10 ACTIONS
THAT WILL IMPROVE
FIRE SAFETY IN EUROPE

EUROPEAN FIRE SAFETY ACTION PLAN

Fire is a traumatic experience for those who experience it. The consequences? Financial and psychological damage, material and intangible losses, injuries or even deaths. Estimates suggest that there are more than 5,000 deaths in the European Union (EU) per year and a multitude of burn survivors who have been marked or scarred for the rest of their lives.

Most fires occur in homes and almost all are preventable. With the minimum of effort, we can protect thousands of people in Europe against fire. Fire safety is the key here. We always talk about it, but the real question is, what are we doing about it.

When a major disaster takes place, such as in Grenfell Tower in 2017, where many people were killed or injured, the focus is always on fire safety issues. Everyone is shocked, but people need to realise that, in the EU, we have a total number of fire casualties of almost 2 Grenfell Tower disasters every single week. Disasters and fires that could be prevented if we paid more attention to fire safety.

In November 2019, the European Fire Safety Alliance organised the first European Fire Safety Week to draw attention to fire safety at many levels. A number of experts were invited to share their knowledge to get a better picture of what needs to be done in order to make a difference concerning fire safety for people in Europe. Because it's about people. Our family, neighbours, acquaintances, colleagues and fellow citizens in Europe.

'We care about the safety of people all over Europe'

This first European Fire Safety week provided us with a lot of information and has allowed us to make a solid fire safety agenda for the coming years. An agenda that identifies concrete and realistic actions. Actions that are feasible and can make a difference. Actions that also relate to the other major social issues in Europe, such as the ageing population, the energy transition and the Green Deal. All things which have strong connections with fire safety and must be tackled together.

This action plan is our agenda for the next two years. An agenda that gives focus to, and keeps the focus on, the themes that deserve the most attention. The European Fire Safety Alliance will take a leading role in establishing and fostering the cooperation that is needed between the needed actions from the relevant actors, such as the European institutions, industry, Fire Rescue Services, etc. As such, we hope to be able to implement this agenda with all those who must and want to be involved in improving fire safety across Europe.

I hope that together, we can shape this agenda and truly improve fire safety for Europe's citizens.

Elie van Strien
Chair of the European Fire Safety Alliance

INDEX

Publication Details

Contact: Secretariat European Fire Safety Alliance
(info@eurofsa.org) Title: European Fire Safety Action Plan
Date: March 25, 2020
Authors: Rene Hagen BSc, MPA; Daan Heijmen MSc & Ingrid Siaens

An online version of this publication (PDF) and more information is available at:
https://www.europeanfiresafetyalliance.org/

With thanks to Jan van Beijnhem of Fotostudio XL

‘My scars have become my jewels.’ This is how **Renske Vuik**, aged 27 and blessed with unparalleled inner strength, puts it. Despite the exterior scars she sustained after an accident with a lighter when she was only four years old, she has learned to put things into perspective. ‘I lost my mother, and later my brother as well. The scars in my heart are many times deeper than the scars you see on my body.’

IT’S ABOUT PEOPLE

On 14th June 2017, the world was shocked by the fire at Grenfell Tower in London. The images of the 24-storey apartment block burning quickly spread across the world. The fire burned for nearly 60 hours before finally being extinguished and caused 72 deaths and left more than 70 people injured. Although the investigation is still ongoing, it is evident that its severe consequences were at least largely preventable.

Tragedies like Grenfell Tower often result in a temporary increase in attention being given to fire safety issues. But after a while, these fire safety issues quickly become forgotten until the next serious incident causes a revival of interest. This action plan must therefore not only focus attention on the most important focus areas, but it must also ensure that this focus is maintained over the coming years.

> “The added tragedy is that the majority of these fires and deaths are preventable”

But behind all the figures are people. People who died, who lost their home, who lost a loved one, or who will carry scars for the rest of their lives. And the fire in Grenfell Tower is not an isolated incident. According to conservative estimates, each year in the European Union (EU), fire in the residential environment claims the lives of about 5,000 people, with ten times that many injuries. The added tragedy is that the majority of these fires and deaths are preventable. And although people are the victim of these fires, they also make up a big part of the solution. Because, in the end, it is all about people.

What is in this action plan?

This action plan, focussing on fire safety in the residential environment, is the follow-up of the European Fire Safety Week 2019. Held in three different countries and with participants from over 20 countries, this event tried to contribute to a more fire-safe Europe. This action plan aims to ensure the continuation of this effort in the coming years as it tries to set Europe’s fire safety agenda.

To do so, this action plan is divided into 6 chapters, the 6 focus areas for the coming years. These cover different aspects of fire safety and touch upon both its technical and social dimension. The focus areas are the result of research, the opinion of hundreds of fire safety experts and the best practices across Europe. After having discussed the implications of these relevant issues and developments, the tasks that lie ahead will be discussed and ‘divided’ among the actors that need to be involved in a more fire-safe Europe. Because the time to act on fire safety is now.

The voice of fire safety experts is important

The results of a questionnaire taken on three different occasions play an important role in this action plan. The questionnaire was filled in by fire safety experts, ranging from the fire management to fire safety engineers, and from people working in the private fire

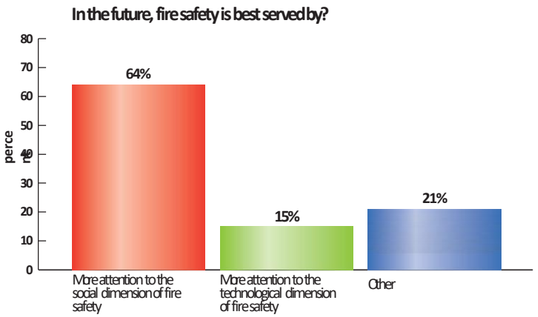

Figure 1. What is needed for in the future concerning fire safety

safety sector to fire researchers. The questionnaire was completed during the 12th Fire Safety and Science Congress in the Netherlands, the 5th International Safety Education Seminar in Belgium, and the 2019 Council Meeting of the Federation of the European Union Fire Officers Associations (FEU) in Denmark. In total, 336 fire safety experts from all over Europe filled in the questionnaire.

"The traditional approach to reducing fire casualties through technical and technological solutions urgently needs to be extended towards a more sociological approach, promoting societal awareness, creating a safer behaviour, and providing educational programmes"
- Chris Addiers (president of the FEU)

Throughout the process of creating this action plan, the answers from the experts have been taken into serious consideration. For example, the results confirmed the belief that this action plan should firmly focus on the social dimension of fire safety. As figure 1 shows, there is a clear preference (64%) for more attention to this social dimension of fire safety.

Having the basis in order

Because most fires are caused by human actions, this action plan focusses on a sociological approach. This does not alter the fact that the basis of a fire-safe (residential) environment needs to be in order. Appropriate regulations for both structural-, installation- and inventory aspects must ensure that a building, whether newly built or renovated, is fireproof.

However, the fire at Grenfell Tower has shown that one cannot always assume that a building is fire safe. Research and training are important aspects of ensuring the appropriate regulations and competent fire safety engineers. Moreover, compliance with product and building requirements is essential, because 'people should get what is promised'. Especially for Europe's vulnerable citizens, for whom (like the elderly) escaping is most often not a safer option, preventing a fire from breaking out is essential. Although this action plan is more focused on fire-safe behaviour and new fire risks, the importance of having the basis of a fire-safe residential environment must not be overlooked.

