

SOCOTEC

BUILDING & REAL ESTATE

FIRE ENGINEERING SERVICES

About SOCOTEC

SOCOTEC is a leading player in testing, inspection, certification and consultancy services in the construction and infrastructure sectors. With offices in 26 countries and nearly 15,000 employees, SOCOTEC deliver professional services in construction, buildings, infrastructures, environment, certification and fire safety.

Since 1929, SOCOTEC has been providing tailored risk management consultancy services, committed to building trust for a safer and sustainable world to improve the lives and places of communities where it operates.

In the UK, we are a network of industry-leading experts who empower ambitious businesses at every stage of the asset lifecycle. With 2,300 team members, working with over 5,000 companies, everything we do is for the benefit of our clients, who to us become partnered with our entire group.

Our advice is built on a foundation of substance.

From building control, dispute resolution and fire engineering to advanced chemistry and research, environmental consultancy and structural monitoring, all our services come with a focus on technological innovation and sustainable delivery. We distil and share the most complex data in ways which are accessible and ready to action.

SOCOTEC is grounded in real-life expertise, and proud of our team's tenure, who often start out on the ground and grow with our business. This journey ensures a deep understanding of our clients' needs and challenges.

For us, integrity means reports backed by people on the ground, legal advice backed by experts in the field. We strive to deliver precision and safety consistently, ensuring the successful execution of world-class projects every day.

5 office locations providing nationwide and international Fire Engineering services:

- London
- Manchester
- Bicester
- Dublin
- Letterkenny, Donegal

SOCOTEC UK and Ireland Services Snapshot

Building Control

Registered Building Control Approvers

Advisory Services

Regulatory Compliance
Building Control Consultancy
Construction Design Management
Expert Witness
Quantity Surveying
Cost Control

Engineering & Consultancy

Fire Engineering
Fire Safety
Façade Engineering
Structural Engineering
Building Pathology
Sustainability & Energy
Health & Safety
Training

Environmental & Geotechnical

Air quality, Noise and Vibration
Asbestos / Hazardous Materials
Environmental Assessments & Surveys
Environmental Consultancy
Environmental Monitoring
Geotechnical Investigations
Occupational Hygiene
Structural Investigation & Monitoring
Specialist Survey
Stack emissions
Water Hygiene, Legionella

Laboratory Services

Asbestos
Fire Testing
Forensics
Site and Lab Materials Testing
Soil and water
Nuclear



65 SOCOTEC OFFICES ACROSS THE UNITED KINGDOM & IRELAND

Some of the locations listed below have multiple offices:

- | | |
|-------------------|-------------------|
| Acton | Letterkenny |
| Altrincham | Lincoln |
| Basingstoke | Liverpool |
| Belfast | London |
| Bicester | Maidstone |
| Birmingham | Manchester |
| Bridgend | Mansfield |
| Burton-upon-Trent | Mottram |
| Chelmsford | Naas, Co. Kildare |
| Chester | Newark |
| Chichester | Newcastle |
| Cirencester | Oldbury |
| Colchester | Oxford |
| Coventry | Reading |
| Dartford | Romford |
| Derby | Sevenoaks |
| Didcot | Sheffield |
| Doncaster | Stratford |
| Dublin | Stamford |
| East Kilbride | Stockton-on-Tees |
| Fleet | Stoke on Trent |
| Glasgow | Thame |
| Gomshall | Towcester |
| Guildford | Tunbridge Wells |
| Horsham | Uckfield |
| Irvine | Uxbridge |
| Larbert | Wakefield |
| Leeds | Weymouth |
| Leicester | Wigan |

LET'S TALK

Fire Engineering



36 PEOPLE

made up of Engineers, Consultants and Support staff from all over the world

KEY SERVICES

- › Design Fire Safety Strategies
- › Performance Based Design
- › Facade Fire Safety
- › Computational Fluid Modelling (CFD)
- › Structural Fire Engineering (SFE)
- › Evacuation Modelling
- › Construction Fire Safety Strategy
- › Authorising (Fire) Engineer
- › Fire Research
- › Expert Witness
- › Training
- › Authorising (Fire) Engineer

Over 20 years experience

Our Fire Division is a leading, fire safety consultancy providing expert analysis, advice and solutions on a wide range of fire safety matters. We operate across all sectors and have an excellent track record of innovation and project support.

SOCOTEC contribution to the Fire Safety industry brings it to recognition at the highest levels in public safety. Since 1980, SOCOTEC has authored the Fire Protection handbooks for the application of French legislations on buildings and structures in Francophone countries, along with several other contributions to the fire safety industry as part of research and studies to raise the standard of fire safety in construction worldwide.

On 1 April 2021, the fire division (previously Trenton Fire Ltd.) proceeded to act under the legal entity, SOCOTEC UK & Ireland. SOCOTEC UK & Ireland is a multi-national company with many other divisions to assist a variety of different clients, which means we have support and advice from a wide range of building services, ensuring we understand the wider implications of our fire safety advice.

With fire engineering offices in London, Manchester, Bicester, Dublin and Letterkenny, our team of fire engineering consultants offers unparalleled expertise and a proven track record spanning 24 years. We're committed to providing flexible, forward-thinking solutions that meet the unique fire safety needs of a diverse range of buildings, from residential and commercial spaces to heritage sites and industrial complexes.

Our deep understanding of fire behaviour and human response, coupled with our in-depth knowledge of British, Irish and internal guidance (i.e., European, American, Saudi Arabian, etc.) fire codes, enables us to deliver comprehensive services tailored to each project's specific requirements. Whether you're seeking structural fire engineering solutions or guidance on timber frame construction, we're here to partner with you in achieving cost-effective, practical fire safety strategies that prioritise occupant safety and asset protection.

There are many elements to these core skills and we have provided a wide range of additional support including research and testing support, providing a third party review and advising on fire safety policy.

We have worked on thousands of new build and refurbished buildings, from research and testing through to code compliance, fire engineering and modelling. This has included some very large and complex schemes providing us with experience we use every day to ensure our clients receive the best support and solutions available.



Overview of Services

Consultancy Services

- › Fire and Planning Statements
- › RIBA Stage 2 - 5 Fire Strategies
- › Fire Detection, Alarm and Suppression Review
- › Qualitative Design Review (QDR)
- › Cost-benefit Analysis

Advanced Fire Engineering Modelling

- › Computational Fluid Dynamics (CFD)
- › Radiative Heat Analysis
- › Quantitative Risk Analysis
- › Structural Fire Engineering (SFE)
- › Evacuation Modelling
- › BEES

Construction

- › Fire Testing
- › Construction Supervision
- › Construction Fire Safety Strategy
- › Construction Fire Risk Assessment *
- › Compartmentation and Fire Barrier Inspections *

In Operation

- › Fire Risk Assessment *
- › Retrospective Fire Statements
- › Compartment & Fire Door Surveys *
- › External Wall Fire Reviews *
- › PAS9980 Assessments and EWS-1 Forms *

* Indicates services that are done in cooperation with other divisions within SOCOTEC.

