the Risk Reduction Review

Welcome to the latest edition of the Risk Reduction Review, your authoritative source for the latest trends and critical updates in building and fire safety. This edition provides invaluable insights for professionals dedicated to safeguarding our built environment.

In this edition, we address the critical issue of lithium-ion battery fire risks and provide essential safety measures for building and fire safety professionals.

- **Lithium-Ion Battery Hazards:** Delve into the dangers of lithium-ion batteries, highlighted by recent fires in residential and commercial settings, from e-scooter batteries to EV's. Learn key safety practices for handling and disposal to prevent such incidents.
- **Insights from Fire Safety Experts:** Sean DeCrane discusses the evolving challenges of fire safety, including lithium-ion battery risks, the importance of public education, and the need for balanced fire codes that ensure safety without compromising affordable housing.
- **Successful Sprinkler Saves:** This issue showcases several incidents where fire sprinkler systems played a critical role in minimizing damage in residential complexes, commercial buildings, and high-tech facilities.
- **Construction Site Fire Risks:** The Dunbar fire in Vancouver serves as a reminder of the fire hazards associated with construction sites. Learn the importance of site security, fire prevention program managers, and community engagement.
- **Affordable Wildfire-Resistant Homes:** Explore cost-effective strategies for homeowners to retrofit homes for wildfire resistance and the role of local policies in supporting community resilience against wildfires.

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.

# Enhancing Fire Safety: Lithium Batteries, Building Codes

## Director of Health and Safety at the International Association of Fire Fighters (IAFF)

## Sean DeCrane

## ICC REGION I RADIO



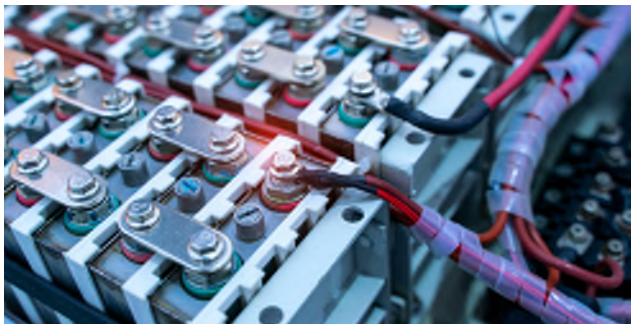
In a recent episode of ICC Region I Radio, I had an engaging conversation with Sean DeCrane. Sean's journey from a firefighter in Cleveland to the Director of Health and Safety at the International Association of Fire Fighters (IAFF) is filled with valuable lessons and insights into fire safety and code development.

**Sean DeCrane's Journey and the Importance of Code Development**

Sean DeCrane's path into the world of code development began with a dare and a trip to Key West. His story underscores the important role that fire service professionals play in the code development process. By understanding building construction and fire codes, firefighters can significantly improve their safety and effectiveness in emergencies. Sean shared an impactful story about a firefighter's tragic loss in Green Bay due to an early collapse of a lightweight floor system, which led to efforts to change residential codes for better fire protection.

**Emerging Challenges: Lithium-Ion Batteries**

One of the key topics discussed was the emerging challenge of lithium-ion batteries. These batteries are widespread in modern technology



but present unique risks, such as flammable gas release and explosion hazards. Sean emphasized the need for firefighters to adapt their strategies to manage these incidents and highlighted the importance of ongoing research.

**The Role of Standardized Testing and Public Education**

Standardized testing and public education play pivotal roles in promoting fire safety and reducing risks associated with new technologies. Successful campaigns like the UL Fire Safety Research Institute's "Close Your Door" demonstrate the power of public education in saving lives during fires. Ensuring that products meet safety standards through standardized testing can prevent many fire-related incidents.

**Key Takeaways for Enhancing Fire Safety**

- **Partnerships and Relationships:** Collaborating with other professionals and organizations is essential for advancing fire safety and code development.
- **Research and Data:** Continued research is vital to understand and mitigate the risks associated with emerging technologies like lithium-ion batteries.
- **Public Education:** Ongoing public education campaigns are crucial for raising awareness and promoting safe practices.
- **Standardized Testing:** Implementing standardized testing for products can significantly reduce fire hazards.
- **Fire Service Involvement:** Engaging fire service professionals in the code development process ensures practical and effective safety regulations.