'Being strong is a given. There's no other way,' says **Joyce van der Bol**. Her words resonate with strength, but this was not always the case. Joyce got burned from her neck to her groin when a cigarette set her bed on fire. 'I spent a long time in hospital and was transferred to the rehabilitation centre. That is where I got the bacterial infection, which put me into Intensive Care for a second time. I even told my ex-husband to pull the plug on me,' says Joyce, referring to the terrible pain she was suffering at the time. Now she is very happy that they didn't. 'I have two children who live with my ex-husband, with whom I still have a very good relationship. They come and visit me regularly and that means everything to me.' In any case, Joyce is not someone to do nothing. 'That's when I start thinking too much, and I don't want that. You have to seize the day, start again, and not be defined by your scars. And that's why I fight for every day!'

‘Actually, it’s a miracle I’m still alive’, says **Amanda Kroonsberg-Tillema**. She cannot remember anything about the accident that occurred when she was just eighteen months old. Her home caught fire as a result of an electrical short-circuit, after which the fire brigade had to rescue her from the burning house. ‘I must have a guardian angel because my burns are not in places that are visible in daily life’, says Amanda. Even so, she endured considerable bullying because of her burns when she was in primary school. ‘I even brought in a burns specialist to school to show them what being burned really means. That did have an impact.’ Nevertheless, Amanda finally managed to accept who she is only a few years ago. ‘I’m not yet 30 years old and have undergone 40 operations. This was the last one. I have two wonderful children and, in that regard, I am ‘all grown up’. I feel that I can now draw a line under this.’

FOCUS AREA 1
THE GROWING VULNERABLE COMMUNITY

In Europe, there is a growing vulnerable community. In 2018, nearly 20% of the EU’s population was aged 65 or over[1]. Moreover, life expectancy at birth is expected to increase 7.8 years for males and 6.6 years for females in the coming 50 years. This means that the EU is “turning increasingly grey” in the coming decades[2]. Partially because the population is getting older, the number of Europeans with disabilities is also rising significantly. As a result, expectations are that this year there will be approximately 120 million Europeans with a disability[3]. As such, the group of vulnerable people is getting increasingly bigger.

But what, and who, are vulnerable people? In other words: who need our special attention when it comes to fire safety? Due to their mental or physical state, vulnerable people have a bigger chance of causing a fire and/or have difficulty in escaping from their living environment in a timely and safe way in the event of a fire. Research into the relationship between vulnerable people and fire safety highlights a large number of risk groups[4]. The most important ones are elderly people, disordered people, and people with a mental or physical disability. These type of people are considered particularly vulnerable if they live on their own. People with low social-economic status and people with a non-western migrant background are also considered more vulnerable to residential fires. Naturally, children always need to be considered when it comes to fire safety. Moreover, some of these vulnerable groups are also more likely to experience energy poverty. In conclusion, it is no surprise that people often say that ‘fire discriminates’.

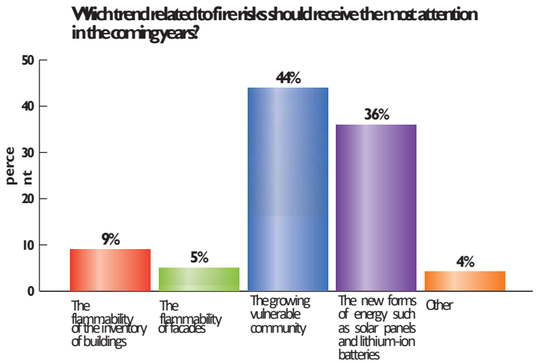

Figure 2. The trends that deserve the most attention

> ‘‘Vulnerable people have a bigger chance of causing a fire’’

What do the fire safety experts say?
Of the 336 fire safety experts, 44% believes that, in the coming years, most attention should be paid to the growing vulnerable community (see figure 2). Looking at the vulnerable risk groups that need the most attention, elderly people living at home (38%) and children (36%) score the highest. A focus on people with a mental or physical disability scores 6% (see figure 3).

When looking at which kind of buildings should receive the most attention, 50% voted for all forms of private homes (see figure 4 in focus area 2).

What should we focus on?
When looking at which vulnerable groups are expected to grow the most in the coming years, and combining this with the opinion of the fire safety experts, it can be concluded that three main risk groups should receive the most attention in the coming years. These are the

1 Eurostat (2019). *Population Structure and Ageing - Statistics Explained.*
2 European Commission (2018). *The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States (2016-2070).*
3 European Commission (2019). *Progress Report on the Implementation of the European Disability Strategy.*
4 Institute for Safety (2019). *Risk groups and fire safety.*

elderly (65+) living at home, (other) people with a mental or physical disability living at home, and children. We owe it to these vulnerable groups of citizens to provide them with a certain level of fire safety in their residential environment. One that does not allow these people to be at a significantly higher risk of being involved in a fire, or being at a higher risk of suffering the consequences of a fire.

It is difficult to underpin these findings with data as, within Europe, there are insufficient fire-related statistics available. However, research on 9 European countries commissioned by the European Fire Safety Alliance (EuroFSA), shows that over half of the people who die in a fire in the residential environment are people aged 65 or over[5]. Moreover, burns are much more difficult to treat due to their older skin and elderly people are much more prone to the effects of inhaling smoke. When looking at countries that collect data on the mental or physical state of fatal casualties regarding fires in the residential environment, those people are also overrepresented in the statistics. Children are mostly at higher risk when living in single-parent families. However, children always need our special attention and care concerning safety, including fire safety.

"Children always need our special attention and care concerning safety, including fire safety"

If these findings are combined with the ageing population and the increase in people with a mental or physical disability living independently for a longer time, the conclusion can easily be drawn that if nothing is done, the number of fire casualties among these groups will increase rapidly in the coming years. For these groups and children, doing nothing is not an option.

How can we improve the fire safety of the growing vulnerable community?

To be able to make effective interventions to improve the fire safety of the previously mentioned risk groups, we need to know what the risk factors are. After all, if these risk factors are known, we also know what any interventions should be focussed on to improve fire safety. Sufficient international research is available to identify these risk factors. Among others, this research shows that a distinction can be made between factors that we can influence (such as the type of housing certain people live in, fire prevention resources and the use resources) and factors that cannot be influenced (such as age-related ailments, illness and social and economic status)[6]. Particular attention must therefore be paid to those factors that can be influenced.

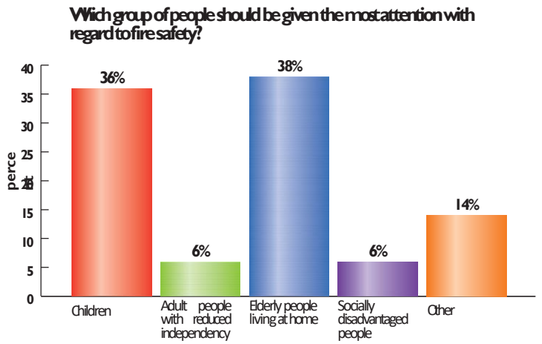

Figure 3. The groups of people that need the most attention

Improvements in fire safety have to be based on some important findings. First, when it comes to the elderly and people with disabilities, fire often starts close to their body (for example the chair they are sitting in or the bed they are lying in). Due to these people's reduced self-reliance, it is important to act quickly. When looking at the possible (layers of) building fire safety measurements and related to these vulnerable risk groups, the prevention of fire breaking out and the rapid automatic extinguishing of any fire are essential. The early detection of a fire is only effective if the alerted persons are also able to escape independently and on time.

These measurements can be realised through a combination of influencing fire-safe behaviour, initiating the application of technical provisions, such as early detection and automatic extinguishing, and implementing building regulations that fit the requirements of the (vulnerable) risk groups. However, to be effective, these three tracks must be realised together. Only taking one or two of these measurements will not lead to a satisfactory result.

