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Chief Fire Officers  
Association



**CONSTRUCTION**  
MEDIA



# Intelligence & Innovation:

## Fire safety in the UK construction industry

THE construction industry faces a unique set of challenges when it comes to fire safety. Construction sites play host to a range of potentially hazardous machinery, materials and situations which, if improperly tended, could lead to a costly disaster. It's a high-risk environment - almost 65,000 construction workers in the UK sustained an injury at work in 2014/15. The risk is two-fold - a fire in an active build project can cost constructors millions, or even the loss of the entire project, but far more important is the risk to contractors' lives. A thorough and intelligent fire monitoring and prevention system is essential to keep employees and investments safe.

To increase the difficulty of this process, site managers must ensure that a fire risk assessment has been carried out and a fire safety strategy put in place for both the contractors' village, made up of modular offices and facilities, and the building under construction. These measures must cover several important considerations. First of all, a temporary and dynamic means of sounding an alarm within the building under construction depending on contractors' location within the build, ideally through manual call point and sounder combinations which can be moved as required. Then, a more static and complex FDA system must be implemented for the village.

On top of this, support including emergency lighting, extinguishers, evacuation assembly points, staff training and a fire warden programme must be put in place.

There are technological solutions to many of these problems. For example, radio-enabled fire safety devices, which can transmit alerts across a large site. Given the evolving nature of a construction site, a connected capability is essential to increase the efficiency and accuracy of fire safety programmes, and such systems can be easily removed and re-installed multiple times. In sites which have the capacity to carry IP cables, it's also worth considering the benefit of intelligent connected fire detection and alarm systems which can collect and analyse data to better determine the true state of a fire incident, reject false and unwanted alarms and help site managers improve accuracy and overall safety without a large hike in outlay.

The minimisation of false and unwanted alarms is also a key issue to consider when it comes to fire safety. Construction companies have a responsibility to protect not only their own employees, but also the lives and interests of the communities around them, and it's essential to avoid any unnecessary risk or disruption to either group. Repeated false alarms could

result in a genuine alert being missed. False alarms can also cause unneeded fire brigade callouts, which will only damage corporate reputations and relations with the local community, as well as putting victims of real fires at risk.

### Reducing interruptions

Clearly, whatever the project, any site installed with a fire detection system must ensure it reduces false or unwanted alarms. Should a construction site be evacuated, crucial deadlines could be missed. If a project using costly hired plant experiences a false alarm, highly pressurised decisions will have to be made about whether to extend the rental period. Even worse, should a large number of false alarms occur, it could result in the unfortunate consequence of those onsite becoming complacent to the sound of an alarm and failing to respond to the warning of a real fire.

More broadly, false alarms are an incredible drain on public resources. According to the London Fire Brigade (LFB), around a third of all calls attended to are false alarms, leading to many fire brigades reviewing their policies - repeat offences increase the risk that the response to a genuine incident will be delayed. Some site managers could be unaware that the local fire brigade might not respond to an alarm





activated by an automatic fire detector due to their policy of not answering false alarms. Automatic alarms are hard to verify. As such, site management needs to ensure either that fire wardens are well-trained in correct reporting procedure, or that fire detection equipment is capable of discerning between, say, dust and smoke. Furthermore, since January 2014, the LFB charges companies if it has to attend more than ten false alarms in a 12-month period. This is to ensure fire-fighters are available to attend in a real emergency rather than held up at the scene of a false alarm.

#### Implementing a modern technological strategy

For construction companies looking to improve safety and reduce false and unwanted alarms, it is clearly advisable to implement a well thought-out fire safety strategy that takes into account the necessary risk assessments across each of these possible triggers and situations. This is crucial in order to identify and wherever possible eliminate the potential scenarios in which false and unwanted alarms could occur.

If an existing system has been prone to false alarms, it is advisable to look at incorporating intelligent fire alarm detection devices. By using interactively-

adjusted algorithms these can establish if the detected properties of carbon monoxide, heat, smoke or particles correspond to those held in memory for real fire events. By utilising this type of detection technology, dust from an angle-grinder will not trigger an alarm, for instance.

It can also be incredibly beneficial to have a wireless radio-enabled system in place to ensure that detectors across the site are integrated, to aid the early detection and verification of fires. Once a fire detection and alarm system is in place, although it might sound very basic, site teams must ensure that absolutely all staff tasked with using the fire controls are trained to do so - a mis-chosen fire extinguisher or ill-advised escape route could mean the difference between life and death.

