Directorate-General for Energy (DG ENER)
European Commission - Energy Efficiency: Policy and Financing

Directorate-General for Internal Market, Industry, Entrepreneurship, and SMEs (DG GROW)
European Commission

Enhancing Fire Safety in Energy-Efficient Buildings: Addressing Risks and Protecting Vulnerable Populations

The Confederation of Fire Protection Associations Europe (CFPA-Europe) is a leading organization dedicated to advancing fire safety, security, risk management and natural hazards throughout Europe. Comprising national fire protection associations, CFPA-Europe serves as a collaborative platform for sharing knowledge, expertise, and best practices to reduce fire risks and enhance the safety of citizens, businesses, and infrastructure.

CFPA-Europe's work is driven by a commitment to supporting sustainable development while ensuring robust safety standards. Through research, training, and policy advocacy, the organization addresses emerging challenges in fire protection, including those arising from innovative construction materials, energy-efficient designs, and architectural trends.

This letter highlights, with examples in the attached annex, CFPA-Europe's concerns about the increasing fire risks associated with energy efficient building practices, particularly under the framework of the Energy Performance of Buildings Directive (EPBD). While the directive has been instrumental in promoting energy efficiency and combating climate change, it has unintentionally introduced new safety challenges. These include the use of combustible materials in façades and insulation systems, as well as insufficient integration of fire safety considerations in building designs.

We would be delighted to collaborate with the Commission on these and other fire safety topics. CFPA-Europe offers its expertise, resources, and network of fire safety professionals to assist in developing robust policies, practical guidelines, and training initiatives that align with the EU’s objectives. Together, we can create solutions that protect lives, support vulnerable populations, and ensure the resilience of Europe’s buildings in the face of future challenges.

We look forward to the opportunity to work with the Commission and to contribute to advancing fire safety throughout the European Union. Should you require further information or wish to discuss these matters in greater detail, please do not hesitate to contact us.

Zurich, February the 26th 2025

Yours sincerely,

Director CFPA Europe

Chair Fire Safety Commission CFPA Europe

Annex: Examples of increasing fire risks associated with energy efficient building practices

1. Vulnerable populations
CFPA-Europe is especially concerned about the implications for vulnerable populations, such as the elderly and individuals with limited physical or cognitive capacities, who are disproportionately affected by fire hazards. Care facilities and other residential environments housing such individuals are often ill-equipped to handle the unique challenges posed by energy-efficient construction materials and designs.

The Energy Performance of Buildings Directive (EPBD) represents a cornerstone of the European Union's efforts to combat climate change and promote sustainable development. By improving the energy efficiency of buildings, the directive aims to reduce carbon emissions, alleviate energy poverty, and ensure a just transition for all citizens. Recognizing the need to address disparities, the directive rightly emphasizes the importance of supporting vulnerable groups, particularly those in lower-income households, by fostering safer, more energy-efficient living environments.

However, CFPA-Europe wishes to draw attention to a critical oversight in the current framework: the lack of specific provisions addressing the unique fire safety challenges faced by individuals with limited physical or cognitive capacities. These populations, which include elderly residents in care homes and those with disabilities living in institutional or assisted settings, are among the most vulnerable in the event of a fire. Despite the directive's laudable intent to protect the vulnerable, the absence of explicit fire safety measures tailored to their needs undermines their protection and creates significant risks.

The pursuit of energy efficiency has introduced innovative materials and construction practices into Europe's building stock. Yet, as recent tragic incidents have shown, some energy-efficient materials—when improperly selected or implemented—can exacerbate fire hazards. For residents with reduced mobility or cognitive impairments, even small delays in fire detection, suppression, or evacuation can have devastating consequences. By failing to explicitly account for these factors, the EPBD may inadvertently contribute to environments where these individuals face heightened danger.

Care homes, in particular, illustrate the intersection of vulnerability and risk. Fires in such facilities have repeatedly demonstrated the deadly consequences of inadequate fire safety measures. Examples from across Europe highlight the urgency of ensuring that vulnerable residents are not left behind in the EU's drive for energy efficiency. The directive, as it currently stands, risks perpetuating systemic neglect of this critical issue.

References to Care Home Fires
Several devastating fires in care homes across Europe have underscored the critical need for improved fire safety measures, particularly for vulnerable individuals with limited physical or cognitive capacities. These incidents highlight systemic shortcomings in fire prevention, detection, and evacuation, as well as the consequences of failing to prioritize fire safety in facilities that house high-risk populations.

In 1999, a tragic fire at Palvelutalo Viljami, a care facility in Maaninka, Finland, claimed the lives of five residents. The fire was caused by a malfunctioning table lamp in a resident's room. Despite efforts to contain the blaze, the absence of sprinkler systems and the rapid spread of smoke led to significant delays in evacuation. This incident demonstrated the critical importance of fire suppression systems, such as sprinklers, and emphasized the need for better staff training in emergency response to protect residents who may be unable to self-evacuate.