RIBA STAGES

2 3 4 5 6

Design Fire Safety Strategies

In order to bring your project from a pre-concept design to handover, we will provide you with comprehensive documentation, giving you strategic advice how your project will meet the expectations of the legislation [e.g., Part B of the Building Regulations (as amended), Regulation 7, London Plan, Planning Statements, etc.].

Supporting you at the various RIBA Plan of Work stages



Concept design

We collaborate closely with your team to review proposed designs and ensure they meet strict fire safety criteria. Our detailed feedback helps address potential issues early before they become significant problems. Furthermore, we will assist with your submission to gain planning approval (Gateway One - see page 7) and other submissions (e.g., to comply with the London Plan).



Spatial design

Now that we have all your main problems fixed, we can start focusing on details. We will provide you with a very detailed fire safety strategy detailing the intended design. We will also iron out smaller problems as they arise.



Technical design

With construction nearing, we are working with the entire team to make sure that all details are in place before moving on to the next stage. Our team remains proactive in updating and refining fire safety reports to reflect any design developments or clarifications.



Manufacturing and construction

Even as construction progresses, our role extends to supporting contractors with expert insights and guidance as needed. Given our extensive knowledge and experience, our team will be able to help with your questions and comments.



Handover

With the building now completed, we conduct final checks to verify compliance with fire safety measures. Also, we prepare an as-built fire safety strategy to be handed over to the client and to maintain as information for the future.

Building Safety Case Services

Supporting Principal Accountable Person (PAP) across various RIBA Stages

The Building Safety Act 2022 has introduced a new regulatory framework for high-rise residential buildings, placing clear duties on Accountable Persons to evidence robust fire safety, structural safety and building safety management. Preparing a compliant Building Safety Case is now a legal requirement, for all Higher Risk Buildings (HRBs).

As one of only six organisations appointed under the Building Safety Regulator (BSR) framework to undertake Building Assessment Certificate (BAC) assessments, SOCOTEC is uniquely positioned to support the PAP through this process. We offer a fully integrated, one-stop service to deliver a comprehensive Building Safety Case Report aligned with regulatory expectations. We are offering the following services:

- Fire Safety Engineering Services
- Structural Engineering Services
- Building Safety Management Specialists

Is Your Building a Higher Risk Building (HRB)?

Your building requires a Building Safety Case if it meets any of the following:

Criteria:

- 18 meters or taller (or seven storeys or more) and contains at least two residential units
- A care home or hospital meeting the same height criteria.
- An existing higher-rise building of the same height criteria, regardless of construction date.
- A higher-rise building undergoing major refurbishment or a refurbished building that will become higher-rise after the works are completed.

Measuring your HRB:

Start counting storeys here

Measure height here

Ground level

Not counted as a storey

Seven-storey residential tower on flat ground.

Seven-storey residential tower on sloped ground.

Under the Building Safety Act, the PAP must demonstrate the identification, control and ongoing management of fire and structural risks, supported by a Safety Case Report prepared in accordance with Health and Safety Executive (HSE) guidance.

Our Services:

SOCOTEC provides a fully coordinated technical, structural and fire-safety package, aligned with BSR expectations.

- Fire Engineering Team:**
 - The fire engineering team are competent individuals with professional qualifications including **chartered engineers** (CEng) with experience in higher-risk, high-risk and complex buildings.
 - Fire Safety Appraisal:** reviewing active and passive measures, evacuation strategy, smoke control, compartmentation, including any deviations from the standard guidance
 - Fire Hazard Identification (HAZID) Analysis:** A method endorsed in the HSE Safety Case guidance, to identify fire hazards and propose mitigation measures to demonstrate that the risk of fire is managed 'So Far As Is Reasonably Practicable' (SFAIRP).
- Structural Engineering Team:**
 - We are offering visual structural appraisals supported by desktop review and on-site inspection.
 - Identification of structural hazards, deterioration, system vulnerabilities and intrusive survey needs.
 - Structural HAZID report:** A detailed report identifying structural hazards and associated mitigation actions for inclusion within the Building Safety Case.
- Building Safety Management Team:**
 - We support you with developing the Building Safety Management Systems (SMSs), Mandatory Occurrence Reporting (MOR) systems, including templates, logging procedures and resident-communications pathways.
 - Resident Engagement Strategy:** A comprehensive report, aligned with the Building Safety Act duties.

Why Clients Choose SOCOTEC:

- SOCOTEC is one of six BSR-approved organisations for assessing the Building Assessment Certificate.
- We provide a multidisciplinary capability across fire safety, structural safety and safety management systems.
- We have a deep regulatory understanding of the structure, expectations and assessment criteria of the Building Safety Regulator.
- We have extensive experience of offering technical services and preparing Building Safety Cases reports for large scale developers across the UK.
- We are a team of competent and chartered engineers.

CFD Modelling

At SOCOTEC UK & Ireland, we utilise sophisticated Computational Fluid Dynamics (CFD) modelling to predict the spread of smoke and heat during fires within built environments. This advanced simulation technique is instrumental in crafting detailed fire safety strategies and designing robust fire safety systems.

Elevate Your Designs with CFD Services for Fire Modelling

Embark on your expansive project with our Computational Fluid Dynamics (CFD) services, tailored for fire modelling in building design. Explore the advantages of CFD, utilising Fire Dynamics Simulator (FDS), a free software developed by the National Institute of Standards and Technology (NIST) in the USA.

Why choose CFD Modelling?

- 

Predictive Analysis:
CFD modeling helps us predict how smoke and heat will spread in a building during a fire. This helps to plan evacuation routes along fire risks, and provide appropriate fire safety systems (passive, active or managerial).
- 

Design Validation:
Our engineers use CFD to check if a fire protection system will work as intended. By simulating various fire scenarios, including advanced smoke control operations, we ensure that systems perform optimally and meet performance criteria like visibility through smoke.
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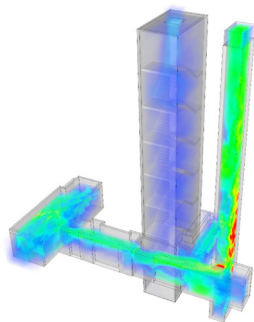
Safety Optimisation:
By understanding how fire spreads through a building, our trained engineers can utilise the obtained information to optimise the design. This may include decreasing the size of smoke shafts or vents.
- 

Regulatory Compliance:
Where the existing design cannot meet the expectations of the design guidance document, a CFD model may be utilised to show that the proposed design can provide a safe condition regardless of the deviation.
- 

Cost-Effectiveness:
CFD modelling can save money compared to physical fire tests, which demands a high financial and time commitment. Furthermore, enhanced and optimised smoke control system can save space in the building over traditional systems.