#### Constant vigilance

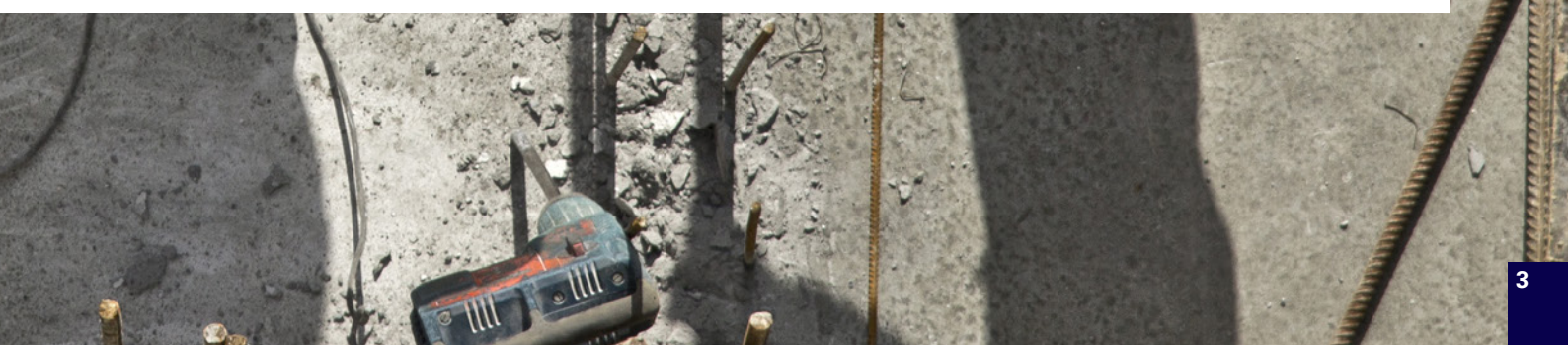
With an appropriate fire detection and alarm system installed, there must be a programme of planned, preventative maintenance in place to support it. In England and Wales this is a legal requirement under Article 17 of the Fire Safety Order (FSO), and its equivalent in Scotland and Northern Ireland. The advisory engineering best practices as to how maintenance should be carried out can be found in British Standard, BS 5839-1:2013.

Site managers should ensure that their fire detection and alarm system is maintained by a competent servicing organisation. Where the construction period is too short to merit a regular testing programme, those responsible for installation of battery-operated temporary units should nevertheless ensure the compliance of their devices at the point of installation.

The number of maintenance visits required is determined by the fire risk assessment and should take into account the level of risk (to life, property and construction continuity), complexity and size of the system. Such maintenance visits will allow the servicing engineer to work with the site team to identify any persistent causes of false alarms.

All construction sites must be protected by a well-designed, installed and regularly maintained fire detection and alarm system. Throughout this process, reducing false and unwanted alarms has to be high on the agenda as not only will this help to ensure the highest levels of safety, but it will help to reduce the amount of resources teams have to dedicate in order to manage the time-consuming and potentially costly repercussions.

By Lee Jasper, Head of Product and Solutions Group, Tyco





# CFOA announce inaugural Chair for National Fire Chiefs Council

Roy Wilsher – Chief Fire Officer of Hertfordshire Fire and Rescue Service – is to be appointed inaugural Chair of the newly-minted National Fire Chiefs Council (NFCC), it has been announced.

Brought to bear by the Chief Fire Officers Association (CFOA), both the NFCC and Mr Wilsher's role as Chair will begin in April 2017. The Council itself will be comprised of senior representatives – the length and breadth of the UK's Fire and Rescue Service.

Once operational, it is envisioned that the NFCC will provide straightforward, specialist guidance to the Government, now-devolved administrations, and the industry at large on such complex issues as professional standards, research initiatives and the sharing of best practice – all while supporting the Fire and Rescue Service nationwide.

The role of Chair is a dedicated, full-time responsibility. Each term of office will last between two and four years, during which the Chair will speak on behalf of the NFCC and lead the Council at national level. Chairpersons will also oversee delivery of the Organisation's yearlong strategy, to be set by the Council on an annual basis.

The first Chair has his work cut-out for him however. Chief among his concerns is the bridging of relationships and lines of communication with both the Government and the country's fire and rescue authorities. Two Vice Chairs will be elected in the

coming weeks to assist Mr Wilsher in this and all over endeavours.

A well-respected member of the CFOA, Roy Wilsher will remain on the Association's Board of Director until April. He currently has responsibility for the Operations Directorate, which consists of eight strategically-led areas of importance.

