

A European framework to ensure fire safety in (taller) buildings

19th International Water Mist Conference

23rd October 2019, Berlin

Quentin de Hults, Executive Chair
Modern Building Alliance

 @QuentindeHults
@ModernBuildEU



What is the Modern Building Alliance?

Alliance of trade associations and companies representing the plastics industry in the construction sector at European level, with a focus on fire safety



- Plastics are increasingly used in building and construction applications to make our buildings more sustainable, from window frames and durable pipes to state-of-the-art insulation solutions.
- An essential pillar of our cause is the ambition for greater fire safety across the construction industry. It is a key driver of our product design and manufacturing: improving the fire safety of buildings is a joint responsibility of the whole value chain involved in building and construction.
- That's why, by engaging with policy makers and stakeholders, we are committed to supporting the EU in ensuring safe and sustainable construction for people across Europe.

Promote a holistic approach of fire safety



We need:

- Better **statistics at EU level** in order to identify risk factors and effective fire safety measures



We support:

- Easily and readily implementable solutions such as, **prevention, detection and awareness raising**



We promote:

- Assessment of the whole **System performance** instead of individual material
- Correct use of products and systems in **accordance with all regulations** and producers guidelines

The EU Fire Information Exchange Platform (FIEP) has been set-up by the EU Commission following Grenfell fire, and identified 5 key priorities for which working groups have been established :

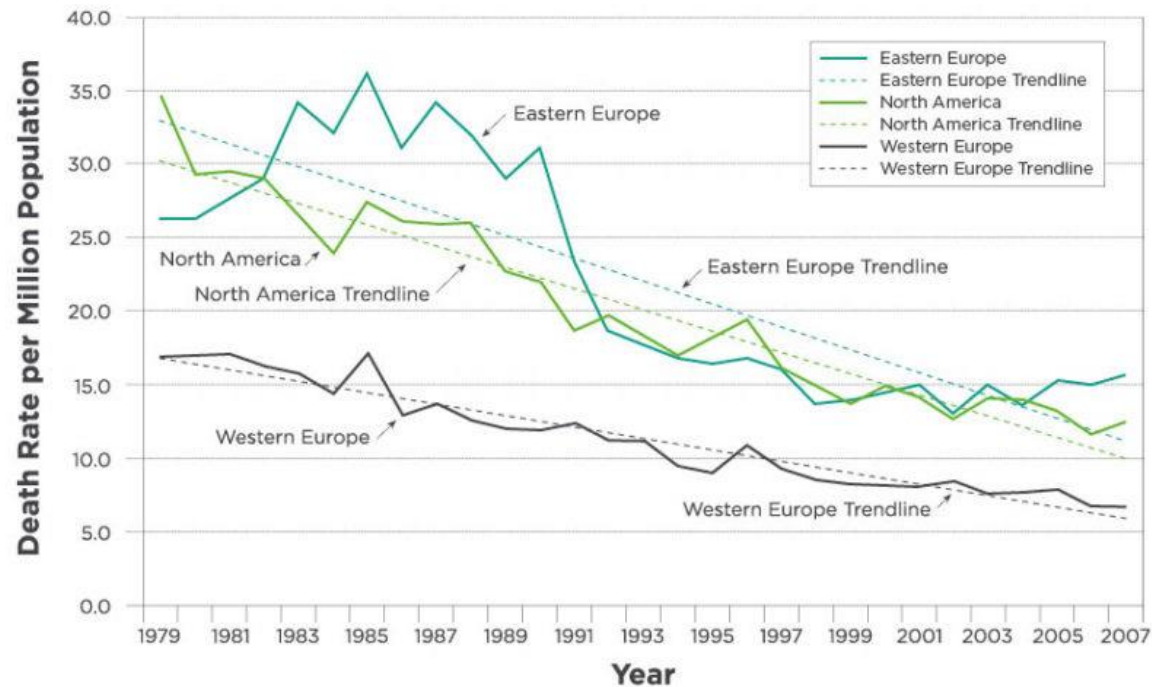
1. Common terminology and fire statistics
2. The application of fire prevention principles
3. The regulatory approach for new products, including high-rise buildings
4. Exchange of experience from fire accidents
5. Fire engineering approach in building regulations