Optimising Extended Travel Distances

In the design of buildings with extended travel distances, our CFD services ensure safety and compliance, unravelling the complexity of fire dynamics, validating safety measures, and optimising designs for cost-efficient decision-making.



CFD Integration

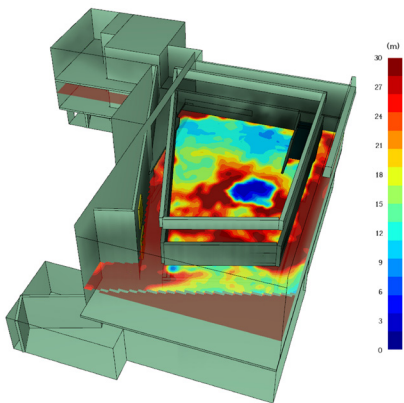
Coupling Fire Dynamics Simulator (FDS) with advanced evacuation modelling, advanced evacuation models and structural fire engineering models, ensures comprehensive insights into occupant behaviour, efficient exit route identification, time efficiency, structural behaviour and risk mitigation, placing your projects at the forefront of safety innovation.

Alongside: CFD simulation residential corridor featuring non-compliant travel distances.

Elevating Atrium Design

Atriums stand as architectural marvels, creating visually stunning spaces. However, the unique features of atriums also present distinctive challenges, particularly in the context of fire safety.

Our CFD services are tailor-made to provide an in-depth understanding of fire dynamics in atriums, offering a holistic approach to design excellence, optimising smoke management, evacuation planning, and fire containment, ensuring compliance and safety assurance.



Enhancing Safety in HRBs

Our CFD services offer a retrospective assessment for existing smoke extract systems in Higher-Risk Buildings (HRBs), seamlessly integrated into the mandatory Building Safety Case. Tailored assessments identify enhancements, validate compliance, and provide cost-effective improvements for a comprehensive safety strategy.

As part of the mandatory Building Safety Case, our CFD services contribute essential data on the smoke control systems' performance during a fire.

Evacuation Modelling

At SOCOTEC, we take pride in offering cutting-edge Evacuation Modelling Services. Our consultancy is dedicated to ensuring the safety and well-being of individuals in various environments, ranging from commercial spaces to residential buildings.

The assessment will be based on the principles as described in PD 7974-6: Human factors: Life safety strategies - Occupant evacuation, behaviour and condition.

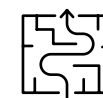
RIBA STAGES

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Why do you need Evacuation Modelling?

In the event of a fire, every second counts. Evacuation Modelling is an approach that allows us to simulate and analyse the evacuation process, providing crucial insights to enhance the effectiveness of emergency procedures. Our services are designed to help businesses, public institutions, and residential communities to make informed decisions that can save lives, whilst achieving the intended design.

Key Features of Our Evacuation Modelling Services:



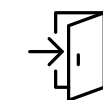
Tailored Solutions: We understand that each building and environment is unique. Our experts customise evacuation models to address specific challenges, ensuring that the solutions provided are practical and efficient.



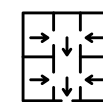
Compliance Assurance: Staying up-to-date with fire safety regulations is paramount. Our services not only meet but exceed the standards set by regulatory bodies, providing our clients with peace of mind and legal compliance.



Identifying Risks: Through advanced simulations, we identify potential bottlenecks, high-risk areas, and other factors that may impact evacuation efficiency. This comprehensive approach allows us to develop targeted strategies for risk mitigation.



Enhanced Emergency Preparedness: Our consultancy works hand-in-hand with clients to develop robust emergency response plans. From staff training to communication strategies, we ensure that all stakeholders are well-prepared to respond effectively in case of an emergency.



Continuous Improvement: Fire safety is an evolving field. We remain committed to staying at the forefront of industry advancements, regularly updating our models and methodologies to incorporate the latest research technologies and best practices.

Client Benefits:



Cost-Efficiency: Implementing proactive fire safety measures can increase confidence and trust in the design and evacuations strategies, by demonstrating how the detailed evacuation plan functions for different fire scenarios.

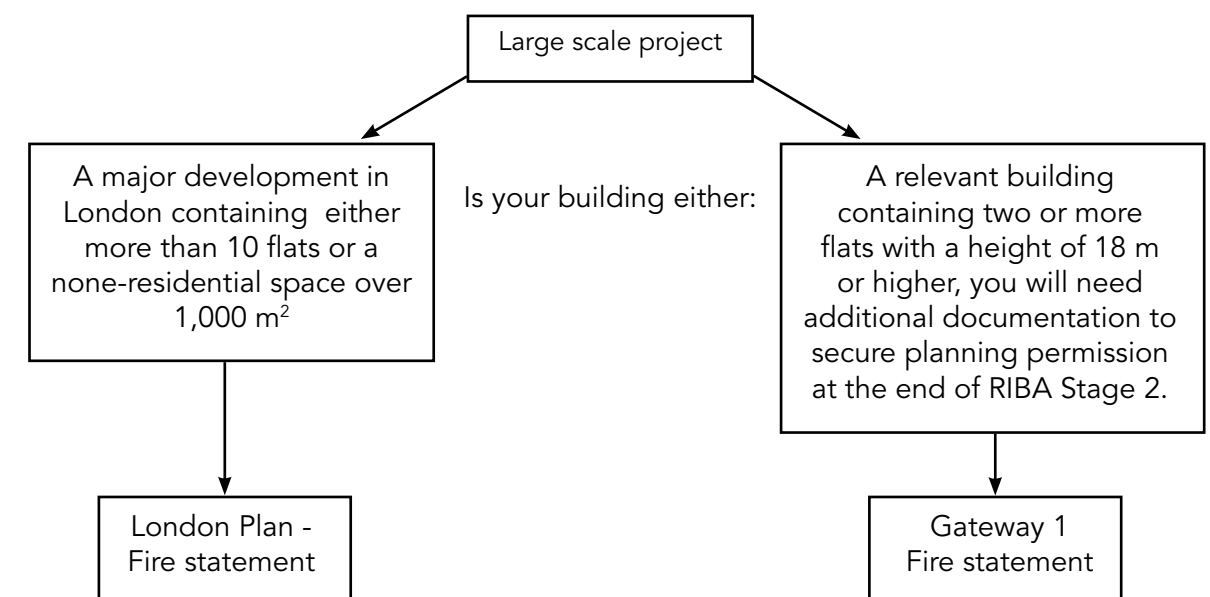


Enhanced Reputation: Demonstrating a commitment to safety not only protects individuals but also contributes to a positive public image. Stakeholders, customers, and employees appreciate a proactive approach to fire safety.

Choose SOCOTEC for Evacuation Modelling Services that go beyond compliance, providing a foundation for a safer and more resilient future. Contact us today to discuss how we can tailor our services to meet your unique needs.