Lastly, children are a vulnerable group. The chance of a (deliberate) fire among children is relatively high and statistics show that, in many European countries, children are often the victim of a fire. Research into high-risk groups shows a particularly high risk of a fire breaking out in single-parent families. Information and education are the most important aspects to reach not only children, but also their parent(s).

KEY MESSAGE

The time to escape in case of a fire is decreasing while more and more people need more time to escape. Measures need to be taken to improve the available time to escape in case of a fire. These measures must include (1) the introduction of a EU-wide standard for fire-safe upholstered furniture and mattresses, (2) the broad application of smoke detectors and (3) the evaluation and improvement of the functioning of Lower Ignition Propensity (LIP) cigarettes.

Project: **SAFE AT HOME**

The 'Safe at Home' project was submitted by the 'Noord- and Oost-Gelderland' Fire Region from the Netherlands. It enables elderly and less self-reliant people to remain living for longer in their familiar environment in a safe manner. This is achieved by equipping homes with smart sensors and social alarms, connected with their caregiver(s). In the event of an emergency, such as a fire, burglary or other problems, the sensors alert the social network.

The experiences of the users are positive: participants feel safer at home and the sensors are not seen as an infringement of their privacy. They also relieve the (informal) caretakers who feel able to leave the house more often. It also increases the risk awareness of the target group who have taken more preventive fire measures.

''It makes life easier for both the cared for and the care-giver(s)"

The jury found this project very valuable and of high importance to fire safety improvement. By connecting the social network of less self-reliant people with (new) technology, the project succeeds in changing human behaviour. Furthermore, it makes life easier for both the cared for and the care-giver(s). The jury also appreciated the fact that the project goes beyond fire safety. It concerns 'safe living' in the broadest sense, of which fire safety is an important aspect.

More information about this project can be found at: https://leefsamen.nl/.

[5] Institute for Safety (2018). *Fatal Residential Fires in Europe. Part 1. See: https://www.ifv.nl/kennisplein/Documents/20181120-BA-EFA-Fatal-residential-fires-in-Europe.pdf*

[6] Institute for Safety (2016). *Fire Safety and the ageing population. See: https://www.ifv.nl/kennisplein/Documents/20161201-IFV-Brandwondenstichting-Fire-Safety-and-the-ageing-population.pdf*

'I was a tough guy who thought nothing could ever happen to him. But it did,' reminisces **Hendrik Oost**. In 2005, he got severely burned in a friend's garden during a baby shower as a result of an accident with a burning brazier.

FOCUS AREA 2
THE DANGEROUS REDUCTION IN ESCAPE TIMES

Nowadays, residential fires produce much more smoke than in the past. This development is mainly caused by furnishings producing much more smoke than a few decades ago. Research has shown that the furnishings, such as sofas and mattresses, produce up to 10 times more smoke than in the early 1980s[7]. The main reason for this is that these products contain a lot more plastic foams than they used to.

"The time people have to escape safely in the event of a fire is getting shorter and shorter"

To become more eco-friendly and energy-efficient, homes and other buildings are also getting increasingly airtight. As a result, fires in these buildings are often being smothered due to a lack of oxygen. The resulting smothered fires produce much more smoke than fires that are able to fully develop. This increase in smoke development means that the time people have to escape safely in the event of a fire is getting shorter and shorter. After all, the increase in smoke development also results in faster smoke propagation through the building. This development can be seen in fires in all types of buildings all over Europe.

Who are most at risk?

The increase in smoke development poses posing the biggest risk in buildings where people reside who are less likely to be able to get bring themselves to safety, such as the elderly and people with a physical disability. Because of their (mostly physical) limitations, these people need more time to escape a building in case of a fire. However, the recent increase in smoke development and quick smoke propagation gives them less time to escape. Thus the problem of increasing smoke development and quick smoke propagation, combined with developments such as Europe's ageing population, thus, creates an even bigger problem. There is less and less time to escape while a growing group of people needs more time to escape.

What do the fire safety experts say?

With regards to the increase in smoke development and quick smoke propagation in buildings, 37% of the fire safety experts indicate that most attention should be paid to collective housing, such as apartments. This is supported by the many fires that take place in such buildings and where smoke propagation causes by far the largest number of casualties.

When taking a closer look at the suggested solutions, figure 6 (see focus area 4) shows that 14% of the experts indicate that the development of smoke must be prevented by focussing on the flammability and strong smoke development of upholstered furniture (and mattresses). To quickly alert residents if a fire does break out, 19% argues for (more) smoke detectors. To limit the smoke development and propagation, 14% argues for (more) sprinkler systems.

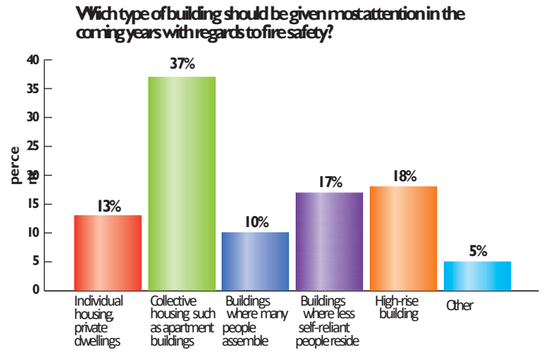

Figure 4. The type of buildings that should receive the most attention

[7] Hurley, M.J. (2015). *SFPE Handbook of Fire Protection Engineering (5th edition)*

What should we focus on?

Smoke obstructs vision, is toxic, displaces oxygen and produces a lot of lethal carbon monoxide. To limit the smoke development and propagation that causes a lot of casualties, there are three possible solutions to focus on. The first and most effective one is the prevention (or limitation) of smoke development. In this case, the focus should be on the most important sources of smoke development. The previously mentioned research into fatal residential fires in nine European countries suggests that most fatal residential fires occur in upholstered furniture, mattresses and bed linen. Moreover, at least 25% of all deaths and injuries in fires in the residential environment are caused by the flammability and smoke development of upholstered furniture and mattresses. The main causes of residential fire are smoking and electrical equipment, such as electric blankets and (chargers of) PCs, tablets and smartphones.

The second possible solution is to prevent, limit smoke propagation to avoid exposure to smoke. In the summer of 2019, some unique European experimental research was conducted in Oudewater, the Netherlands[8]. In a large apartment building, multiple tests were carried out during 19 different controlled fires. The aim was to gain an insight into the effects of various installations and structural facilities to limit smoke propagation. Examples are the testing of the application of a sprinkler system, the airtight (and therefore smoke-tight) closing of the apartments and their front doors and the self-closing execution of the front doors of these apartments[9]. The final results of these experiments will be published in July 2020.

The third possible solution to limit the number of casualties due to smoke development and smoke propagation is to ensure that residents are warned quickly about the development and propagation of smoke. Although smoke detectors in homes are already mandatory in several European countries (sometimes also in existing homes), this is by no means always the case. The previously mentioned research has shown that in 9 European countries there was no smoke detector present in more than half of the fatal residential fires. This also means that in many of the fatal cases, a working smoke detector was present. Except for cases where the alarm was not noticed due to the use of medication or alcohol, most of the time, it concerned people who, due to their age or physical disability, were not able to escape safely and in time. Smoke detectors are, thus, not always the sole solution to the problem. Nonetheless, smoke detectors are certainly part of the measures that have to be taken.

"If placed properly and working, smoke detectors are lifesavers"

How do we improve fire safety by increasing escape time?

To counteract the effects of the increase in smoke propagation, it is most effective to avoid (or limit) smoke development in the first place. This is especially important because the effectiveness of the measurements to prevent the quick propagation of smoke or to early warn people is highly dependent on the degree of self-reliance of those present. Without help, most elderly people and people with a physical disability cannot escape quickly enough or cannot escape at all. Children also often need guidance to be able to escape safely.