More info on our website :

<http://www.modernbuildingalliance.eu/eu-fire-information-exchange-platform/>

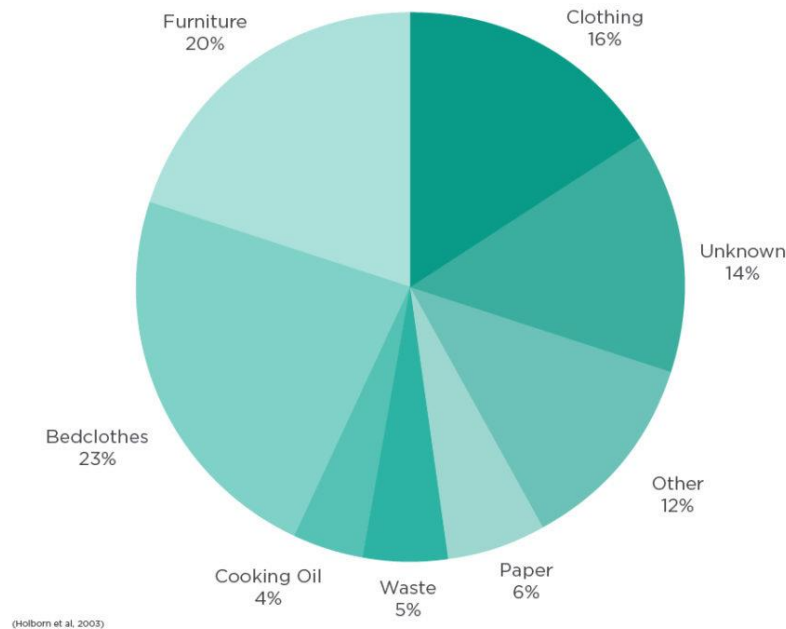
There is a lack of EU harmonized data on fire and fire victims but current data indicate that the **number of victims of fire-related incidents is steadily declining**. This decline has occurred in spite of an increasing and ageing population across the EU and a significant rise in the use of combustible materials.



Source USFA – Fire Death Rate Trend : International Perspective, 2011
More info: <http://www.modernbuildingalliance.eu/fire-safety-statistics/>

First thing to burn is content of buildings (bedclothes, furniture, clothing...).

The most common fire cause are preventable (smoking, cooking, electrical defaults,...)