Planning statements for large-scale developments

Whether you're embarking on a major development in the heart of the city of London or constructing a high-rise building, the planning process for large-scale developments demands meticulous attention to fire safety and documentation requirements. Our team stands ready to support you in meeting these obligations and your project achieving its goals effectively and responsibly.



London Plan – Fire Statement

For large developments in London, you will need to provide a statement discussing the fire safety design intent for your building. Our team will be happy to provide you with a dedicated document intended to be submitted to planning departments in London. This document is designed to be developed further in the following RIBA stages as a design fire safety strategy.

Gateway 1 – Fire Statement

For residential buildings exceeding 18m, you will need to provide a dedicated document to be included in your planning application. Our team has gathered a lot of experience on providing these statements cost-effectively since this requirement came into effect in 2021.

Retrospective fire safety strategy

When buildings are in use, the building owner is legally required to maintain the level of fire safety within their building. However, over time, the building gets worn, might lose some of these safety systems, may undergo works or documentation might get lost. We can provide you with a retrospective fire safety strategy, assessing the current risk within the building and recommend improvement works.

How we can help:



Assess the existing condition during site visits.



Recommend further surveys completed in cooperation with other divisions within SOCOTEC (e.g. compartmentation survey, fire door survey, etc.).



Assess the risk to life safety currently present.



Propose a number of options for refurbishment works (e.g. minor works, significant works, works to meet the current level of safety required, etc.)

The below show works completed on the Theatre Royal Drury Lane. To view the full case study, visit: www.socotec.co.uk/media/news/socotecs-fire-engineering-team-highly-commended-civic-trust-awards.



Southampton Solent University - The Spark
images © Tony McAteer, Gleeds

RIBA STAGES

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Third-party peer reviews

For many large-scale and complex designs, third-party peer reviews are often required as part of the design process. These reviews help identify any deficiencies in the original design, offer value engineering, and uncover other opportunities before the design progresses to the approval stage with Building Control, the HSE, the local Fire and Rescue Services, and other regulatory bodies.

Third-party reviews are crucial for catching potential issues early, providing an extra layer of scrutiny that can save time and resources in the long run. By addressing these concerns before the approval process, designs can be refined to meet regulatory standards and enhance overall project safety and efficiency.

Additionally, a third-party peer review can resolve disagreements within the design team on specialised design items. This impartial perspective ensures that all aspects of the project meet the highest standards of safety and effectiveness, fostering collaboration and consensus among all stakeholders.

How we can help:

SOCOTEC will provide you with an unbiased professional opinion. Typically, we will provide you with a list of items and actions required, for example:

- Alternative or additional assessments, explanation or substantiation, or adaptations to strategy or design recommended as best practice.
- Recommendations for alternative or additional assessments, explanations, or design adaptations to demonstrate compliance with Building Regulations.
- Alternative or additional recommendations based on contemporary guidance.

From there, we will be available to support any conversation between you and all other relevant stakeholders.

RIBA STAGES

4 5 6 7

Fire Testing Consultancy

Whether you are designing a new build or refurbishing project, you may be looking to test your building materials for fire resistance, reaction to fire or external fire performance (e.g., roof materials); our specialists provide expert guidance.

We will provide you with specific advice and guidance based on your needs, which could include the following:



Fire Testing Programme

We will assist you with developing a programme to determine the scope of the fire test required. This may include:

- **Planning:** Which and how many samples need to be tested, what test protocol should be utilised, configuration and preparation of the samples., preparing desktop studies to predict outcomes
- **Execution:** Connecting you with testing facilities (see below), explaining and describing the fire tests and acceptance criteria
- **Analysis:** Assisting with analysing test results and interpretation in context of the relevant standards and best practice guidance; and any other steps necessary for the project



Coordination with Accredited Test Laboratory

We support smooth engagement with our accredited fire test laboratory. We will assist with the planning of fire testing, help with communication between relevant stakeholders, and clarify requirements to ensure efficient and well-coordinated fire testing for your project. This ensures an organised project delivery. For more details on our fire testing laboratory services, scan the QR code below.



Technical Assessments and Expert Judgement

Where physical fire testing is impractical or uneconomic, such as oversized constructions, complex configurations, or specialised applications, we offer comprehensive technical assessments based on available test evidence of the build-up. These engineering judgements provide reasoned conclusions on expected fire performance, saving the time and cost of a full-scale test. This may be further supported by a fire modelling analysis (see CFD services).

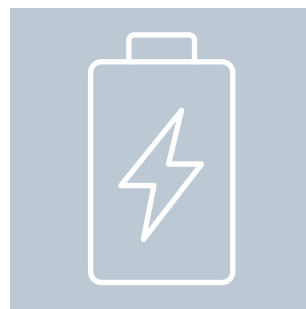
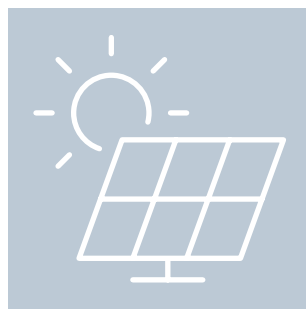
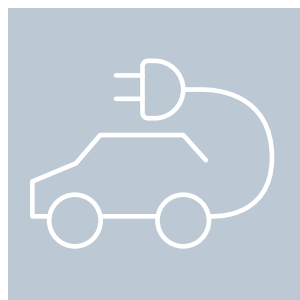
Don't navigate complex fire testing requirements alone. We offer tailored consultation sessions at £185* per hour (excl. VAT) to provide you with expert guidance on your fire testing needs. Let us help you navigate the complexities of fire testing with confidence.

*Price accurate as of January 2026, but are subject to change. Please check with the team for the more up-to-date price.



Fire safety strategies for energy systems

With the energy systems changing, batteries and energy storage systems are becoming a common sight in both urban and rural areas: electric vehicle parking and charging inside buildings, photovoltaic panels attached to buildings, battery energy storage systems (BESS) either inside a building or in outdoor remote areas.



How we can help:

- › Provide a detailed fire safety strategy based on local and international guidance (NFPA 855)
- › Take a holistic approach assessing a site, looking at everything from transformers, substations, low, medium and high voltage switchrooms, Fire and Rescue Service access and facilities, among others
- › Review test compliance to ensure safety standards are met
- › Risk assessments to limit the potential for thermal runaway and its impacts
- › Recommendation and guidance on active fire safety systems (such as detection and suppression)
- › Assessment of the risk of external fire spread to surrounding structures

Client benefits:



Property protection and business continuity: With a comprehensive fire safety strategy in place, the impact of a fire incident can be significantly limited, resulting in enhanced property protection and minimal disruption to the energy grid and surrounding infrastructure.



Stakeholder confidence: With the impact of battery fires prevalent in media, a professional fire safety strategy provides confidence to regulators, local authorities, insurers and community acceptance.