**Balancing Fire Safety and Affordable Housing**

Another critical issue discussed was the debate over single exit stairways in mid-rise buildings. Sean argued that relying solely on the flawless performance of all safety systems is unrealistic. Multiple egress routes are important for ensuring safety during emergencies. This debate highlights the need to balance fire safety with the goal of providing



affordable housing, a challenge that requires thoughtful and respectful dialogue.

**Collaboration and Continuous Improvement**

The episode concluded with a call to leverage technology and foster collaboration to enhance fire safety. Sean emphasized that safety standards are not obstacles but tools to protect lives. The fire service community must continually learn and adapt to emerging trends and technologies to stay ahead of potential risks.

**Conclusion**

Sean DeCrane's insights on ICC Region I Radio serve as a reminder of the importance of fire safety codes and the collaborative efforts required to develop and implement them. By understanding the challenges posed by emerging technologies like lithium-ion batteries and advocating for rigorous testing and public education, we can create a safer environment for all. Stay tuned to ICC Region I Radio for more informative conversations on building and fire safety.

Tune in to this enlightening episode of ICC Region I Radio on YouTube or your favorite podcast platform (Apple Podcasts, Spotify, and iHeart Radio). Don't miss out on this opportunity to enhance your knowledge and be part of the conversation shaping the future of fire safety.

**Watch the full discussion on YouTube:**




**LISTEN TO THE PODCAST:**






# August Highlights: Lithium-Ion Battery Fires Continue to Pose Significant Risks




August 2024 saw several significant incidents involving lithium-ion batteries across various settings—from residential properties to commercial spaces. Below are key incidents that underscore the ongoing dangers and highlight the need for stringent safety practices when handling and storing lithium-ion batteries. Visit the Risk Reduction Review for additional fire incidents involving lithium ion batteries.

**EV Battery Explosion Causes Massive Destruction in Incheon, South Korea**

Incheon, South Korea: A fire erupted in an underground parking lot of an apartment complex due to an electric vehicle (EV) battery explosion, resulting in 140 vehicles destroyed and 23 residents hospitalized due to smoke inhalation. The fire took over eight hours to contain.

**Pensioner Killed in E-Scooter Battery Fire – Manchester, UK**

Manchester, UK: An e-scooter battery ignited a fire on August 3, tragically claiming the life of a man in his 70s. The early morning blaze completely engulfed the house, underscoring the severe risks associated with lithium-ion batteries in small personal mobility devices.

**Charging E-Bike Sparks Early-Morning Blaze – Orillia, Ontario, Canada**

Orillia, Ontario, Canada: A charging e-bike's lithium-ion battery caught fire in the garage of a home on August 20. The fire spread to the




exterior walls of the two-story brick house, causing substantial damage. Fire officials reiterated the importance of using manufacturer-approved chargers and emphasized the danger of charging devices unattended. This incident marks the third lithium-ion battery fire in Orillia recently.

**Major Scrapyard Fire Caused by Discarded Battery – Suffolk, UK**

Suffolk, UK: Over 80 firefighters battled a massive blaze at a scrap metal and waste recycling center in Great Blakenham on August 8. The fire, which caused significant disruption, was likely sparked by a discarded lithium-ion battery that self-combusted during waste processing. This incident is a reminder of the fire risks associated with improper disposal of lithium-ion batteries and reinforces the need for safe recycling practices.

**Scooter Battery Ignites Apartment Fire – Portland, Oregon, USA**

Portland, Oregon, USA: A thermal runaway incident involving a scooter's lithium-ion battery caused a fire in a Northwest Portland apartment complex on August 19. The building's sprinkler system was activated, containing the fire until firefighters arrived. The rapid response helped prevent structural damage.

**Close Call for Resident as Lithium-Ion Battery Sparks Unit Fire – Dee Why, Australia**

Dee Why, Australia: A resident narrowly avoided a major fire on August 4 after a lithium-ion battery for a remote-controlled plane ignited while charging. Quick thinking allowed the resident to transfer the burning battery into a fireproof bag and move it to the balcony, where firefighters extinguished it.