It has been known for years that upholstered furniture and mattresses cause the most smoke in the event of a fire. As a result, they are responsible for a large share of the number of people killed and injured in residential fires. The discussion around the use of flame retardants by manufacturers of upholstered furniture and mattresses to meet fire safety standards has become polarised in recent years. Nowadays, it can be seen also that by testing fire safety on the end product and not on the individual components of a sofa or mattress, solutions without flame retardants could also be available. In light of these developments and discussions, the EU should consider reviewing the need for a harmonised EU-standard for the flammability of upholstered furniture and mattresses.

If placed properly and working, smoke detectors are lifesavers. As such, this cheap and, in many cases, effective fire safety solution needs to have a much broader application in European homes. If residents are unable to escape on their own after a smoke detector has been triggered, other measurements are necessary. Domestic sprinklers, which are now available in several simple forms and designs, are then a logical alternative or addition.

Research has shown that smoking, in combination with the flammability of upholstered furniture and mattresses, is still the number one cause for fatal fires in the residential environment[10]. And this remains true even though the so-called Lower Ignition Propensity (LIP) cigarette was introduced in the EU in 2011. A cigarette that ought to self-extinguish and be less fire-prone. Research has shown that there are a considerable number of disadvantages to the testing methods of these cigarettes. As such, these methods need to be urgently evaluated to improve the fire-safe functioning of these cigarettes.

KEY MESSAGE

The time to escape in case of a fire is decreasing while more and more people need more time to escape. Measures need to be taken to improve the available time to escape in case of a fire. These measures must include (1) the introduction of a EU-wide standard for fire-safe upholstered furniture and mattresses, (2) the broad application of smoke detectors and (3) the evaluation and improvement of the functioning of Lower Ignition Propensity (LIP) cigarettes.

[8] For a presentation on the preliminary findings, watch: https://www.youtube.com/watch?v=0MTOcGTOryU

[9] The definitive results of this study will be published in the summer of 2020. However, as EuroFSA already had access to the preliminary findings, they have been included in this action plan.

[10] FEU (2017). *Fire Safety of Upholstered Furniture and Mattresses in the Domestic Area. See: https://www.ifv.nl/kennisplein/Documents /20170501-FEU-Fire-safety-of-upholstered-furniture-and-mattresses-in-the-domestic-area.pdf*

COMMUNITY FIRE SAFETY PROJECTS

In recent years, the fire services have been paying extra attention to achieving Community Fire Safety by stimulating citizens, companies and institutions to give sufficient consideration to the risks of fire in residential environments. The aim is to create a change in the behaviour of citizens and the fire-fighter community. To reduce fire damage in the residential environment, a growing awareness of, and an increasing motivation to pay attention to fire risks in the residential environment, is essential. Fire Rescue Services must play a major part in creating a positive change by using their knowledge, skills and positive credibility to help change this behaviour and to improve the awareness of citizens, especially among risk groups.

''It's possible to develop a local or regional project that truly influences behavior''

To stimulate Community Fire Safety projects and to inspire all actors in this field, the European Fire Safety Award was introduced in 2019. This edition focused on projects that raised fire safety awareness, changed human behaviour, and inspired education on fire safety. Among the projects that were admitted from all over Europe, the three nominated projects all focused on the most vulnerable target groups. The projects ranged from educating children to services for older and less able-bodied people, and to the inclusion of people of different origins in fire safety.

Throughout this action plan, the three nominated projects and their jury report are discussed.

'I had 42 operations, and here I am!' Marjorie Holtus-Knol is a prime example of how abject misfortune can be transformed into strength and happiness. When she was ten years old, she was seriously burned when she couldn't get out of a burning paper container. 'At the time, they weren't even sure whether I would make it to the Burns Centre Beverwijk, that's how bad it was', says Marjorie. Today she does not want to be seen as a victim. 'I want to be an example.' After the disastrous fire at café 't Hemeltje in Volendam, she was asked if she could come and share her experiences which gave her new insights as well. 'Being able to do that felt so special. This turned into a job with the Dutch Burns Foundation. Apart from that, I studied Communications. I am so glad that I can share my own experiences with others! I have a wonderful husband, three children, and I still work for the Dutch Burns Foundation. I am a very happy woman', she says proudly.

FOCUS AREA 3
THE ENERGY TRANSITION

The European 'Green Deal' provides a road map with actions to boost the efficient use of the world's natural resources. The energy transition, driven by the aspiration to fully decarbonize the energy system and the use of new technologies, reduces harmful pollution, potentially slowing and reversing global warming. One element of the Green Deal is supplying clean, affordable and secure energy. 'Secure' energy also implies safe energy, which confronts us with new challenges and risks concerning fire safety.

Electricity will play an even more dominant role in our homes and vehicles than today. The world energy usage is expected to increase by nearly 50% by 2050[11] and the estimated electrical consumption of a European household is expected to increase even faster. At the moment, it is estimated that electrical fires account for 20 to 30% of all fires in the residential environment. As such, the potential electrical hazards for fires will also increase. Here, the EU is not doing particularly well compared to some other countries. For example, the number of electrical fires per dwelling in the EU is 3 times higher than in the United States of America and 24 times higher than in Japan[12].

However, reducing carbon dioxide emissions necessitate building systems that use renewable energy sources as well as re-usable natural materials, i.e. a circular system. The current construction method is still a linear 'take-make-waste'-system, using building materials made from the unrestrained use of natural materials. Buildings are being demolished and the materials are, for the greater part, discarded.

The energy transition therefore not only brings opportunities, but it also brings new risks and challenges. These risks and challenges emerge very quickly, most often faster than regulations can follow them. While many efforts are done to develop knowledge, tools and competencies to design more sustainable construction, we also need to invest in knowledge, tools and competencies to ensure the fire safety of modern constructions. Moreover, the issue of fire (safety) is most often neglected or misunderstood when considering circular construction. This is because all that is burned must be produced again and is, therefore, not circular. A fire therefore has a negative environmental impact on the air, soil and water.

"The energy transition not only brings opportunities, but it also brings new risks and challenges"

What do the fire safety experts say?
Figure 2 (see focus area 1) shows that 38% of the experts indicated that the energy transition is the trend that should receive the most attention in the coming years. As can be found in figure 5, 24% of

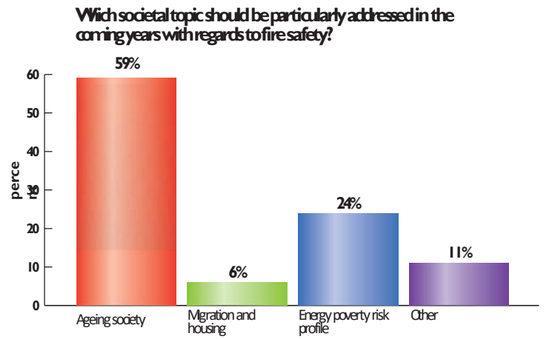

Figure 5. The societal topic that is the most important

[11] Energy Information Administration (2019). *International Energy Outlook*.
[12] Forum for European Electrical Safety (FEEDS) (2017). *Residential Electrical Safety.*

these experts also indicated that energy poverty should be the main societal focus regarding fire safety. Moreover, 45% indicated that the energy transition's fire safety risks, such as the flammability of battery packs (lithium-ion) and PV panels, are the risks to pay most attention to (see figure 6). Combined, these results substantiate the importance of the fire safety issues regarding the energy transition recognised by the experts.

What should we focus on?