Structural Fire Engineering

Structural Fire Engineering is a sub-category of structural engineering that focuses on the performance of structures exposed to heat and fire.

In design, this is used to optimise the proposed structure, for example to reduce the structural fire resistance or to assess a complex structures behaviour in fire.

For existing building, structural fire engineering can be utilised to verify that the existing structure will achieve the structural fire resistance requirements.

Structural fire engineering tasks are highly specific to the projects and includes a lot of cooperation between our specialised fire engineers and the structural engineer, so please reach out to our team to discuss your enquiry.

What is Structural Fire Engineering?

Structures can be assessed in three domains: time, temperature and strength.

	Fire Resitance ≥ Fire Severity
Time Domain:	$t_{fail} \geq t_s$
Temperature Domain:	$T_{fail} \geq T_s$
Strength Domain:	$R_d \geq E_d$

In the time domain, the element of structure is exposed to heat and load for a certain time. If the structure maintains its stability and structural integrity for the required time, it passes in the time domain.

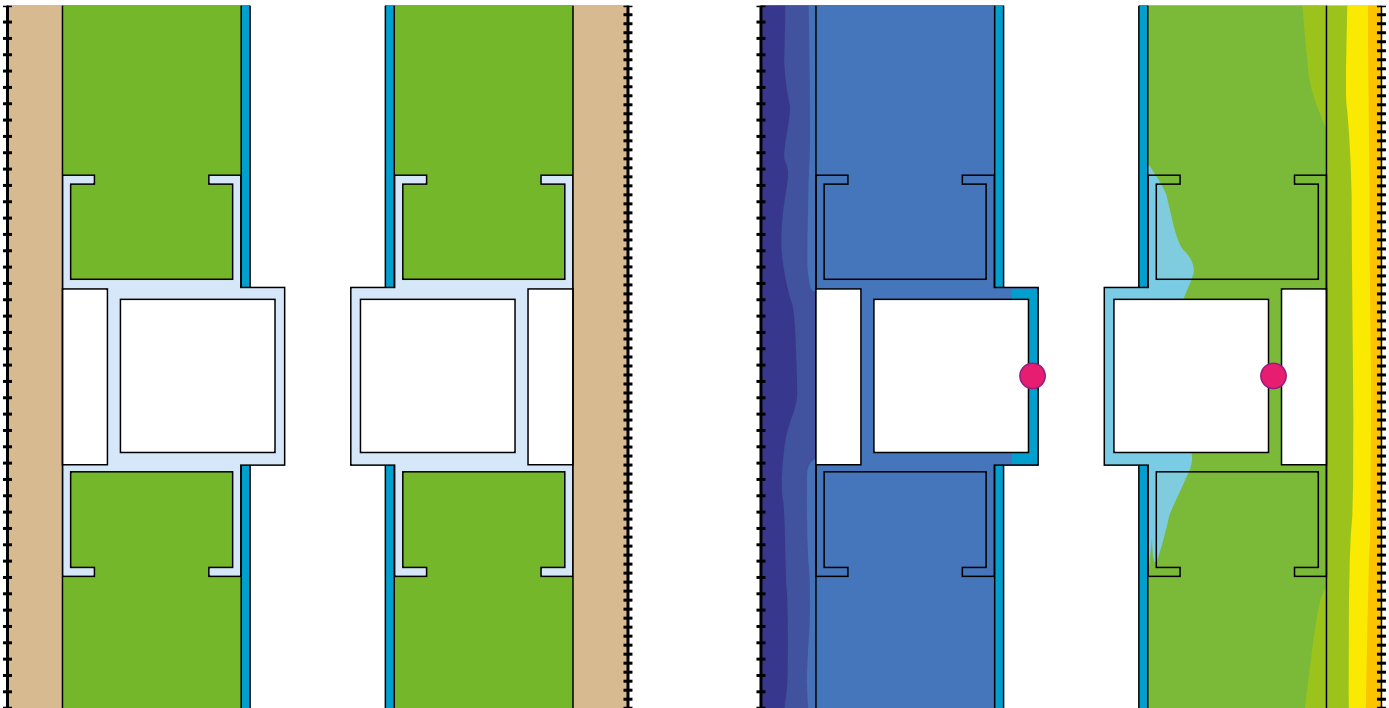
In the temperature domain, the element of structure will be exposed to heat until it reaches a critical temperature (defined in the guidance documents based on materials). Is is assumed that when the structures exceeds the critical temperature, the structure fails.

In the strength domain, the element of structure will be heated and exposed to loads. As the resistance of the structure reduces due to the heat over time, the element fails when the resistance is lower than the forces expected in the structure.

How can we help:

Structural fire engineering tasks are highly specific to the projects and includes a lot of cooperation between our specialised fire engineers and the structural engineer, so please reach out to our team to discuss your enquiry.

- › Assessment to PD 7974-3
- › Assessment to the Eurocodes, e.g., BS EN 1992-1-2 and its National Annex
- › Assessment utilised advanced fire engineering software, e.g., FDS, SAFIR, OpenSees, etc.



TIME: 10080 sec

SOLIDS:

	STEELEC3EN
	INSULATION
	C_GYPSUM
	WOODEC5

TEMPERATURE:

	> 1200°C
	1100°C to 1200°C
	1000°C to 1100°C
	900°C to 1000°C
	800°C to 900°C
	700°C to 800°C
	600°C to 700°C
	500°C to 600°C
	400°C to 500°C
	300°C to 400°C
	200°C to 300°C
	100°C to 200°C
	0°C to 100°C
	< 0°C

Radiative Heat Analysis

As a leading force in the industry, we are excited to introduce our advanced Radiative Heat Assessment capabilities, designed to address the unique challenges posed by complex projects.