Source Kobes and Groenewegen, 2011

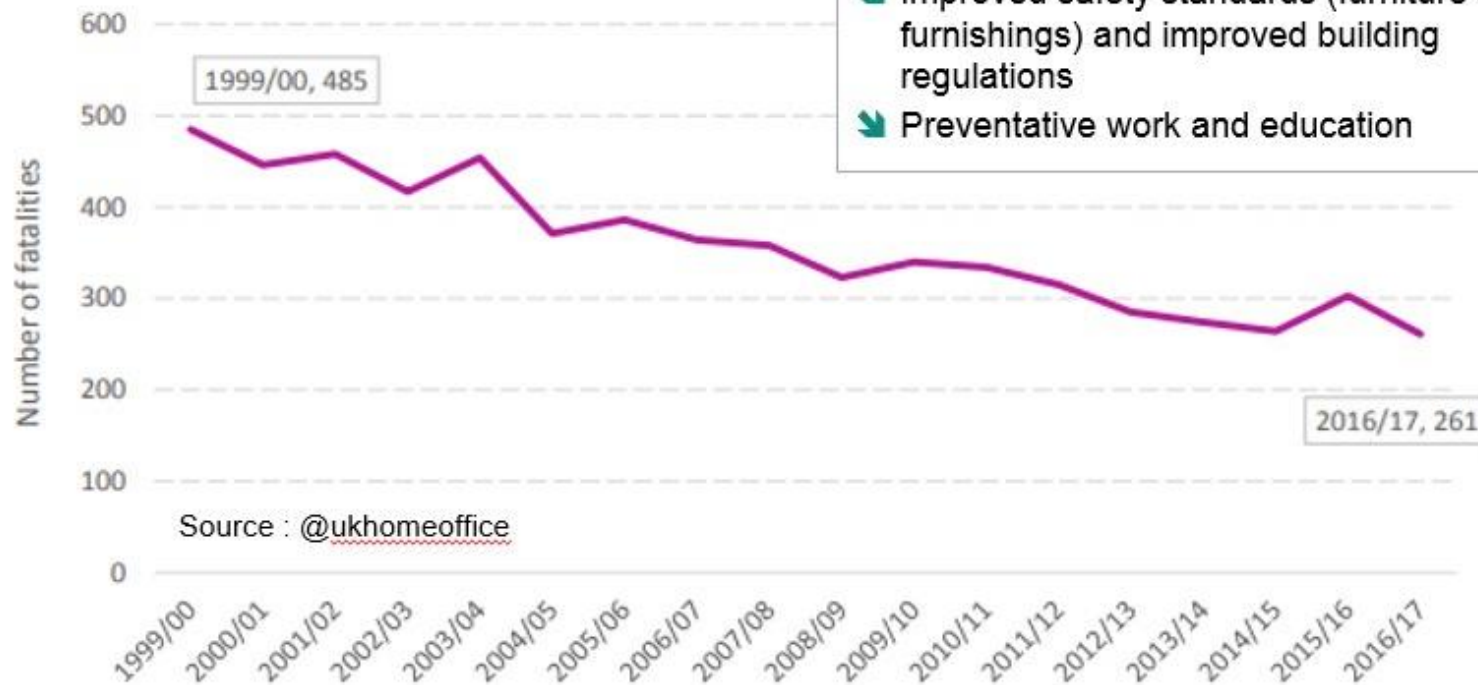
More: <http://www.modernbuildingalliance.eu/fire-safety-statistics/>