In 2016, a catastrophic fire occurred at the Bergmannsheil University Hospital in Bochum, Germany. A 69-year-old patient deliberately set herself on fire using flammable disinfectant. The blaze spread rapidly through the sixth floor and into the roof, resulting in two fatalities and multiple injuries. The incident revealed vulnerabilities in hospital fire safety protocols, including insufficient fire compartmentalization and challenges in evacuating patients who rely on life-support systems. It highlighted the importance of controlling access to flammable substances and ensuring robust compartmentalization to prevent fire spread.

In 2022, a fire broke out in a nursing home in Moncada, near Valencia, Spain, claiming six lives and injuring seventeen others. The fire originated from a faulty power strip in a resident's bedroom and quickly engulfed the building due to inadequate fire containment measures. This tragedy underscored the dangers of electrical faults in facilities housing vulnerable populations and the critical need for regular maintenance of electrical systems. It also highlighted the necessity of effective smoke control systems and comprehensive evacuation planning.

Each of these fires exposed recurring weaknesses in fire safety across care homes and similar facilities. The absence of sprinkler systems, insufficient compartmentalization, and delayed evacuations were common factors that exacerbated the consequences of these incidents. These events also illustrated the challenges of ensuring the safety of individuals with reduced mobility or cognitive impairments, whose ability to respond to emergencies is inherently limited.

From these incidents, it is evident that systemic changes are needed to protect Europe's most vulnerable citizens. Lessons learned include the urgent need to mandate sprinkler systems in all care facilities, the importance of rigorous staff training in emergency response, and the necessity of integrating fire safety considerations into the design and maintenance of energy-efficient buildings. Furthermore, these cases emphasize the need for harmonized fire safety standards across Europe to ensure that tragedies like these are not repeated. These lessons should be incorporated into the Energy Performance of Buildings Directive to align the EU's energy efficiency goals with the fundamental obligation to safeguard human life.

2. Energy Efficient Facades pose a serious threat to fire safety

CFPA-Europe is particularly concerned about the growing prevalence of combustible materials used in façades, insulation systems, and other energy-efficient components. Recent tragic events, including devastating façade fires across Europe, have highlighted the catastrophic consequences when fire safety considerations are not fully integrated into the design and implementation of energy-efficient buildings.

An emerging area of concern is the increasing adoption of green façades and roofs, which, while environmentally beneficial, introduce unique fire safety challenges. These systems often involve large-scale use of vegetation or artificial materials, which, under certain conditions, can act as fuel for fires. While green infrastructure aligns well with the EU's goals for urban sustainability, its fire safety implications remain insufficiently studied and addressed within current regulatory frameworks.

The focus on energy efficiency has also encouraged the use of advanced insulation materials, such as expanded polystyrene (EPS) and aluminum composite materials (ACM), which, in the absence of rigorous fire safety measures, have been implicated in rapid fire spread during major incidents. These risks are particularly concerning in residential and public buildings, including care facilities for vulnerable populations, where occupants may have limited ability to evacuate quickly in emergencies.

CFPA-Europe acknowledges the critical importance of energy efficiency in addressing climate change and supporting energy security. However, it is essential to emphasize that

these goals must not come at the expense of life safety. The risks associated with fire-prone solutions have not been adequately addressed in the EPBD, leaving a significant gap in ensuring the safety of occupants and first responders in energy-efficient buildings.

This communication seeks to draw the Commission's attention to the need for a more balanced approach that harmonizes energy efficiency objectives with robust fire safety standards. By addressing these gaps, the EU can continue to lead in sustainable development while safeguarding its citizens against preventable risks.
Façade Fires in Energy-Efficient Buildings

Grenfell Tower, London, United Kingdom (2017)
The fire at Grenfell Tower was one of the most devastating façade fires in recent history. The incident began with a refrigerator fire in a fourth-floor apartment, but the flames rapidly spread through the building's external cladding system. The cladding consisted of aluminum composite material (ACM) panels with a combustible polyethylene core, which acted as a conduit for the fire to engulf the 24-story building. Tragically, 72 people lost their lives, and hundreds more were displaced.

This tragedy exposed the risks associated with combustible façade materials, particularly in high-rise residential buildings. It underscored the need for stringent testing, certification, and regulatory oversight of cladding systems to prevent such incidents from occurring again.

Torre dei Moro, Milan, Italy (2021)
A fire broke out at the Torre dei Moro, an 18-story residential building in Milan. The flames originated on the 15th floor and rapidly spread along the building’s façade, which consisted of flammable cladding materials. Although no fatalities occurred due to prompt evacuation, the incident resulted in the complete destruction of the façade and extensive property damage.

This incident highlighted the importance of non-combustible façade materials in preventing fire spread and reducing property loss. It also demonstrated the value of effective evacuation procedures, which likely saved lives in this case.