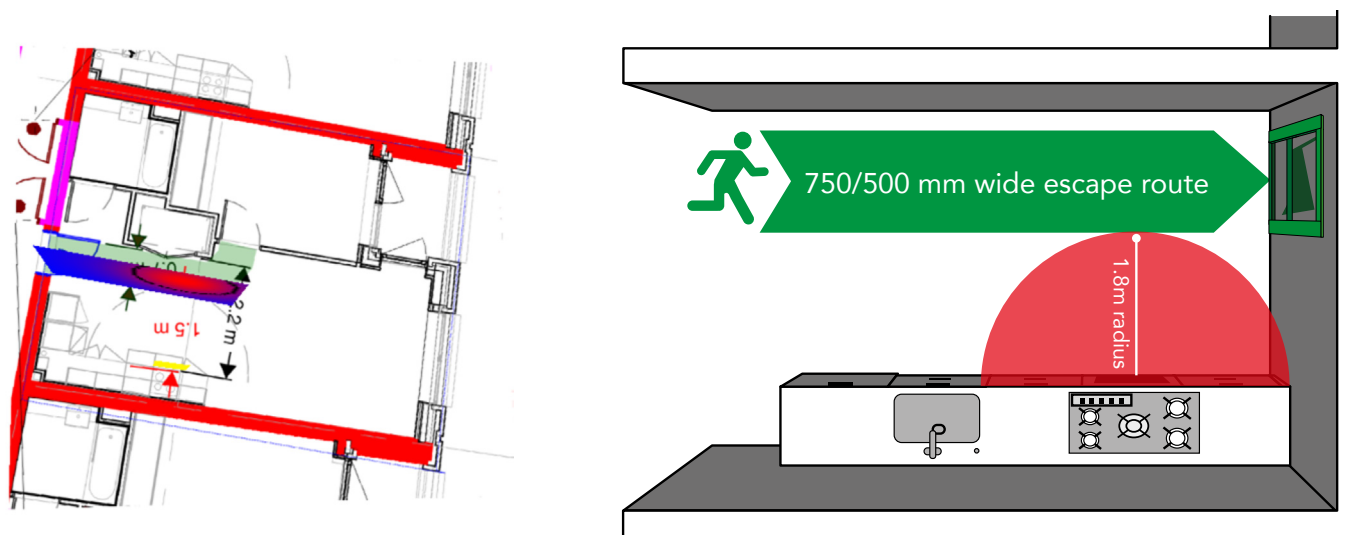
Whether you are working on residential buildings with open-plan flats, tackling external fire spread complexities, or managing the risks associated with timber frame/CLT construction sites, our expertise ensures your project stands resilient against the flames.

How we can help:

Residential Bliss: Open plan flats with cooker hobs near escape routes

In the dynamic world of modern living, open-plan flats are a popular choice, bringing flexibility and style. However, challenges arise when cooker hobs are strategically placed near escape routes, demanding a meticulous approach to radiative heat assessment. Our experts employ cutting-edge technology to model and analyse heat dispersion, ensuring that safety is never compromised in the pursuit of design excellence. The analysis compares the BR 187 analytical assessment and results obtained through modelling the scenario within Thermal Radiation Analysis (TRA) software.

The images below show the recommended distance to escape past cooking appliances, if this cannot be achieved we will undertake an assessment.



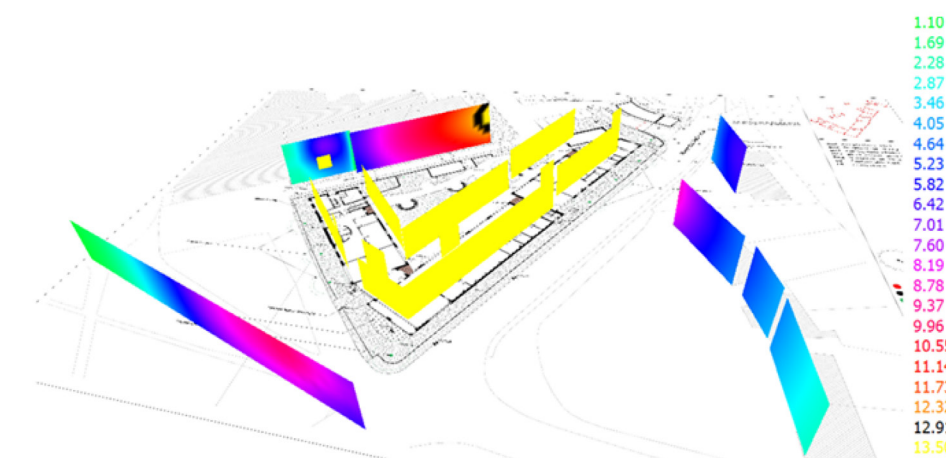
Thermal Radiation Analysis Assessment

External Fire Spread: Conquering complex elevations

Proposing complex elevations brings a new set of challenges, especially concerning external fire spread. Our consultancy stands at the forefront of innovation, utilising advanced radiative heat assessment techniques to evaluate and strategise against the risks associated with external fire spread.

Timber Frame/CLT Construction Sites: Controlling external fire spread

Timber frame and CLT construction sites demand a unique approach to external fire spread risk assessment. Our experts leverage radiative heat assessment to evaluate the specific vulnerabilities of these materials, providing you with comprehensive insights and actionable strategies to mitigate potential risks.



External fire spread assessment for timber structures.

Cost benefit analysis

A cost-benefit analysis (CBA) is the process of comparing the projected costs against the benefits, and it can be used to determine the cost-effectiveness of investments in fire protection.

CBA offers a valuable approach to decision-making to maximise the benefits from additional safety measures, by comparing risk reduction measures based on life safety and economic factors.

Steps covered in the cost benefit analysis process:

The CBA process can be summarised in the below four steps:



Identify fire protection options: List different options under consideration (e.g., sprinkler system and water mist system, fire resisting glazing and fire and smoke curtain, option assessment).



Quantify benefits: Estimate potential losses prevented (e.g., property damage, business interruption) for each option. Direct and indirect losses are considered.



Estimate costs: Estimate initial, operation, and maintenance costs for each option.



Compare options: Using economic methods compare the total costs and benefits of each option. This will help to find the best balance of economic efficiency and desired level of fire protection.

Why is cost-benefit analysis important?

A CBA allows stakeholders to evaluate the economic efficiency of various fire safety measures by comparing the costs with the potential benefits, such as the reduction of life safety risks, property damage, and business interruptions. By systematically assessing these factors, CBA helps identify the most effective solutions, ensuring that resources are allocated where they will have the greatest impact on overall safety and long-term savings.

What stage of a project can this be undertaken

A CBA can be undertaken at various stages of a project, but it is most effective when conducted during the early planning and design phases (RIBA 2 and 3), where the design remains flexible.

CBA can be revisited during later stages, such as construction or retrofitting, to assess any changes in fire protection needs or economic conditions. However, the cost of fire safety systems should always be secondary to the safety these systems add to the building.

Expert Advice

Our fire engineering team provides expert advice on combustible cladding cases for building owners, residents, and contractors.

We are well-versed in the laws and regulations related to fire safety, and we are here to provide expert guidance on what steps to take next. Whether you are a building owner concerned about the safety of your property, a resident seeking information on how to protect yourself and your family, or a contractor who has been challenged due to defective construction, we are here to help you navigate the process and achieve a positive outcome.

Our expert advice services are designed to provide you with the support and guidance you need to address any concerns you may have about combustible cladding.

Why is it important?

Expert advice is essential for navigating the complexities of fire safety regulations can be challenging. Building owners, solicitors, residents, and contractors need reliable, informed guidance to ensure compliance with fire safety regulations and to make decisions that safeguard lives and property. Engaging experienced fire engineers ensures that the right actions are taken to reduce fire risks, avoid legal liabilities, and address concerns in a timely and efficient manner.

What are the benefits?

