

# ESR Technology

## Fire Safety in High Risk Buildings



Following Dame Judith Hackitt's *Building a Safer Future* review, government and industry agreed that an effective and accountable building safety regime is required, broadly in the shape of the existing safety case regime for high hazards industries such as the oil and gas industry.

At ESR Technology, our staff were pioneers in the use of quantified risk assessment and safety cases in the UK and globally to ensure safety in high hazard environments. It is the robustness of these approaches that has led to them now being recommended in the building fire safety sector, such as in the forthcoming [building safety legislation](#), which requires a safety case approach to fire safety in higher risk buildings.

ESR Technology traces its origins back to the Safety and Reliability Directorate of the United Kingdom Atomic Energy Authority. We have been providing safety, risk and engineering consultancy support to various high hazard industries in the UK and worldwide for over 40 years, covering a wide range of topics such as fire and explosion engineering, fire risk assessments, QRAs, Safety Case development and consequence modelling.

Our wide and varied experience in delivering building fire engineering and technical safety projects means we have the right mix of skill sets and expertise to ensure that our Building Fire Safety support is conducted in a robust, pragmatic and flexible manner, in line with relevant regulations, applying our experience of working in the oil & gas industry and

interacting with the HSE - the Building Safety Regulator.

We provide expert Building Fire Safety support to ensure compliance with regulations and assure safety using a combination of our considerable fire engineering and safety case experience, including compliance with:

# Building Fire Safety

Helping Clients Assure Fire Safety in High Risk Buildings

- ∇ The Building Regulations 2010
- ∇ The Regulatory Reform (Fire Safety) Order 2005
- ∇ The (draft) Building Safety Bill

Our expertise and experience ensure suitable and sufficient provision for occupant safety and property protection.

## Building Life Cycle Fire Safety

ESR has delivered a wide range of fire engineering services from pre-planning through to post-occupancy fire risk assessments and post-incident investigation, using innovative and client centred approaches.

Our expertise, in addition to the use of advanced simulation techniques, ensures we deliver fire safety solutions that comply with the regulations, without compromising design aspiration and functionality.

Our fire safety services include:

- Safety case development
- Fire strategy development
- Egress and evacuation modelling
- Fire risk (and hazard) assessments
- Smoke control modelling, including using CFD
- Quantified Risk Assessment (QRA)
- Fire safety management
- Fire investigation
- Expert witness
- Third party review
- Training



## Fire and Evacuation Models

ESR has been at the forefront of developing and applying advanced mathematical models to assess a variety of fire, smoke and other hazardous phenomena.

Our software is used by regulators including the Health and Safety Executive and we have developed specific models on their behalf.

We apply various software and models to assess and predict the following:

- People's behaviour during evacuation
- Fire and smoke spread and control using CFD
- Radiative heat flux analysis
- Explosion analysis
- 3D fire and gas detector placement

## In-house Facilities

ESR has in-house facilities to investigate a wide range of failures leading to fires and explosions.

The facilities enable ESR to provide comprehensive services from planning and design through to operation, post-incident investigation and expert witness services.