**Lithium Battery Ignites Fire at Upstate Manufacturing Plant – Seneca, South Carolina, USA**

Seneca, South Carolina, USA: A fire broke out at the BorgWarner manufacturing plant on August 8 when a lithium battery on a production line ignited, causing significant smoke throughout the facility. Quick action by employees and fire crews contained the blaze to a firebox, but one firefighter was hospitalized.




**JetBlue Flight Attendants Praised for Swift Response to Emergency Cell Phone Malfunction – USA**

USA: During a JetBlue flight from Los Angeles to Boston on August 20, a malfunctioning cell phone caused smoke in the first-class cabin. Flight attendants quickly managed the situation by using a fire extinguisher and ventilating the cabin. This incident underscores the potential fire hazards posed by lithium-ion batteries in mobile devices and highlights the importance of emergency preparedness by airline crews.

**Key Takeaways for Fire Safety Professionals:**

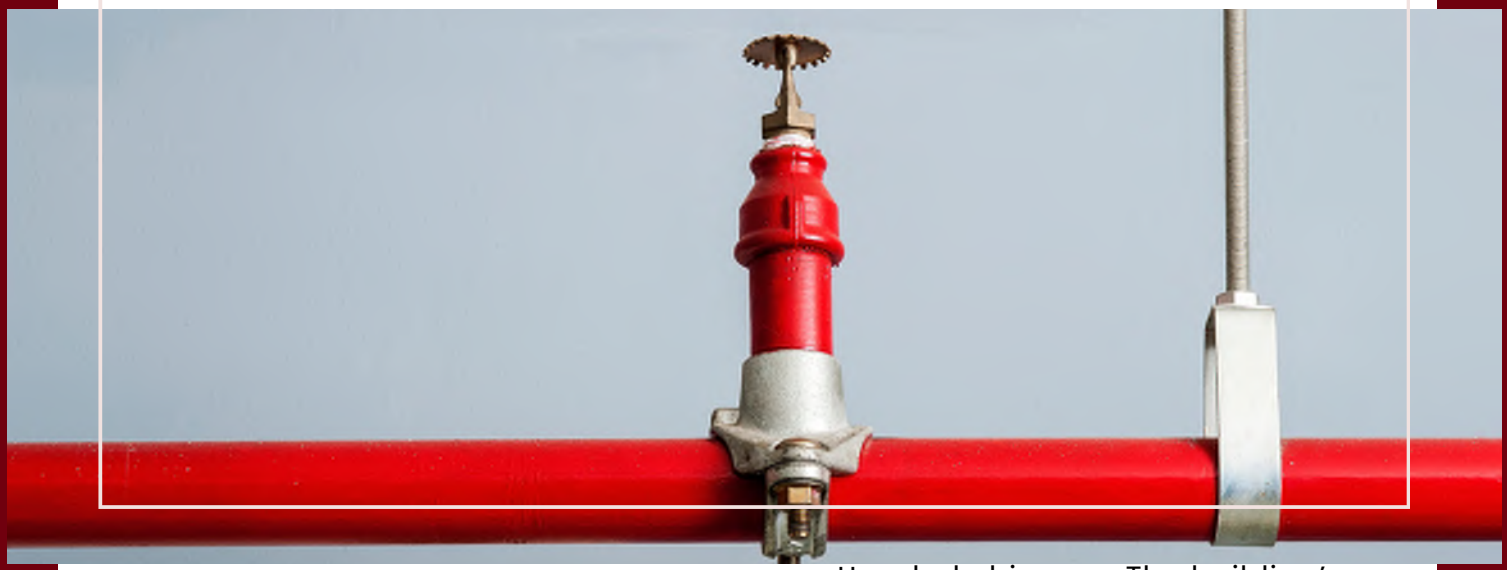
- **Risk Awareness:** The incidents reported demonstrate the wide range of environments where lithium-ion battery fires can occur—residential, industrial, transportation, and more.
- **Preventive Measures:** Ensure that all lithium-ion battery-operated devices are charged with manufacturer-approved chargers, stored safely, and monitored while charging.
- **Proper Disposal:** Emphasize the importance of correctly disposing of lithium-ion batteries to avoid potential fires in recycling and waste facilities.
- **Emergency Preparedness:** Foster emergency response plans and ensure that firefighting equipment and training are up-to-date to handle lithium-ion battery fires effectively.