The benefits of seeking expert advice include peace of mind, informed decision-making, and a clear path to compliance. With professional guidance, stakeholders can ensure that their properties meet the necessary fire safety standards, while residents can take proactive steps to protect themselves and their families. Contractors also benefit by receiving advice that helps them rectify any construction defects and minimise potential legal challenges.

Construction Fire Safety

Every year, approximately 366 fires are reported on construction sites*, posing significant risk to both workers and the public. It is imperative to prioritise fire safety throughout the construction process and, where feasible, begin to eliminate fire risks during the design process.

At SOCOTEC UK & Ireland, we specialise in safeguarding life safety on construction sites. We provide robust strategies to ensure compliance with the Construction (Design and Management) Regulations 2015, the Regulatory Reform (Fire Safety) Order 2005, and all relevant standards. Our guidance is designed to minimise potential damage in the event of a fire outbreak.

We offer two essential services that support these critical safety measures: Construction Phase Fire Risk Assessments (CPFRA) and Construction Fire Safety Strategies (CFSS). Our commitment is to create a safer environment for all involved in your construction project.

Construction Phase Fire Risk Assessment (CPFRA)

Our qualified Fire Safety Practice assessors conduct regular fire risk assessments, typically every three to six months, tailored to the size and specific risks of your site.

During the visit, our assessor will carefully observe the site for any potential risks, ensuring compliance with the construction fire safety strategy. Additionally, we will offer ad-hoc advice, where within the scope of the Construction Phase Fire Risk Assessments (CPFRA).

Following the site visit, the site team will receive a comprehensive report detailing the significant findings, along with recommendations for necessary remedial actions. This report will also determine the overall risk rating of the site. While some solutions can be drawn from the Construction Fire Safety Strategies (CFSS) and Construction Phase Fire Risk Assessments (CPFRA) reports, others will require further development in collaboration with our fire engineers. Our aim is to ensure that your site is equipped with effective fire safety measures, customised to address its specific risks.

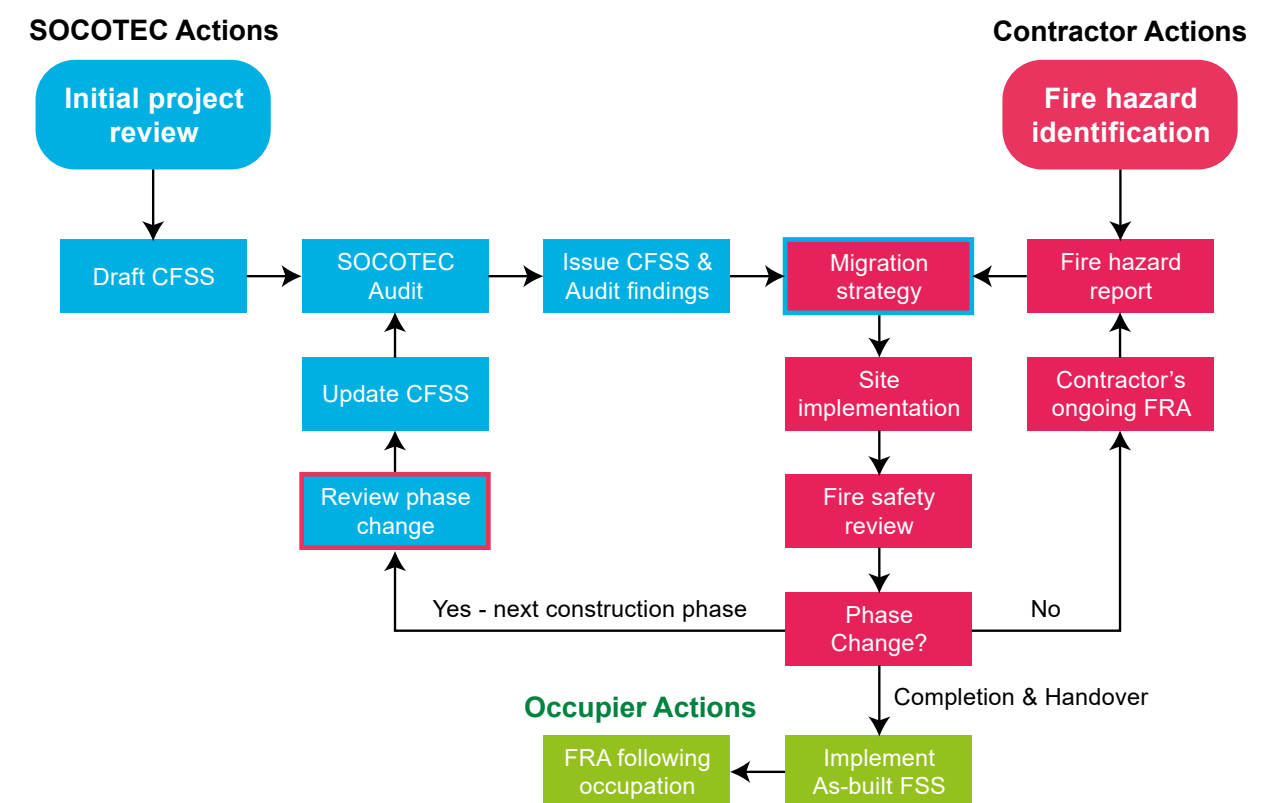
* Home Office 2023, Official Statistics - Primary Fires on Construction sites, England, year ending March 2015 to year ending March 2022, GOV.UK, last accessed 07.08.2023, <https://www.gov.uk/government/statistics/primary-fires-on-construction-sites-england-year-ending-march-2015-to-year-ending-march-2022>

Construction Fire Safety Strategies (CFSS)

Our highly experienced fire engineers will prepare a detailed strategy tailored specifically to your site. This comprehensive plan will encompass vital details concerning temporary accommodation units, escape routes, ignition risks, storage arrangements, external fire spread prevention, and firefighting operations. It will be expertly developed based on the latest guidelines from HSG 168 (2022) and the JCOP (2022)**, taking into account any specific requirements from insurers relevant to your site.

After a thorough review by the site's health and safety team and completing the initial fire risk assessment, the report will be updated to accurately reflect the current condition of the site. Updates will be made regularly to keep pace with the site's progress, changing demands, and evolving risks. This approach ensures that the fire risk assessment remains relevant and up to date, helping to maintain a proactive and responsive approach to safety management.

The process and actions to be taken by SOCOTEC UK & Ireland and the contractor are explained in the graph below.



West End Gate in London's Marylebone features eight residential buildings, eight to 29 storeys high, offering modern amenities and efficient transport links. SOCOTEC UK Fire Engineering and Fire Risk Assessment has been supporting the project since 2018, producing a life safety report for the site's insurer, regularly checked by a qualified fire risk assessor. Phase 2 is expected to conclude in 2026, and Phase 3 is expected to conclude in 2030.