It is of utmost importance that as, soon as possible, attention focusses on the fire safety aspects of the energy transition and the subsequent changes in construction and buildings that are already bringing new fire safety challenges. Subsequently, the upcoming innovations and changes in this field must be researched. Moreover, the renovation of existing buildings needs to be considered as an opportunity to check and ensure the fire safety of these buildings.

The energy transition aims for energy-neutral and fossil-free buildings, something which poses new fire safety risks. Due to their associated smoke development in case of fire (this problem is addressed in focus area 2). Nonetheless, with regards to fossil-free buildings, the focus should be on both the already known and the unknown risks that (among others) are caused by solar panels, heat pumps, energy-storage with lithium-ion batteries in buildings and homes and the use of hydrogen. The fire safety risks of electric vehicles lie mostly in the parking and recharging of vehicles in built-up areas, such as in parking garages, under carports and in-home parking.

Within circular construction, products and (natural) materials (such as wood, straw and hemp) are re-used wherever possible and residual waste is kept to a minimum. Wood is also increasingly being used as a construction material, even for high rise buildings. Furthermore, trees, grasses and mosses are being used on roofs and facades. However, these materials, are more flammable than the currently used materials. Therefore, fire safety should be an essential aspect of circular construction.

As soon as possible, building regulations need to become aligned with these developments as closely as possible while being both risk- and performance-based. The fire safety of buildings should be guaranteed by legislation. But, as already mentioned, almost per definition, legislation is running behind new developments and (technical) innovations.

How do we improve the energy transition's fire safety?

There is insufficient awareness regarding the new fire hazards associated with the energy transition and circular construction. Due to this lack of awareness, there is also too little knowledge and competency regarding these fire safety issues. However, it all starts with creating awareness. The already established rise of fires associated with these trends demands that fire safety is seen as an essential aspect of the energy transition and circular construction. Doing so would prevent an increase in fires and fire casualties.

The focus should be on increasing awareness, among governments, industry and users of the fire safety risks of the new forms of energy, such as solar panels, battery storage (building and neighbourhood level), hydrogen and heat pumps. This is the starting point to develop knowledge, tools and competencies to address these challenges. This also includes ensuring that people such as electricians possess modern competences. Furthermore, governments and the industry need more knowledge concerning the associated fire risks of the energy transition. This is also an important issue with regards to the new forms of transportation, such as vehicles using alternative sources which are parked in parking garages, under houses and in-home garages.

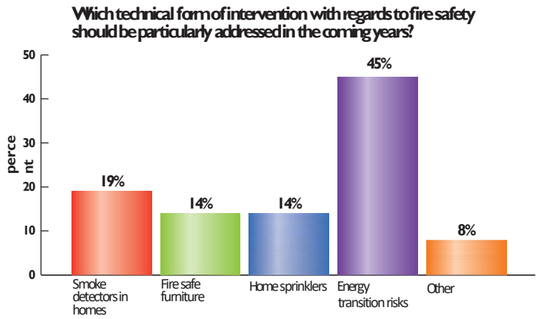

Figure 6. The technical form of intervention that needs the most attention

As discussed, circular construction comes in many forms. All of them have several fire safety risks which have not yet been implemented in the current building regulations. Here too, everything starts with paying increasing attention to, and expanding awareness, knowledge and competency regarding the fire safety of, circular construction.

KEY MESSAGE

Fire safety needs to be seen as an essential aspect of the energy transition. To achieve this, more awareness must be created and more investments need to be made in knowledge, tools and competencies to ensure the fire safety of (1) the new forms of energy, (2) the new forms of transportation and (3) circular construction.

Project: **TOGETHER SAFE FIRE BRIGADE**

The educational initiative "Together. Safe.Fire.Brigade", submitted by the Austrian Fire Rescue Service Association, contributes to fire protection education in kindergartens and schools. Using new teaching materials, children between five and eighteen years can be taught how to react in dangerous situations. It also increases the awareness that they themselves can actively help to shape a safe living environment.

''We focus on raising fire safety awareness, changing human behaviour and inspiring education on fire safety''

Schoolchildren receive information and learning books, as well as direct contact with the local fire department to intensify the content. The material helps teachers to design lessons and the standardised materials minimalize the preparation work required for fire-fighters who visit schools and provides them with guidelines on how to work with children. Through the children, the idea of (fire) safety is also passed on to the parents and families, thus, reaching a wide target group.

The jury members see the project as a wonderful initiative that links perfectly to the award's focus: raising fire safety awareness, changing human behaviour and inspiring education on fire safety. Special attention was paid to the very broad scope of the project. The jury also appreciated that its results form the basis for systemic solutions for fire safety improvement due to the delivery of standardised teaching materials for all inhabitants of Austria.

More information about this project can be found at: https://www.gemeinsam-sicher-feuerwehr.at/

‘I frequently hear that people draw strength from seeing fellow sufferers in this powerful manner. I’m really glad that it does.’ **Natasja van der Velden** got severely burned at ten years of age when she tried to light a wood-burning stove with methylated spirits. Afterwards, it took as much as a year for all of her wounds to close. Despite that difficult time in her life, Natasja still radiates energy. ‘I’m now an operational manager at an equestrian centre where I do all kinds of things. There are days when I’m barely hindered by my scars and I feel very strong. I am grateful that I can do almost anything I want.’ For her personally, the dramatic event has changed her outlook on certain things, of course. ‘I consciously make sure to enjoy the small things in life. There’s something beautiful in everything and perspective is an important factor in this.’

FOCUS AREA 4
THE AWARENESS OF FIRE SAFETY

For the most part, fires are caused by human actions. People being aware of their responsibilities regarding fire safety is therefore of the utmost importance. Whether people are able to leave the building or their home safely in time in the event of a fire also depends on their actions. If people act fire safe, the chances of a fire breaking out are reduced. And when a fire does break out, people knowing how to act decreases the chance of people getting hurt or dying.

The role of education in fire safety in the residential environment is, thus, extremely important because, in the end, people make the difference. Technical fire safety is, of course, very important but it is people who have to safely use the equipment and products, who have to close fire doors, and who have to respond to a smoke detector in case of a fire breaking out, etc. The social dimension of fire safety is therefore not to be underestimated.

> “At the moment, more awareness of fire safety is needed and, therefore, education on fire safety is needed. This also includes influencing the behaviour of people in case of a fire”

Fire hazards in the residential environment cause deaths, (disabling) injuries and hospital visits that could have been avoided through behavioural and environmental modifications. Unfortunately, there is a lack of awareness about household safety practices and procedures. Many adults are not aware of how to minimise the fire risk in their homes, something which is reason enough to raise the awareness about home safety hazards and to teach people fire safety techniques to prevent fires from breaking out. It is also crucial that people know how to react effectively in the stressful situation whenever a fire occurs, something which is essential for their survival.

Who are most at risk?
As stated in focus area 1, it is known that elderly people, people who are less self-reliant due to a mental or physical disability and children are the most vulnerable groups of people when it comes to fire. Information and education must, therefore, be specifically aimed at improving the safety of these high-risk groups. However, other citizens must not be forgotten as they also need to be properly informed and educated about fire safety.

However, considering that almost all residential fires are preventable, the numbers of casualties are still too high. Naturally, the safest method of dealing with residential fires is to take measures to prevent them. This is worth a considerable investment in education to realise. Such fire safety awareness and knowledge should start very early. Children of all ages must know what to do because, for years, fire has been among the mains causes of home injury or death in the demographic group of children 15 years and younger[13].

