



# Tackling the Cost and Risk of Fire

## Fire Safety Engineering for Commercial and Industrial Premises

We are renowned for delivering fire safety solutions that provide the required level of protection while minimising our clients' costs. We can provide this because we have a deep understanding of the fundamentals underpinning the Building Regulation requirements, and can develop and justify alternative solutions that may be more cost-effective.

### Fire Safety Engineering Approach

Fire Safety Engineering may be defined as the application of engineering principles within a system (e.g. a building, transportation system etc.) in order to:

1. Identify the fire risks involved
2. Establish the required safety levels
3. Design a compliant solution

Traditionally, fire safety measures within buildings have been based on compliance with a set of prescriptive design guides or codes of

practice that have been developed from past experience and often provide a consensus view on what is regarded as an acceptable level of safety. Such solutions, whilst being fairly straightforward to apply, rarely provide cost-effective solutions for more complex or innovative developments, neither can they always be relied upon to provide a totally effective solution.

Many regulations are unduly restrictive in that they are of a type that imposes solutions rather than objectives; in addition they may be out of date in relation to technological advances. There is a danger that compliance takes precedence over wider safety considerations.

Fire Safety Engineering addresses these problems and employs tried-and-tested rational methodologies to determine, objectively, the most suitable solution for any particular design scenario. Fire Safety Engineered solutions do not rely solely on any particular safety system, or set of systems. Rather, the safety systems, management systems, building occupants and the building itself is analysed in order to identify the synergies that arise from treating the system (e.g. building) holistically; that is, as a total organic system rather than simply as a structure.

A total fire safety engineering approach (as described in BS 7974: The Application of Fire Safety Engineering Principles to Fire Safety in Buildings) often divides the problem into a number of sub-systems:

1. Initiation and development of fire within the enclosure of origin
2. Spread of smoke and toxic gases within and beyond the enclosure of origin
3. Fire spread beyond the enclosure of origin and structural response.
4. Detection, activation and suppression (including sprinklers).
5. Fire service intervention
6. Human factors
7. Probabilistic risk assessment

Fire Safety Engineering has given architects the freedom to design unusual and complex schemes that would have been difficult to achieve in the past due to the constraints imposed by Building Regulations. Today's fire safety engineers require an in-depth understanding of architects' requirements, coupled with wide ranging experience of cost-effective solutions, to prevent fire and safeguard people and property.

### The Mosen Way

Mosen is a leader in developing Fire Safety-Engineered solutions to architecturally bespoke buildings and underground spaces, with experience in solving 'difficult' cases in a cost-effective manner. We do this by thoroughly understanding the intentions of the prescriptions, and by using leading-edge computational tools to carefully check our proposals. These include Computational Fluid Dynamics tools for calculating smoke spread, and Finite Element calculations to model the structural deformations due to fire-induced heating.

### Clients

Mosen's clients include:

- Architects
- Developers
- Contractors
- Public sector organisations such as schools and colleges;
- Voluntary and charity organisations such as hospices;
- Private sector businesses such as City of London banks;
- Infrastructure designers and operators for tunnels, railways and stations;
- Industrial and process providers.

We are thus well placed to understand fire safety issues from multiple perspectives, and to provide expert advice for a wide variety of projects.

### Standards

Mosen Ltd have significant experience in applying a variety of alternative international codes, including UK Building Regulations, NFPA, ICC/IBC, Building Code of Australia, Qatar Fire Safety Handbook, Dubai EHS, Singapore SFSRTS and Irish Building Regulations.

### Contact us

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