

EURIMA Technical Report

Fire Incidents During Construction and Renovation Works

Europe and Global, 2000-2025

1. Executive Summary

Fires during construction and, especially, renovation phases remain a critical threat to life, property, and business in Europe and worldwide. Renovation projects are uniquely hazardous: works often proceed in partially or fully occupied buildings, with tenants and workers exposed to incomplete fire protections, temporary removal of alarms/barriers, and the presence of highly combustible materials (flammable insulation like EPS and PU, timber, CLT and certain bio-based products).

Fatalities and socioeconomic costs are notably higher when buildings remain occupied during works, as seen in fatal incidents in Dijon, Shanghai, Hong Kong, and others. Regulation and enforcement for renovation-phase fire safety are repeatedly found lacking, with standards unclear, oversight weak, and many protection features not reinstated until project completion. These failures amplify loss of life, business disruption, and raise insurance costs. Effective risk management now depends on stricter regulation, harmonized data (e.g. via EUFireStat), focus on non-combustible materials, site controls, and robust oversight during every phase, especially in tenant-inhabited premises.

2. Incident Trends and Risks During Construction & Renovation

Europe experiences an average of ~2 million reported fires per year (of all types), with hundreds to thousands linked to construction and renovation projects.

Fatalities escalate when works are conducted in occupied homes, blocks, schools, or hospitals due to incomplete fire protection, poor escape options and in some cases lack of attention, neglect and basic common sense.

Key risk factors are; Presence of flammable insulation (EPS, polyurethane (PU), bio-based products (e.g. cellulosic based materials), timber frame or unprotected wood structural elements. Further; occupied buildings with disabled fire protections (alarms, egress, compartmentation), hot works and temporary electrics during renovation, further, inadequate regulatory oversight and unclear standards for works with tenants present.

3. Short Case Overview

European Construction and Renovation Fires (non-exhaustive list)

Year	Location	Material	Phase	Cause and Impact	Source
2016	Edinburgh, UK	Timber/CLT	Construction	Frame fire during build, stricter UK timber rules	Edinburgh fires prompt concerns for timber safety News Building
2019	Walthamstow, UK	Timber frame	Construction	Fire destroyed housing site, hot works/electric	Timber-frame flats under spotlight as fire engulfs block Construction Enquirer News

2012	Frankfurt, DE	EPS insulation	Renovation	EPS ignited during facade works, vacant block	
2010	Dijon, FR	EPS/ETICS	Renovation (occupied)	Bin fire spread up facade, 7 dead, 130 injured	Parti d'un feu de poubelle, un incendie fait sept morts à Dijon - ladepeche.fr
2016	Oslo, NO	Bio-based insulation	Construction	Fire in wood fiber insulation, new fire test rules	

Non-European Cases (US, Asia, Global)¹

Year	Location	Material	Phase	Cause and Impact	Source
2017	Raleigh, NC, USA	Plywood/timber	Construction	Suspected arson; 5-story open wood frame destroyed	Fresno Bee
2018	Denver, CO, USA	Plywood/timber	Construction	Arson; five-story apartment burned, crane collapsed	The Denver Post
2017	Oakland, CA, USA	Timber/plywood	Construction	Arson; new housing repeatedly destroyed	The Guardian
2014	Los Angeles, CA, USA	Timber/plywood	Construction	Arson; 7-story frame fire, >\$100M loss	The Guardian
2014	Houston, TX, USA	Timber/plywood	Construction	Hot works; wind-driven fire destroyed site	CBC News
2010	Shanghai, CN	Facade net/cladding	Renovation (occupied)	Welding; 58 dead, 70+ injured; major reforms	Los Angeles Times
2025	Hong Kong, CN	Facade polymeric window framings, net/cladding	Renovation (occupied)	Unsafe netting and polymeric window framings; 151 dead, 76 injured	Hong Kong News Live
2025	Busan, KR	EPS insulation	Construction	Stored insulation ignited, 6 dead, 25 injured	Reuters

4. Insurance and Socioeconomic Impact

- Insurance: Construction/renovation fires are the largest loss driver; 27% value of claims, €12+bn globally over 5 years (allianz.com).
- Socioeconomic: Typical incident leads to months-years downtime, job loss, local business interruption, and permanent property depreciation.

¹ Lessons: Timber/plywood is vulnerable before full enclosure/fire protection. Fires (often arson or hot work) destroy whole sites rapidly, increasing insurance claims and instigating code reviews.

5. Availability of fire performance information for jobsite risk assessment

Under Directive 89/391/EEC, as implemented through national occupational safety and health legislation, employers and site managers are required to identify hazards, assess workplace risks and implement appropriate preventive measures during construction activities.

This obligation can only be effectively fulfilled if reliable fire performance information on materials present on the jobsite is available. The Reaction to Fire of insulation should therefore be declared not only when insulation is placed on the market as a stand-alone construction product, but also when it is supplied as a component of a construction kit under the CPR, as the fire risk associated with the material on the jobsite remains the same. Transparent RtF information enables contractors, safety coordinators and employers to properly assess ignition and fire growth risks during construction and renovation works, particularly where Member States regulate fire safety conditions during construction phase based on the fire behavior of materials.

6. Regulatory Findings and Recommendations

Based on the risks identified and the need for reliable fire performance information during construction activities, the following regulatory actions are recommended:

- Limit or prohibit combustible construction materials for partially or fully occupied buildings while renovating and where construction workers are at risk.
- Enforce stringent standards for active fire protection, phased occupation, maintained alarms/barriers, and independent post-completion inspection.
- Regulatory action: After every fatal incident, new bans or limits (EPS in high-rise, stricter timber/CLT controls, mandatory fire barriers).
- Harmonize data and permits: EUFireStat urging common national data, inspections, and safety certification before occupation resumes.
- Mandate the declaration of the Reaction to Fire of insulation under the CPR both when it is placed on the market as a stand-alone construction product and when it is supplied as a component of a construction kit (e.g. ETICS).
- Encourage Member States to explicitly refer to the Reaction to Fire classification of insulation when regulating fire safety conditions during construction works.

7. References

See embedded links for all individual cases

Following papers may be reviewed for inspiration:

- Eurima Position paper ETICS
- CFPA_E_Guideline_No_26_2010_F.pdf