Chief Fire Officer Wilsher storied career includes:

- Guiding his service, as Fire Gold Command, through the Buncefield Oil Terminal fire in 2005.
- His work during the hectic 2012 London Olympic Games.
- Devising the UK's rescue response during Japan's devastating earthquake and tsunami in 2011.
- Chairing the Joint Emergency Services Interoperability Programme (JESIP) – a pioneering initiative designed to ensure all Blue Light Services work effectively and in-cooperation, with a view to bolstering joint emergency service national resilience and response capability.
- Acting as Operational Commander during the Paddington rail crash.
- Participation in several major incidents including the Putney gas explosion, a mortar bomb attack on Downing Street, and fire bomb attacks on Oxford Street.

Mr Wilsher's appointment is a

crucial milestone in the creation of the NFCC – one which the CFOA hope will have a lasting impact on the future development the UK's Fire and Rescue Service.

The Chair is set to replace the CFOA's current annual Presidential system. Furthermore, the CFOA's existing directorates are to be removed in favour of the NFCC's co-ordination committee, which will deliver the annual plan and look to work more closely with the police and other partners where appropriate.

Of his appointment, Roy Wilsher said: "I am immensely proud to be the first Chair of the new National Fire Chiefs Council. It is a huge honour and comes at a very important time for the fire sector as we continue on our transformation journey. The NFCC will play a pivotal role nationally in ensuring fire and rescue services drive the sector forward.

"I have been committed to CFOA for a number of years and this new position will allow me to continue to develop and lead on national work, benefiting the sector as a whole. I will be responsible for overseeing the new NFCC annual plan, ensuring it is well-managed and delivers against the priorities for reform.

"I look forward to working with colleagues and ensuring fire services across the UK are at the heart of driving the change agenda, while developing closer working relationships with governments and other partners."



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# Fire Safety in Construction:

An Exclusive Interview  
with Mike Burroughs



MIKE Burroughs - a member of the Chief Fire Officers Association - speaks exclusively to Abigail Burr about the dangers of timber frame construction sites.

Mike has been a member of the Chief Fire Officers Association (CFOA) Structural Timber Working Group since 2010. He left Devon and Somerset Fire and Rescue Service in 2015, having enjoyed a career of over 30 years, and is now a Forensic Fire Investigator with Fire Investigations (UK) LLP, and Fire Consultant to the Structural Timber Association. Mike continues to sit on the CFOA Working Group.

### **HOW COMMON ARE CONSTRUCTION SITE FIRES IN THE UK?**

Recent statistics for England show that fires in dwellings under construction have declined from 274 in the year 2009/2010 to 171 in 2014/2015 – a reduction of 38%. These figures are for all methods of construction. However, it is worth noting that this coincides with the recession, which started in 2008, and the subsequent revival of construction projects over the last few years, as well as an increasing market share for timber frame in England.

Provisional figures show that housing starts in the UK have risen by 6% to 175,000 in the last 12 months and timber frame has a 27% share of that market.

### **WHAT ARE THE MAIN CAUSES OF FIRE ON CONSTRUCTION SITES?**

I believe the biggest causes to be deliberate fires and 'hot works'.

### **WHAT ARE THE POSITIVES OF TIMBER FRAME BUILDING SITES AGAINST THEIR VULNERABILITY TO FIRE?**

Advantages I am aware of include sustainability, low carbon footprint, speed of build, and speed to make weather tight. Various construction techniques are possible, including prefabricated panels which are manufactured in factory controlled conditions and assembled on-site. Fires in cavities and voids are an

issue in all construction types.

### **ARE THERE ANY SAFETY FEATURES ON BUILDINGS TO MAKE THEM MORE RESISTANT TO THE POSSIBILITY OF FIRE?**

There are many different methods of construction that fall under the title 'timber frame'. Standard Category A is vulnerable during construction but is appropriate in many circumstances. Once completed there is standard fire resistance within rooms.

Category B has increased fire resistance and Category C is clad with non-combustible boards. Different features apply to other structural timber such as Cross Laminated Timber and Glulam.

### **HOW IS SAFETY MAINTAINED THROUGHOUT THE PROJECT?**

Fire safety starts at the design stage and must be maintained throughout the project. In addition, as a condition of membership, members of the Structural Timber Association are required to adhere to the SiteSafe Policy as well as the 16 Steps to Fire Safety.

The requirements of the Regulatory Reform (Fire Safety) Order 2005 apply to construction sites and are enforced by the Health and Safety Executive. Once the building is complete the Fire Safety Order is enforced by the local Fire and Rescue Authority.