What do the fire safety experts say?
As figure 1 shows (see the introduction chapter ‘it’s about people’), 64% of the fire safety experts questioned indicated that the social dimension of fire safety is most important when improving fire safety in the coming years. This mainly involves more awareness of fire safety. As such, establishing more awareness of fire safety is extremely important when considering the fire safety agenda for the coming 2 years.

What should we focus on?
Since the 1990s, the Community Fire Safety system[14] has spread from the United Kingdom to continental Europe. In more and more countries, fire safety is no longer only achieved through permits, supervision and enforcement in non-living buildings. Through the Community Fire Safety system, fire safety is also promoted by focusing directly on residents. Thanks to a large range of activities, the number of home fires, and the casualties of such fires appears to be slowly but surely decreasing. Community fire safety projects in, for example, the United Kingdom (UK), the Netherlands and Estonia

have already shown this. Also outside Europe, more and more initiatives are being implemented to increase awareness, such as 'close before you doze'[14].

To help further decrease these numbers, Community Fire Safety should receive more support from national governments and the EU. Governments should support or even control the implementation of this system. Doing so will ensure more fire safety gains.

In the many examples of activities in the field of Community Fire Safety, it can be seen that there is currently no insight into which activities are (proven to be) effective and which are not. Therefore, more insight into the effectiveness and methods for measuring effectiveness should be developed. And as Community Fire Safety is now increasingly becoming a fully-fledged (and perhaps the most important) part of fire safety, scientific insights into how the fire-safe behaviour of people can be influenced is of paramount importance.

How do we improve awareness of fire safety?
To improve awareness of fire safety, the Community Fire Safety system must be the central approach. This must be done through its daily implementation not only by governments and Fire Rescue Services, but also by national and European fire safety campaigns. For Community Fire Safety to be successful, a system must be implemented to measure its effectiveness. Moreover, more scientific research must be conducted into how the fire-safe behaviour of people can be positively influenced.

KEY MESSAGE
More awareness of fire safety is needed. This needs to be established primarily through (1) Community Fire Safety projects, such as awareness campaigns. To make these projects more effective, (2) research has to be done on how to positively influence fire-safe behaviour.

[13] Lazaros, E.J. & Shackelford, R. (2009). *Safety Awareness: Empowering Students to Be Technologically Literate.*
[14] A system where Fire and Rescue Services work with local communities to address fire safety issues in their area. It aims at educating people about the dangers of fire, using a mixture of approaches.
[15] For more information, see https://closeyourdoor.org/

FOCUS AREA 5
EU-WIDE DATA ON RESIDENTIAL FIRES

Every year, cautious estimates suggest that over 5,000 people die from residential fires in Europe. The number of people injured is, also according to cautious estimates, about 10 times as high. The word estimate is not used randomly. As the Member of the European Parliament Theresa Griffin (UK) said during the opening ceremony of the European Fire Safety Week 2019: 'we collect data on almost everything, but not on residential fires'.

And this is entirely true. The (estimated) numbers of casualties make it extremely surprising and also truly inexplicable that EU-wide statistics on residential fires are not available. Up-to-date, good and reliable data is an essential part of pursuing a good fire prevention policy. However, it is just not known what is exactly happening when it comes to fire in the residential environment.

"We collect data on almost everything, but not on residential fires"

Although there is an enormous amount of figures, studies, reports and documents available in different European countries, there is a lack of overarching EU-wide data regarding residential fires and common definitions. However, there is some European data available. In 2018, for example, research commissioned by the EuroFSA was published on fatal residential fires in 9 European countries. As the EuroFSA expects individual countries to be better equipped with broader statistics on fire safety, it aims to share national data at a European level.

The EU also realised that the lack of EU-wide data and the lack of an EU-wide format for data collection poses an obstacle to data comparison, and thereby to effectively assess potential best practices and successful (fire) safety approaches. As a result, a pilot project proposal on fire safety was adopted by the European Parliament in 2018. The European Commission is now responsible for the implementation of the pilot project to close the existing gaps in fire data. This pilot aims at mapping the existing data and at developing a proposal on how the lack of common data can be remedied. As such, it aims at paving the way for pan-European fire safety efforts.

The initiative is certainly a step in the right direction. This is because improving safety in the residential environment can only be effective when knowledge is available about the chances, circumstances and effects of residential fires. However, there must be an immediate follow-up to this pilot project on fire statistics.

Who are most at risk?
From the data gathered from several countries, it is known that the elderly, children and people with a physical disability are the most common casualties of a residential fire. But in order to know what to do about this, one also has to be known why this is the case. Figure 7, taken from a study into 10 years of fatal residential fires in the Netherlands, shows, for example, that reduced self-reliant people (such as the elderly) are often the victims of a fire even if they are on

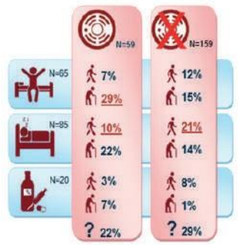

Figure 7. Showing the relation between the fatal victims' alertness and self-reliance and the presence of a smoke detector [16]

[16] Institute for Safety (2018). *Tien jaar fatale woningbranden onderzocht [research on ten years of fatal fires]. See https://www.ifv.nl/kennisplein/Documents/20180911-BA-10-jaar-fatale-woningbranden-onderzocht.pdf*

their guard. Moreover, the data shows that the presence of a smoke detector offers no true solution for this risk group. This shows that more insight into data results in a better understanding of what the risk groups are and which solutions do or do not work for these groups.

What should we focus on?
As approximately 80% of all fire-related deaths and injuries happen in homes, good statistics must be collected on precisely these types of fires. These statistics should not only focus on the occurrence of such fires but must also provide a set of data on at least the human characteristics, the building characteristics, and the fire characteristics. Because it is precisely this combination of characteristics that provides a useful insight into what is happening and with which measures the fires and casualties can be prevented.

"As approximately 80% of all fire-related deaths and injuries happen in homes, good statistics must be collected on precisely these types of fires"

Human characteristics are, for example, gender, age and the degree of self-reliance of the victims. Building characteristics include the type of dwelling and the construction used and the insulation materials. The cause of the fire, the source of ignition and the room of the seat of the fire are examples of fire characteristics that should be included in these statistics.

With so many fires, injuries and deaths, it is not even necessary to collect information on all residential fires. A random sample would already be sufficient to have a reliable picture of the residential fires in the EU. Based on these statistics, measures can then be taken to limit the number of residential fires and their casualties.

For different Member States to learn for each other, it is also important to be able to compare the data of the different Member States. And this is something which is desperately needed because, at the moment, for example, the difference between the number of fire fatalities between the Member States that do relatively 'good' and those who do relatively 'bad', is more than a factor 10[17].

How do we improve EU-wide data collection on residential fires?
To make the data from different Member States comparable, the European Commission must take the lead. The first important step has been taken with the launch of the EU pilot project to investigate how the Member States collect data on fires and also to see how several countries outside the EU do this. However, because having reliable and comparable data is so important, this pilot project on fire statistics should only be seen as a first step in the right direction. Furthermore, as it takes at least five years before enough data is available to implement actual policies based on the statistics, no time should be waisted after the project is completed. The pilot project must therefore be immediately followed up by actual data collection at a European level and integrated within Eurostat. To do so, the pilot project should be followed-up by a preparatory action again initiated by the European Parliament.

KEY MESSAGE
Although data is collected on almost everything, there is no EU-wide data on residential fires. As such data forms the foundation of a more fire safe Europe, (1) the pilot project launched by the EU should be followed-up as soon as possible and eventually, (2) the data must be integrated within Eurostat.