Upward pressure factors

- Ageing population
- Overcrowding / rise in houses in multiple occupation

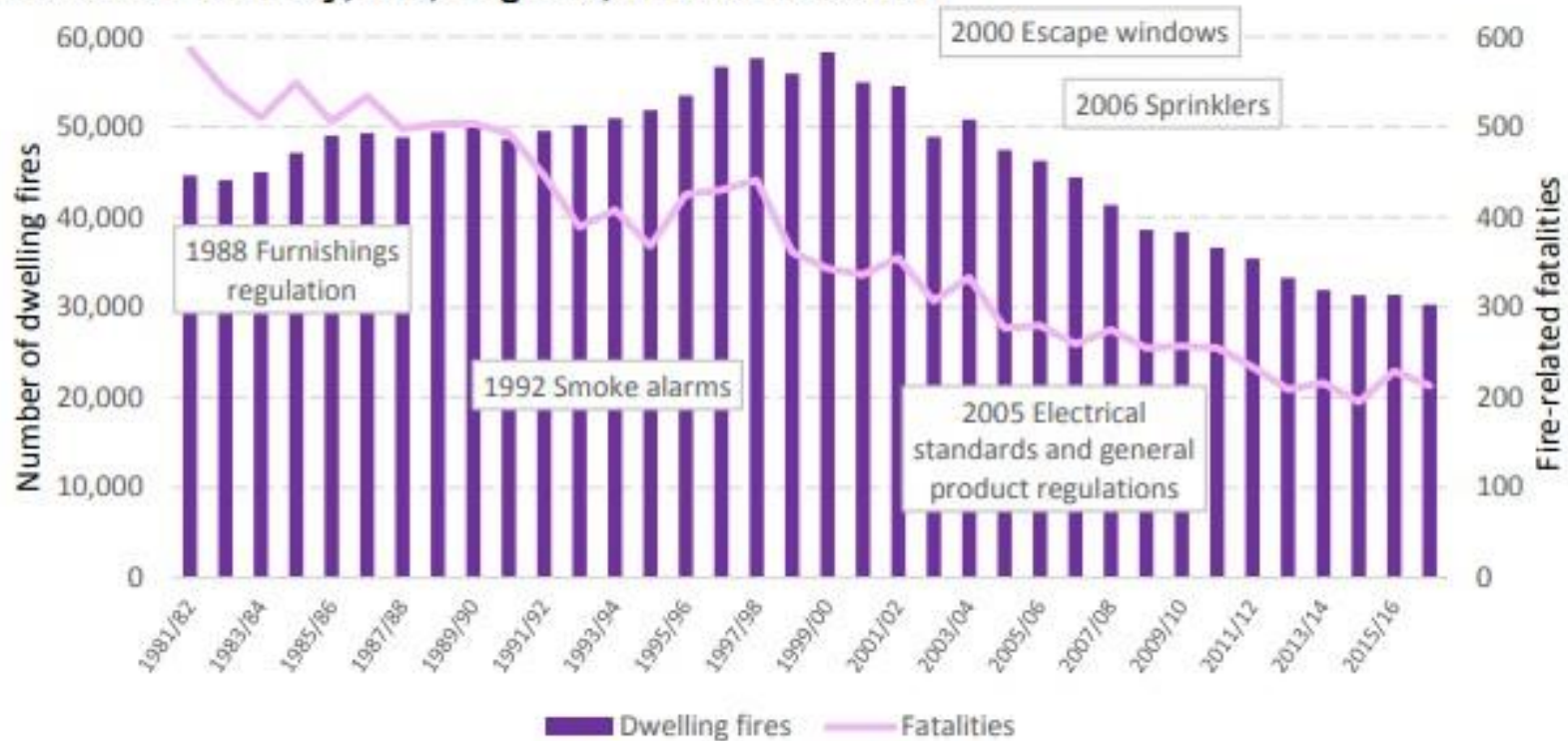
Downward pressure factors

- Changing cooking habits
- Increase in smoke alarm ownership
- Reduction in smoking
- Reduction in drug and alcohol use
- Reduced arson
- Improved safety standards (furniture and furnishings) and improved building regulations
- Preventative work and education



The impact of improved safety standards and improved building regulations?

Figure 12: Dwelling fires and fire-related fatalities, shown against regulations aimed to increase fire safety, IRS, England; 1981/82 to 2016/17



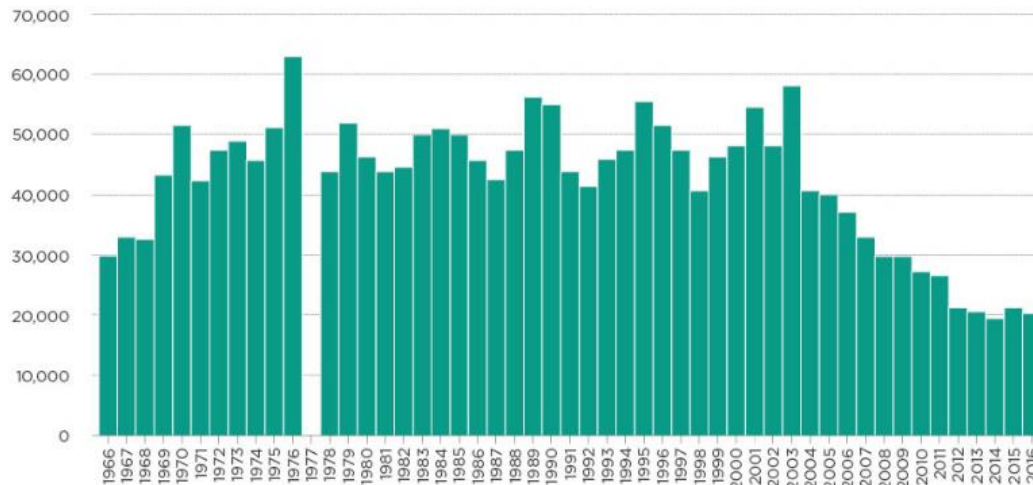
Source : Focus on trends in fires and fire-related fatalities, UK Home Office, October 2017