### **WHAT IS DONE TO PROMOTE A "FIRE SAFE" WORKING ENVIRONMENT TO ALL WORKERS AND MEMBERS OF PUBLIC?**

Once the building is complete, the Fire Safety Order is enforced by the local Fire and Rescue Authority. In addition, the Health and Safety Executive has published guidance HSG 168 Fire Safety in Construction. The Structural Timber Association has published guidance for members on Design of Escape Routes during the Construction Process.

### **WHAT MEASURES ARE IN PLACE IF A FIRE DOES OCCUR ON A TIMBER FRAME CONSTRUCTION SITE?**

This very much depends on the size and complexity of the site as well as the construction method. As mentioned earlier, the Fire Safety Order applies to construction sites. This requires the 'responsible person' to take 'general fire precautions'. This is defined as measures to reduce the risk of fire and spread of fire, providing sufficient means of escape and ensuring they can be effectively used, measures for fighting fire, measures for detecting and giving warning in case of fire, and measures for training employees and mitigating the effects of fire.

In addition they are required to consider the 'off-site' risk. This is where the Separating Distance Guidance published by the STA and recommended by HSE comes in.

Finally, again as a condition of membership, members of the Structural Timber Association are required to register all sites over 600sq m total floor area. This is via a database that is maintained by the Chief Fire Officers Association; entries are forwarded to the relevant fire and rescue service based on postcode. This makes the Fire and Rescue Service aware of the site and allows them to pre-plan.

Timber Framers and contractors who are not Structural Timber Association members are encouraged, but not required, to notify the local fire service.

### **WHAT IS THE 35 METRE RULE?**

Referring to guidance from the Structural Timber Association (previously the UKTFA), this recommends a maximum travel distance of 35m (or 15m if in a dead end) to a fire exit or protected route on structural timber construction sites, provided that enhanced fire warning systems have been installed, and they include strategically placed automatic fire detection to give the earliest warning of fire to occupants. The earlier warning gives slightly more time for escape and to cover the additional travel distance. If the enhanced fire protection is not in place then the standard distance of 25m (12m in dead end) applies.





# CFOA: The Chief Fire Officers Association

The Chief Fire Officers Association (CFOA) was established in 1941 and has become the professional voice of the UK Fire and Rescue Service (UK FRS).

The membership and professional partnerships of the CFOA are wide and varied, encompassing senior management, subject experts and those involved in service delivery at fire and rescue services across the UK. It can count every fire and rescue service in the UK amongst its professional partners.

Members are supported to fulfil their leadership role in protecting local communities and making life safer through improved service delivery. The CFOA provide professional advice to inform government policy and is committed to developing strategic and technical guidance with services all over the UK. In all of its activities, the Association works to achieve four aims which shape its direction. These are:

- To lead and influence the direction of the UK FRS on professional, managerial and leadership issues.
- To be the focal point for professional advice that drives and contributes to the development of policy impacting on the UK FRS.

- Effectively communicate views and priorities.
- Support members to achieve both individual and collective improvement.

As a registered charity, the Association aims to reduce the loss of life, personal injury and damage to property and the environment by improving the quality of firefighting, rescue, fire protection and prevention in the UK.

This happens through the provision of advice, information, leadership, research, informed comment and other services to relevant bodies, and to the Association's own members.

Through the work of the Association, the promotion of efficiency of the UK FRS to the benefit of the public and all communities continues to increase.

The CFOA is supported by a small team in Tamworth who assist the directors, presidential team and membership. It became a limited company in 1998 and followed this a year later by becoming a charity.

There are ten Directors at the CFOA, including a three-person presidential team with four Strategic Directorates, each headed by a Director.

Each directorate encompasses a

number of standing committees or working groups, lead officers for particular references and a number of task and finish groups. Portfolios cover operations response, prevention, protection and road safety, people and organisational development, and corporate services and sector improvement.

Each member of the Association belongs to one of 11 regions, which follow the boundaries of the former regional development agencies.

These regions provide important opportunities for local working, while at local level members of the Association have regional and independent representatives who sit on the Members Sounding Board (MSB), which acts as a sub-group of the main CFOA board.

All aspects of governance, business organisation and business process constantly adapt, as the Association meets challenges that continue to change.

As with many associations, the CFOA's work is wide and varied, from initiatives on furniture fire safety, to work with children and young people. Amongst the areas that the Association are currently involved in are waste management and recycling fires, unwanted fire signals and flooding.



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