[17] *World Health Organisation (2018). Mortality database.*

FOCUS AREA 6
EU-WIDE COMMUNICATION AND COLLABORATION

There is not only a lack of EU-wide data on residential fire, but also a lack of EU-wide communication and collaboration on fire safety. The field of European fire safety is rather scattered. There are a lot of good initiatives throughout European countries, but most of the time, similar initiatives develop independently from each other and any connection between existing initiatives is rarely reached. Often being unaware of each other, the knowledge produced in these initiatives remains reserved for only a handful of people. The question is, therefore, what can be done to foster more EU-wide communication and collaboration? How can joint-forces be established?

Besides this, the Member States and the industry need to work together more on market surveillance. 'Random' monitoring should be put in place and, when identified, substandard products need to be 'shamed' and removed from the market. As said before, 'people should get what is promised'. The basis of fire safety needs to be in order because fire prevention is essential, especially with regards to Europe's most vulnerable citizens.

"Often unaware of each other, the knowledge produced in these initiatives remains reserved for only a handful of people"

In recent years, the EU has made a step in the right direction. In response to the tragedy that took place in Grenfell Tower in London and to multiple voices calling for more communication and cooperation between the EU's Member States on fire safety, the European Commission set up a Fire Information Exchange Platform (FIEP). The objective of this platform is to stimulate and enhance the exchange of information and experiences among national authorities and stakeholders on fire safety.

Who are at risk?
With regards to communication and collaboration, the focus should also be on the groups of vulnerable people in Europe. At the moment, the FIEP mostly focusses on the technical dimension of fire safety, such as fire safety engineering and the standardisation of test methods. However, it is precisely in the field of the social dimension of fire safety, such as Community Fire Safety, that a lot can be gained from the cooperation of Member States and other actors and the sharing of knowledge and information. However, the current focus of the FIEP should not be shifted, because fire safety engineering and the standardisation of test methods are important, but the focus should be extended to the social dimension of fire safety. Also, more Directorates-General (DGs) must be included.

What do the fire safety experts say?
Of the 331 fire safety experts questioned, only 20% indicated that the Member States should be most involved in new fire safety initiatives while 46% preferred the Fire Rescue Services. Furthermore, 14% voted for the industry and 9% for the EU. The results illustrate that the answer to this question is not that black and white. As the

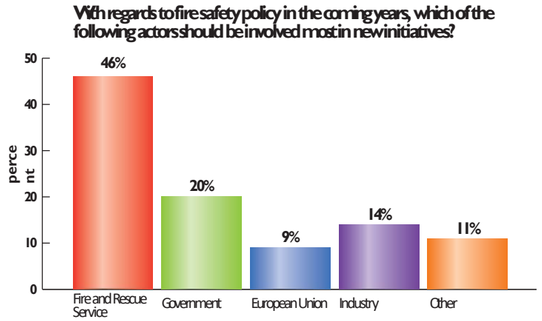

Figure 8. The actor that needs to be involved in new initiatives

results indicate, multiple actors on different levels need to be involved in a more fire-safe Europe, especially when it comes to new initiatives.

What should we focus on?
When connecting initiatives and establishing EU-wide communication and collaboration on fire safety, the focus must be on improving the fire safety of Europe's most vulnerable people when it comes to residential fires. The FIEP's efforts should therefore focus more on these risk groups (without weakening the current focus on fire safety engineering and standardisation of test methods). Within this focus, the FIEP will also need to pay more attention to the role of the Fire and Rescue Services instead of primarily focussing on national governments.

"When it comes to residential fires, it is important that the focus is on improving the fire safety of Europe's most vulnerable people"

Nonetheless, national governments and the industry remain important players for the FIEP. Furthermore, the FIEP must not only focus on the exchange of knowledge, but also on the exchange of new insights, initiatives, best practices and innovations in the field of fire prevention. The EU should also remain the FIEP's facilitator. More collaboration, however, is also of importance outside the FIEP. Therefore, the EU should support small-scale collaborations between countries, for example through the EU's Exchange of Experts programme.

How do we improve EU-wide communication and collaboration?
The FIEP must be a collaboration between all different kind of actors. As such, there is a need for more actors to be involved in the FIEP. Among others, this should include more DGs, Fire Rescue Services, the industry and insurance companies. Here, the input of the Fire Rescue Services should be particularly valued. Both the exchange of knowledge and innovation in fire safety must be FIEP's main focus, with vulnerable citizens as the main target group. Also, cooperation between Fire and Rescue Services and national governments must be encouraged and supported by the EU.

KEY MESSAGE
Essential to a more fire safe Europe is EU-wide communication and collaboration. This must include sharing (and connecting) good initiatives and best practices with each other and realising a broad application of innovations. Doing so must involve (1) giving more room to other actors within the FIEP (such as the Fire Rescue Services) and (2) focussing the FIEP on the exchange of knowledge and innovation in fire safety, with vulnerable citizens as its most important target group.

Project: **FIREFIGHTERSPLUS**

This award-winning project 'FireFightersPlus' was submitted by the Frederiksborg Fire & Rescue Service from Denmark on behalf of 6 project partners. The objective of the project is to offer high-quality training and support to firefighters across the world on how to use their position as both experts and role models to promote fire safety among the most vulnerable groups. The jury found that the project is an excellent response to the continuous need for harmonisation of the Fire Rescue Services' activities in the field of Community Fire Safety, which, as experience shows, is one of the most effective tools for reducing the number of fire casualties.

The jury members also appreciated the way the project responded, innovatively and originally, to the well-known international need of promoting fire safety among the most vulnerable groups. Moreover, the completeness of the developed solutions, covering an online platform with new training content, methods and tools available for downloading in an editable format in (already) six European languages. This solution not only simplifies, but almost automates the project's reproducibility.

''We focus on raising fire safety awareness, changing human behaviour and inspiring education on fire safety''

As such, this EU-funded project gives an important impulse to change the focus of firefighters across Europe. Fighting fires and rescuing people is and will always be a very important task of the Fire Rescue Services. However, by using their knowledge, skills and high credibility to help change the behaviour and improving the awareness of the EU's citizen, firefighters can have an ever bigger impact.

More information about this project can be found at: https://www.firefightersplus.eu/.

Hetty was only three years old when she sustained severe burns when children set the shed she was playing in on fire. ‘I have accepted it, but I did go through a difficult period during my adolescent years. For example, I thought that a pregnancy would not be possible because of the burn scars on my belly. That my skin might tear’, says Hetty. ‘As a child, I had to undergo regular operations because my skin didn’t stretch along with my growth. I began to worry. Would the skin on my belly grow during pregnancy? As a young teenager, it made me more and more insecure and so sad – because for as long as I can remember, I wanted to become a mum. I never talked about it. I didn’t dare. I searched online for answers, but couldn’t find anything. So to protect myself, I put in my mind that children were stupid.’

10 ACTIONS THAT WILL IMPROVE EUROPEAN FIRE SAFETY

The 6 focus areas indicate where the biggest fire safety problems lie and where the focus should be in order to improve fire safety in Europe in the coming years. This focus has led to an action plan of 10-points. If followed-up correctly, these points will result in fewer residential fires and fewer casualties in the event of such a fire in general, but especially with regards to Europe’s most vulnerable citizens.

Naturally, the basis of a fire-safe (residential) environment needs to be established. Fire safety knowledge, appropriate regulations and qualified and competent fire safety engineers must ensure that buildings, newly built or renovated, are fire safe. Moreover, compliance with product and building requirements is essential. However, the fire in Grenfell Tower has shown that one cannot always assume that a building is fire safe. Therefore, more needs to be done to make the EU’s citizens more fire safe.

Fire safety is always a co-production, as well as with this action plan. Only through (multidisciplinary) cooperation can the action points be effectively tackled and the fire safety of Europe’s citizens be improved. Within this co-production, EuroFSA will take a leading role in establishing these aspects of collaboration. We will make sure to include the actors and work with our partners that should be most involved in the follow-up of these action points.