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/650869/focus-trends-fires-fatalities-oct17.pdf

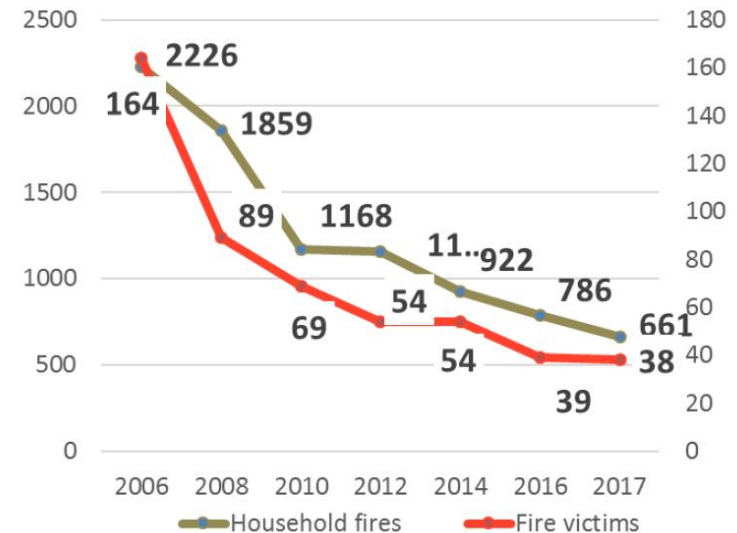
Fire prevention clearly makes a difference:

- London : number of fires and related deaths have been divided by 2 since prevention is the core of the fire brigade strategy
- Estonia : division by factor 3 to 4 in 10 years.

Total number of fires in Greater London since 1966



Estonia : household fire and fire victims



Source : London Fire Brigade, Estonian Rescue Board (presented at FIEP meeting, Sept 2018)

More : <http://www.modernbuildingalliance.eu/fire-safety-statistics/>

THE 7 LAYERS OF FIRE SAFETY IN BUILDINGS



Find our **EU FIRE SAFETY GUIDE** on
www.modernbuildingalliance.eu
@ModernBuildEU

The BIO Framework



National Building Codes

Requirements depending on building types (height and type of use)

EU Standards

Building

- ✓ Evacuation routes
- ✓ Fire & smoke compartmentation
- ✓ Resistance to fire
- ✓ Facades
- ✓ Access to firefighters
- ✓ Fire Safety Engineering

Installations

- ✓ Detection systems
- ✓ Adequate alarms syst.
- ✓ Sprinklers
- ✓ Smoke dampers
- ✓ Smoke ventilation
- ✓ Firefighting facilities

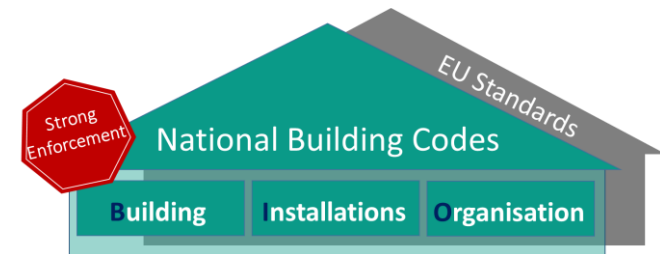
Organisation

- Adequate means and clear roles & responsibilities for
- ✓ Market surveillance
 - ✓ Planning
 - ✓ Construction
 - ✓ Maintenance and inspections
 - ✓ User information and prevention
 - ✓ Fire services

What should be considered in the regulatory approach?