Building in Valencia, Spain (2024)
A fire in a 14-story residential complex in Valencia caused the deaths of 10 people and injured several others. The fire started from an electrical fault in a lower-floor apartment and quickly spread through the façade, which contained combustible insulation materials. The rapid spread left little time for residents to evacuate, particularly those with mobility challenges.

This case emphasized the critical importance of ensuring that insulation materials in façades meet strict fire resistance standards. It also reinforced the need for effective evacuation planning and compartmentalization to protect vulnerable residents.

Common Themes and Lessons
Across these cases, several critical fire safety gaps emerge:

- The widespread use of combustible façade materials, such as ACM and EPS, without adequate fire resistance.
- Insufficient regulatory frameworks for testing and certifying façade systems in energy-efficient buildings.
- The lack of effective evacuation procedures, particularly in high-rise and residential buildings housing vulnerable populations.

These incidents highlight the urgent need for the European Commission to adopt stricter fire safety standards for façades, ensuring that energy efficiency objectives do not compromise occupant safety.

3. Recommendations to Enhance Fire Safety for Vulnerable Populations and Facade Safety in Energy-Efficient Buildings

a) Develop EU Guidelines for Fire Safety in Care Facilities

The European Commission should lead the development of comprehensive EU-wide guidelines for fire safety in care facilities. These guidelines can draw on CFPA-Europe's existing expertise and resources, such as the CFPA-E Guideline No. 6:2021 F for fire safety in care homes. By adapting these proven standards for EU-wide application, the Commission can ensure a consistent and effective approach to protecting vulnerable populations.

The guidelines should address:

- Detailed requirements for fire compartmentalization, sprinkler systems, and smoke control technologies.
- Emergency response planning and evacuation strategies tailored to the needs of individuals with limited mobility or cognitive impairments.
- Maintenance protocols and risk assessment methodologies specific to care facilities.

This guide would serve as a practical resource for care home operators, architects, and policymakers to enhance fire safety while aligning with the EU’s broader energy efficiency goals.

b) Mandate Fire Safety as a Core Component of Energy Efficiency Standards

The Energy Performance of Buildings Directive (EPBD) must explicitly include fire safety as a fundamental aspect of energy efficiency standards. This would ensure that energy-efficient materials and designs are assessed for their fire resistance alongside their thermal performance.

- Materials like ACM panels and EPS insulation should only be approved if they meet strict fire safety criteria and are used in conjunction with robust compartmentalization.
- Introduce requirements for façade systems to undergo rigorous fire safety testing under real-world conditions, ensuring safe integration with energy-efficient designs.

Recommendations to Enhance Fire Safety for Vulnerable Populations and Facade Safety in Energy-Efficient Buildings

c) Strengthen Fire Safety Standards for Facades

The increasing use of combustible façade materials in energy-efficient buildings poses significant fire risks. To address these concerns:

- Prohibit the use of highly combustible materials, such as ACM and EPS, in high-risk structures, including care facilities, hospitals, and residential buildings.
- Require regular inspections and maintenance of façade systems, ensuring compliance with stringent fire safety regulations.
- Collaborate with fire safety experts to establish EU-wide guidelines for the safe design and management of green façades and roofs, addressing fire risks associated with both artificial and organic vegetation.

d) Promote Professional Competence in Fire Safety Design
Improving fire safety in energy-efficient buildings requires a highly skilled workforce capable of addressing complex safety challenges. The Commission should:

- Establish an EU-wide certification framework for fire safety specialists, which can be based for example on CFPA-Europe's Fire Safety Specialist in Building Design certification. This would validate professionals' expertise in fire dynamics, risk analysis, and performance-based safety design.
- Require mandatory fire safety training for all professionals involved in the design, retrofitting, and construction of energy-efficient buildings, emphasizing safe use of materials and evacuation planning.

e) Expand and Leverage the EU FireStat Project
To improve evidence-based policymaking, the EU FireStat project should be expanded to include comprehensive data on fire incidents in energy-efficient buildings and care facilities. This data should focus on:

- Trends in façade fires and their root causes.
- The effectiveness of safety measures, such as sprinklers and compartmentalization, in mitigating fire risks.
- The impact of fires on vulnerable populations, guiding future policy updates.

f) Introduce Financial Incentives for Fire Safety Upgrades
Encourage member states to provide financial support for care facilities and high-risk buildings to implement fire safety improvements.

- Offer grants or subsidies for installing sprinklers, smoke control systems, and fire-resistant façades.
- Provide tax incentives for compliance with high fire safety standards during renovations or retrofits.
- Establish funding programs for retrofitting older care facilities with modern fire safety systems.

CFPA-Europe is deeply committed to advancing fire safety across Europe and ensuring that the EU's energy efficiency goals are achieved without compromising the safety and well-being of its citizens. We believe that by addressing the critical fire safety gaps outlined in this letter, the European Commission can take a decisive step toward creating a safer, more sustainable built environment.