10 ACTIONS
THAT WILL IMPROVE EUROPEAN FIRE SAFETY

Increase the fire safety of the growing vulnerable community

It is known which groups of people are most vulnerable to a residential fire. Also, sufficient international research is available to identify the risk factors which can be influenced and those which cannot be influenced and also which (type of) interventions should be focussed on. Naturally, attention must be paid to the factors and the effective interventions that can be influenced.

Action 1
Establish a European approach of improving the fire safety of the vulnerable community and the most vulnerable groups – elderly people (65+), children and people with a mental or physical disability (and focus on those living independently).

Improve the reduced escape time of people during a fire

To counteract the main effect of the increased smoke development and smoke propagation (i.e. people have less time to escape), the most effective action is to avoid (or limit) smoke development in the first place. This is especially true because the effectiveness of any possible measures (such as preventing the fast propagation of smoke or the early warning of people) is highly dependent on the degree of self-reliance of those present. Without help, most elderly people and people with a physical disability cannot escape quickly enough or cannot escape at all. Children are also often in need of guidance to be able to escape in time safely and in time.

Action 2
Improve and increase the use of fire-safe upholstered furniture and mattresses through the introduction of an EU-standard for end-use products.

Action 3
Ensure that smoke detectors have a much broader application in European homes. If people are not able to escape quickly enough or cannot escape at all, install domestic sprinklers as they are an indispensable solution in these circumstances.

Action 4
Evaluate and improve the functioning of Lower Ignition Propensity (LIP) cigarettes.

Fire safety must be an inseparable part of the energy transition

There is insufficient awareness, knowledge and competency regarding the new fire hazards associated with the energy transition. The already established rise of fires associated with this development demands that fire safety is seen as an essential aspect of the energy transition and circular construction. This will prevent an increase in fire casualties in the coming years.

Action 5
Develop knowledge and competency to ensure fire safety adequately accompanies the energy transition. Address the fire risks associated with the new forms of energy and ensure regular inspections.

Raise the awareness of fire safety

People being aware of their responsibilities regarding fire safety is of utmost importance. If people act fire safe, the chances of a fire breaking out are reduced. And if people know how to act when a fire does break out, the chance of casualties is decreased. Education in and awareness of fire safety is therefore an essential aspect of a more fire-safe Europe. Because, in the end, people make the difference.

Action 6
Encourage and support the activities of the Fire Rescue Services regarding Community Fire Safety projects, both at a national and international level, and change the mentality from ‘nice to have’ to ‘need to have’.

Action 7
Stimulate (or foster) scientific research on improving the fire safe behaviour of people and the effectiveness of interventions in the field of Community Fire Safety.

10 ACTIONS THAT WILL IMPROVE EUROPEAN FIRE SAFETY

Realise EU-wide data on residential fires

Good, up-to-date and reliable data is an essential part of pursuing a good fire prevention policy. In Europe, data is collected on almost everything, but not on residential fires. This needs to change.

Action 8
As soon as the results of the EU pilot project on fire statistics are known, a start needs to be made with the actual data collection of (at least) residential fires at a European level and the integration of them within Eurostat.

Improve EU-wide communication and collaboration

EU-wide communication and collaboration is essential in order to share (and connect) successful initiatives and best practices with each other and to realise a broad application of innovations. At the moment, this is still lacking.

Action 9
Give more room to other actors within the FIEP (such as the Fire Rescue Services and other Directorates-General) and focus the FIEP on the exchange of knowledge and innovation in fire safety, with vulnerable citizens as its most important target group.

Action 10
Realise better cooperation between the Member States and industry on market surveillance.

HOW TO REALIZE THE ACTION POINTS

Increase the fire safety of the growing vulnerable community
To realise action point 1, EuroFSA will foster cooperation between the European Commission, the Fire Rescue Services and the industry.

Improve the reduced escape time of people during a fire
Realising action points 2 & 3 will require the EU and national governments to be most involved in implementing these measurements.

To realise action point 4, we asks the EU to follow-up on this.

Fire safety must be an inseparable part of the energy transition
To realise action point 5, we urges national (and local) governments and industry to be involved in the follow-up. We call upon the EU to play a stimulating role in this.

Raise the awareness of fire safety
To realise action point 6, we calls upon the European Commission (via the European Union's funding programmes) and national governments to encourage, support or foster the Fire Rescue Services' Community Fire Safety projects. The FEU needs to play an important role here as well.

To realise action point 7, relevant public bodies at all levels (from the European Union to the local levels) and universities must be the agencies most involved in this.

Realise EU-wide data on residential fires
To realise this action point, we asks the European Parliament to support a preparatory action to follow-up the pilot project.

Improve EU-wide communication and collaboration
To realise action point 9 & 10, we asks the European Commission to follow-up on these requests.

‘Be extremely careful with these types of substances, using combustible liquids can get dangerous very quickly. If you would have gone through what happened to me, you’d be on your guard with everything. Everyone should be. It could avoid so much suffering’, advises **Menno Jongerius**. While he was topping up a gel fuel fireplace in December 2012, the flame ignited the contents of the bottle and he caught fire in seconds. An ambulance was called and the paramedics had to take him directly to the Burns Centre Beverwijk. ‘They only had to carry out one operation, which went well. Unfortunately for me, I turned out to be an exceptional case, suffering from extreme itching and muscle pain,’ says Menno. He used to do sports seven days a week but not anymore. That’s not just because of his accident, by the way. ‘Now I only go to the gym for rehabilitation.’

MORE INFORMATION

More information on the growing vulnerable community:
Fire safety and the ageing society.
Dutch burn foundation (2016). Fire safety and the ageing society. https://www.ifv.nl/kennisplein/Documents/20161201-IFV-Brandwondenstichting-Fire-Safety-and-the-ageing-population.pdf

More information on the dangerous decrease in time to escape:
Fire safety of upholstered furniture and mattresses.
FEU (2017). Fire Safety of Upholstered Furniture and Mattresses in the Domestic Area. https://www.ifv.nl/kennisplein/Documents/20170501-FEU-Fire-safety-of-upholstered-furniture-and-mattresses-in-the-domestic-area.pdf

LIP cigarettes.
Fire Service Academy (2017). Fire Safety of Fire Safe Cigarettes. https://www.ifv.nl/kennisplein/Documents/20171116-BA-EFSA-Fire-safety-of-fire-safe-cigarettes.pdf

Smoke dispersion in buildings.
https://www.youtube.com/watch?v=0MTOcGTOryU

More information on the energy transition:
Energy transition and fire safety – Lotta Vylund
https://www.youtube.com/watch?v=YtYOfWi-uaE

Meacham, B., et al. (2012). Fire Safety Challenges of Green Buildings.
https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Building-and-life-safety/rffiresafetygreenbuildings-(2).ashx?la=en

More information on the awareness of fire safety:
https://www.ifv.nl/kennisplein/Documents/20161201-IFV-Brandwondenstichting-Fire-Safety-and-theageing-population.pdf

More information on EU-wide data on residential fires:
EuroFSA and IFV (2018). Fatal residential fires in Europe. https://www.ifv.nl/kennisplein/Documents/20181120-BA-EFA-Fatal-residential-fires-in-Europe.pdf

EuroFSA and IFV (2019). Fatal residential fires – part 2. https://www.ifv.nl/kennisplein/Documents/20190916-IFV-Fatal-residential-fires-part-2.pdf.

EUROPEAN FIRE SAFETY ALLIANCE

www.europeanfiresafetyalliance.org