1. Regulation at Member State level, requirements adapted to building types

- Define different building categories based on their type of use and height so that the performance requirements can be adapted to the risk, e.g.:
 - different height : low, mid, high rise
 - different type of use : residential, office, schools, hospital



What should be considered in the regulatory approach?

2.1 Building requirements

In national building codes

- Define performance based requirements per building category (e.g. time to escape, limitation of spread of fire and smoke, compartmentation and possibilities for fire fighters to extinguish...)
- Include escape routes in building design
- Define performance requirement of fire and smoke compartmentation, e.g. fire doors, penetrations,...
- Consider fire fighting strategy into building design (access to buildings, water supply, access to gas and electricity supply...)
- Encourage the use of Fire Safety Engineering for complex buildings



What should be considered in the regulatory approach?

2.1 Building requirements, focus on facades

In national building codes



- ❑ For façade systems of taller buildings:
 - ❑ Use large scale system testing as basis for all systems (regardless of combustibility of components)
 - ❑ Consider all elements of the system. Fire barriers in cavities are for example essential for ventilated facades
 - ❑ Ensure unambiguous description of system components via harmonized specifications
 - ❑ Define the extended application of large scale test results (allowed variations in the systems, eg. thickness)

What should be considered in the regulatory approach?

2.2 Installations

In national building codes

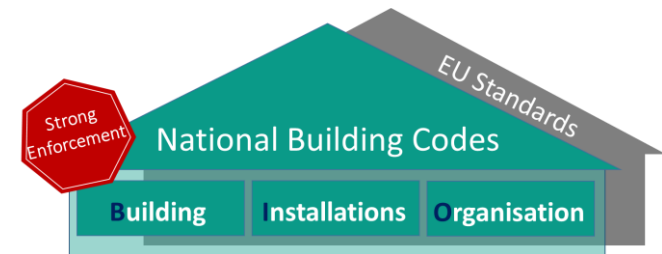


- Have installations in place adapted to the building category, particularly
 - Fire detection and alarms (smoke detectors) have an important effect on fire safety and are easy to introduce
 - Interconnection of smoke detectors and centralized alarm systems are necessary in larger buildings to alert all occupants
 - Fire suppression incl. sprinklers can be very effective in certain situations, such as high rise, as they assure that starting fires grow slow or remain small and the consequences of fire are limited.
 - Smoke dampers and ventilation systems for smoke control in the building
 - Specific fire fighting facilities must be included in the design of larger buildings (firefighting lifts, water supply,...)

What should be considered in the regulatory approach?

2.3 Organization

For the building and renovation process



- Ensure that the systems and products installed correspond to the systems designed (quality control, trained/accredited craftsmen, definition of responsibilities...)
- Ensure that the performance of all components applied in facade systems is declared according to the harmonized specification and corresponds to the system tested and approved
- Ensure appropriate AVCP (Attestation and Verification of Constancy of Performance)
- Ensure market surveillance of products

What should be considered in the regulatory approach?

2.3 Organization

Others



- Control that the fire safety design is maintained along the life cycle of the building, particularly related to compartmentation and escape routes
- Organize inspections of fire safety, gas and electrical installations at regular intervals.
- Have accredited professionals performing the roles related to fire safety of the building (e.g. fire fighter, fire safety manager, maintenance)
- Mandate fire brigade to work on prevention (safety checks, awareness campaigns, evacuation plans)

What should be considered in the regulatory approach?

2.3 Organization

Others



- Define the quality and "state of the art" of fire fighters facilities you need for safe escape of people. This shall be adapted to the local conditions to ensure speed of reaction, speed and easiness of access to buildings and capacity adapted to the building typologies (eg. height of ladders, fire fighting elevators...)
- Consider the social factors by providing better public awareness (mainly the capacity to escape, blocked doors, or to understand instructions which may be impaired by age, language, disability, alcohol, drugs...)
- Define fire safety responsibility, emergency procedures and emergency training for buildings where appropriate (eg. Hospital, schools, large buildings).