**Understanding the Hazards of Lithium-Ion Batteries**

Lithium-ion batteries power many of our daily devices, from smartphones to electric vehicles. However, their high energy density and chemical composition can make them susceptible to overheating, catching fire, and even exploding if damaged or improperly handled.

The recent number of fires caused by lithium-ion batteries serves as a continued reminder of the need for vigilance and adherence to safety protocols. By understanding the risks and implementing these essential safety measures, we can reduce the potential for such dangerous incidents in our communities.

# August Highlights: Fire Sprinkler Systems in Action



Fire sprinkler systems continue to play a vital role in protecting lives and property across various settings, from residential complexes to commercial establishments. The following incidents from August 2024 showcase the effectiveness of fire sprinklers in containing fires, minimizing damage, and ensuring safety for building occupants. Here are eight noteworthy examples where sprinkler systems made a significant difference. Visit the Risk Reduction Review for additional fire sprinkler saves in the month of August.

**Sprinklers Save Lives in Stockton High-Rise – Stockton, England, UK**

A fire broke out in a high-rise building in Stockton due to an unattended chip pan. The building's sprinkler system quickly activated, extinguishing the fire and preventing it from spreading.The swift response of the sprinklers helped avoid significant damage and potential injuries.

**Fire at Coralville Apartment Quickly Contained by Sprinkler System – Coralville, Iowa, USA**

A kitchen fire in a multifamily residential property on Russell Slade Blvd. was contained by the building's sprinkler system, which activated as soon as the fire broke out. The fire resulted in only minor smoke and water damage , illustrating the crucial role of well-maintained sprinkler systems in residential settings.



## Senior Living Facility Kitchen Fire Contained by Sprinklers – Madison, Wisconsin, USA

In Madison, a kitchen fire at a senior living facility was contained by the facility's sprinkler system, which activated before firefighters arrived. The sprinklers prevented the fire from spreading beyond the second-floor apartment, safeguarding residents in the 170-unit building. This event highlights the significance of sprinkler systems in facilities housing vulnerable populations.

## Sprinkler System Stops Fire at Frisco Condo – Frisco, Colorado, USA

A single sprinkler head activated in a condominium off Main Street in Frisco, Colorado, effectively containing a fire and preventing it from spreading. The building was evacuated, and no injuries were reported.

## Fire at East Sonora Trash Transfer Station Prevented from Spreading – East Sonora, California, USA

A fire at the Cal Sierra Waste Management Transfer Station triggered an automatic deluge sprinkler system, which was crucial in preventing the fire from spreading across the facility. While the station was temporarily closed, the sprinkler system's activation was pivotal in minimizing damage and maintaining safety during the fire response.

## Sprinkler System Activation Saves Grand Chute Trampoline Park – Grand Chute, Wisconsin, USA

A fire at the Urban Air Trampoline and Adventure Park was extinguished by an automatic sprinkler system after a battery charger system malfunctioned. The building was unoccupied at the time, and no injuries were reported. The swift activation of the sprinkler system ensured minimal fire and water damage.





**Fire Alarm and Sprinkler System Prevent Major Incident at El Dorado Hills Commercial Building – El Dorado Hills, California, USA**

A fire at a commercial building in El Dorado Hills Business Park was contained to a single unit by the building's sprinkler system. The fire, caused by a vapor explosion from oil-soaked rags, could have spread throughout the large structure without the sprinklers. The combined efforts of multiple fire agencies and the sprinkler system were key to preventing more extensive damage.

**Sprinkler System Knocks Down Fire at Google Computer Lab – Mountain View, California, USA**

A fire at a Google computer lab was contained by the activation of an overhead sprinkler system after an unattended electrical component overheated. The sprinkler system played a crucial role in protecting sensitive equipment and minimizing damage, which was estimated at $200,000. This incident highlights the effectiveness of sprinklers in high-tech environments, where rapid containment is essential to prevent significant loss.

**Key Takeaways for Fire Safety Professionals:**

- **Importance of Maintenance:** Properly maintained sprinkler systems are critical to preventing fire spread and reducing damage in various building types, from residential complexes to commercial establishments.
- **High-Risk Environments:** Facilities housing vulnerable populations, high-rise buildings, and settings with flammable materials benefit from active fire suppression systems.
- **Preparedness and Response:** Combining well-maintained sprinkler systems with effective fire safety protocols ensures the best possible outcomes during fire incidents.

By highlighting these successful sprinkler activations, we reinforce the critical role that fire sprinkler systems play in protecting lives, property, and business continuity across diverse environments.

# Construction Fire Safety – Lessons from the Dunbar Fire

The Dunbar fire in Vancouver, which erupted on August 6, 2024, serves as a reminder of the risks associated with construction sites and their potential impact on the broader community. The fire, which broke out at a six-story wood-frame building under construction, resulted in a crane collapse, widespread power outages, and the destruction of nearby homes, displacing residents and causing significant disruption (Nguyen, 2024; The Canadian Press, 2024). Despite the rapid response from multiple fire departments, the cause of the fire remains under investigation. This incident underscores the importance of fire safety measures at construction sites to protect both the project and the surrounding community.



Construction sites are inherently hazardous, often lacking complete fire protection systems like sprinklers and smoke detectors. Common ignition sources—such as hot work, heating equipment, and unsecured electrical systems—pose significant fire risks. Additionally, the lack of site security can lead to vandalism, theft, or arson, further heightening the danger (NFPA, 2022). The Dunbar fire highlights how quickly a construction site fire can spread to adjacent buildings in high-density urban areas, leading to widespread damage, economic impact, and community disruption.

To mitigate these risks, building and fire safety professionals must prioritize proactive fire prevention measures. This includes appointing a Fire Prevention Program Manager (FPPM) to ensure compliance with NFPA 241, regularly securing sites, and engaging with local residents about fire safety practices. As urban environments grow denser, the need for stringent safety protocols and community involvement becomes even more vital to safeguarding lives and property.

Read more here.

# Affordable Strategies and Policy Support for Wildfire-Resistant Homes



A recent study conducted by Headwaters Economics examines the cost and benefits of retrofitting homes to be wildfire-resistant, and the ongoing work by California Department of Forestry and Fire Protection (CAL FIRE) in protecting Californians from the impacts of wildfire. The report emphasizes that while significant upgrades can be expensive, many effective strategies are affordable and can be undertaken by homeowners themselves (Barrett & Quarles, 2024).

**Policy Decisions to Aid Wildfire Resistance**

Local governments play a role in fostering community resilience against wildfires. Policies that incentivize retrofitting homes for wildfire resistance can significantly reduce community vulnerability. Financial support for property owners, such as grants and low-interest loans, can reduce the financial burden of retrofitting. Additionally, streamlining the permitting process and providing resources for ongoing maintenance can ensure sustained community efforts (Barrett & Quarles, 2024).

**Barriers to Retrofitting and Solutions**

The cost of retrofitting homes can range from $2,000 for simple measures to over $100,000 for comprehensive upgrades (Barrett & Quarles, 2024). Barriers include financial constraints, lack of technical expertise, and administrative hurdles. To overcome these, communities can:

**Financial Assistance Programs:** Implement grants, subsidies, and tax incentives to offset retrofitting costs.

**Educational Campaigns:** Raise awareness about the importance of wildfire resistance and available support programs

**Technical Support:** Provide access to expert advice and services to guide homeowners through the retrofitting process (Bay Area Council, 2023).

Small modifications can improve a home's resistance to wildfires without the high costs associated with major retrofits. Actions such as cleaning gutters, installing flame-resistant vents, and maintaining a noncombustible zone around the home can drastically reduce the risk of ignition (Barrett & Quarles, 2024).





Read more at the references below


Barrett, K., & Quarles, S. L. (2024). Retrofitting a Home for Wildfire Resistance. Headwaters Economics.

Bay Area Council. (2023). New study shows how communities in the Wildland Urban Interface can drastically reduce fire risk and reduce insurance premiums.

Headwaters Economics. (2024). The cost of retrofitting a home for wildfire resistance.