What should be considered in the regulatory approach?

!!! Enforcement !!!



*“ The fact that serious fire accidents in the EU (Bucharest disco, Grenfell tower) were caused by **non-compliance with existing fire regulations** points rather at the need to enforce existing Member States regulations than at the need for new regulations at EU level. ”*

Fulvia Raffaelli, Head of unit, DG Grow C1

European Parliament, 28 November 2018

What should be considered in the regulatory approach?

3. EU Standards are backing national building codes



Adequate European harmonized technical specifications (hENs or EADs)

to be used in Member States regulatory framework, for:

- large scale façade system testing, e.g. EC facade study proposes to incorporate DIN 4102 - 20 and BS8414
- all main components applied in facade systems
- resistance to fire of construction elements
- sprinklers
- smoke alarm
- fire security systems
- ...

hEN : harmonised European Standard; EAD : European Assessment Document

What is the role of product manufacturers ?

Product manufacturers have direct roles:



- contribute to the development of robust product standards
- have their products classified and labeled according to these standards and to have adequate quality control
- present unambiguous and clear information about their product performance, installation and use guidelines
- for façade system, apply large scale system testing and provide clear information about the systems and applications in which their products may be used
- contribute to training of the planners and installers

- A holistic approach to fire safety in buildings is necessary
- Fire safety regulation remain a national competence in the EU, but exchanging information and learnings can be highly beneficial
- Structuring the key aspects to be considered into a common framework can facilitate the exchange of information
- Automatic fire suppression systems have a clear role to play into such framework
- Ensuring strict enforcement of existing regulations and standards is essential, including inspections and maintenance in existing buildings

MONDAY	TUESDAY	WEDNESDAY	THURSDAY
 <p>18 NOVEMBER 2019 COMMUNITY FIRE SAFETY</p>	 <p>19 NOVEMBER 2019 BUILDING FIRE SAFETY</p>	 <p>20 NOVEMBER 2019 ELECTRICAL FIRE SAFETY</p>	 <p>21 NOVEMBER 2019 SMOKE+FURNITURE FIRE SAFETY</p>
<p>Opening European Fire Safety Week Brussels, BE</p> <p>Plenary Meeting Brussels, BE</p> <p>European Fire Safety Award Meeting Brussels, BE</p>	<p>Fire Safety of Buildings Brussels, BE</p> <p>International Safety and Education Seminar Day 1 Antwerp, BE</p>	<p>Electrical Fire Safety Brussels, BE</p> <p>International Safety and Education Seminar Day 2 Antwerp, BE</p>	<p>Furniture Fire Safety Brussels, BE</p> <p>Smoke Spreading Brussels, BE</p>

European Fire Safety week: our aims

We want to improve awareness on fire safety toward stakeholders and EU policy makers.

We connect the various initiatives on fire safety to organize more focus on the issue.

You and our stakeholders share best practices within EU Member States.

Together we solve the gaps in Fire Safety knowledge, data, legislation and standards.

We work together on the European Fire Safety Week

Federation of the European Union Fire Officers Associations – Fire Service Academy (IFV) – Dutch Burns Foundation – European Fire Safety Alliance – Oscare – Scar Academy – Antwerp Fire Service – Flame Retardants Europe – Modern Building Alliance – Europacable – European Copper Institute – European Fire Sprinkler Network – Fire Angel Technologies

Thank you! Engage with us:

Quentin de Hults, Executive Chair Modern Building Alliance
quentin@modernbuildingalliance.eu - + 32 486 03 2921

www.modernbuildingalliance.eu

info@modernbuildingalliance.eu

 [@ModernBuildEU](https://twitter.com/ModernBuildEU)

 [modern-building-alliance](https://www.linkedin.com/company/modern-building-alliance)