To read the full case study, please scan the QR code →



** The Joint Code of Practice on the Protection from Fire on Construction Sites and Buildings Undergoing Renovation.

Façade Surveys

Our team of experts can conduct a comprehensive survey of your building's façade to investigate the existing. This includes a detailed analysis of the fire barriers and cavity closers.

A façade survey report summarising the findings of the survey along with relevant photographic evidence will be provided.

Based on the results of the survey, our fire engineers can recommend the best route to compliance and provide a letter of comfort. The letter of comfort is signed by a chartered engineer, and details if existing conditions are deemed compliant with the regulations at the time of construction and if the risk of fire spread is reasonably low.

Key aspects typically covered in a fire façade survey:



Material Assessment: Surveyors examine façade materials like cladding, insulation, framing, and decor. They analyse fire resistance to gauge their ability to withstand and halt fire spread.



Fire Resistance Ratings: Building codes require specific fire resistance ratings for façade materials. Assessments reveal whether the installed materials meet these requirements and contribute to the overall fire safety of the building.



Cavity Barrier Systems: The guidance recommends the provision of cavity barriers within the external wall. The survey checks that the installed systems meet the expectations of the design guidance.



Joints and Gaps: Proper sealing of joints and gaps in the façade is essential to prevent the passage of flames, smoke, and hot gases. Checks are carried out to assess these to ensure the integrity of the facade under fire conditions.



Maintenance and Inspection: Routine maintenance is vital for ongoing fire safety of the facade. The survey might suggest a maintenance plan to fix identified issues.



Compliance with Regulations: The survey checks whether the building's façade design and materials comply with relevant fire safety regulations and building codes.



Risk Assessment: Based on the survey findings, a risk assessment is often conducted to identify potential fire hazards and vulnerabilities in the facade. This assessment guides decisions regarding necessary improvements and upgrades.

Fire risk appraisals using PAS9980

Where combustible materials are present on external walls not supported with full-scale testing, a fire risk appraisal will be carried out by the fire engineering team.

A Fire Risk Appraisal of External Wall construction (FRAEW) is a process that involves identifying and evaluating the potential fire hazards and risks in a building or facility. The PAS 9980 process is a standardised method for conducting these appraisals, which involves inspecting the premises to identify ignition and fuel sources, as well as assessing existing fire prevention measures. The goal is to develop an efficient plan to mitigate the risk of fire and protect against loss of life and property.

By completing a fire risk appraisal using the PAS 9980 process, building owners and managers can ensure the safety of their occupants and protect against the risk of fire in line with the 2021 Fire Safety Act.

What must be considered in an FRAEW?

PAS 9980:2022 advises that when adopting a risk-based approach to assess the safety of existing multi-storey, multi-occupied residential buildings regarding external fire spread, the following factors are taken into account:

- › The combustibility and fire performance of external wall construction and cladding.
- › The likelihood of secondary fires.
- › Whether secondary fires may directly harm occupants or impede their escape.
- › The role, effectiveness, and limitations of fire and rescue service intervention.
- › The potential timeframe for adverse consequences and whether mitigation is possible through measures like suitable fire safety design.
- › The extent and effectiveness of fire safety management for the building.
- › The review conducted by BSF will specifically seek evidence that these criteria were considered during the assessment of the risk posed by the cladding system(s).

What parts of a building does the FRAEW assess?

- › Materials used for external walls
- › External Cladding
- › Gaps between cladding
- › Junctions between different building materials
- › Attachments like balconies, brise soleil, PV units and any additional attached buildings.

FRAEWs will also involve some invasive sampling and investigation of the external walls to ensure that external insulation is also compliant with existing fire safety regulations. The FRAEW can involve some level of destructive exposure. This assessment will determine if the building is within the scope of a FRAEW.

EWS1 Certificates

The External Wall System (EWS1) certificate is for new or existing buildings. An EWS1 certificate is a document that reports the outcome of either a desktop study assessment or a fire risk assessment of external wall systems on high-rise residential buildings.

Although not legally required, the EWS1 form is increasingly being requested by mortgage lenders as a prerequisite for lending. This heightened interest is a direct result of the Grenfell Tower fire, which underscored the critical significance of well-designed external wall systems and installations

What ratings does an EWS1 survey give?

This survey system provides two main options:

- **Option A** is for buildings without flammable cladding, but which may or may not have some flammable materials on the “accessories” such as balconies.
- **Option B** is for buildings with flammable cladding, which may or may not need to be remediated.

The outcome of the survey for each block will fall into one of five sub-categories, or ratings depending on the level of fire risk:

Option A:

- A1 rating:** There are no attachments whose construction includes significant quantities of combustible materials (i.e. materials that are not of limited combustibility).
- A2 rating:** There is an appropriate risk assessment of the attachments confirming that no remedial works are required.
- A3 rating:** Where neither of the above two options apply, there may be potential costs of remedial works to attachments.

Option B:

- B1 rating:** Surveyors conclude that in their view the fire risk (Note 8) is sufficiently low that no remedial works are required.
- B2 rating:** Surveyors conclude that an adequate standard of safety is not achieved, and they have identified to the client organisation the remedial and interim measures required (documented separately).

The EWS1 form will be completed by one of our qualified fire engineers. The cost of the assessment will vary depending on the complexity of the building and the level of expertise required.

Do I need an EWS1 form?

Determining whether you need an EWS1 (External Wall System) certificate depends on the specific circumstances of your property and the requirements set by mortgage lenders or relevant authorities. Here are some general guidelines:



Building Height: If you live in a residential building that is higher than 18 meters (approximately 7-storeys) and it has either cladding or a combustible timber balcony, you are more likely to require an EWS1 certificate.



Building Construction Date: Buildings constructed after 2018 are generally not required to have EWS1 certificates due to stricter regulations regarding the use of combustible cladding materials.



Mortgage Lender Requirements: Mortgage lenders may have their own criteria for requesting an EWS1 certificate. If you are applying for a mortgage or remortgaging, your lender will inform you if an EWS1 certificate is needed.



RICS Guidance: The Royal Institute of Chartered Surveyors (RICS) provides guidance to lenders and surveyors regarding the necessity of EWS1 forms. Their guidance aims to reduce unnecessary requests for these certificates.



Building Appearance: Some buildings may appear traditionally constructed but could include elements classified as cladding. Even brick-built structures may have decorative cladding panels.

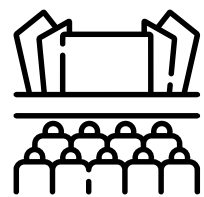
Ultimately, whether you need an EWS1 certificate depends on the specific characteristics of your building, local regulations, and the requirements of your mortgage lender. If you are unsure, it is advisable to consult with your lender or a qualified professional to determine whether an EWS1 certificate is necessary for your property transaction or mortgage application.

Access and egress consultancy services

SOCOTEC UK & Ireland's Access and Egress Consultancy is a comprehensive service designed to bridge the gap between regulatory compliance and operational reality.

While a building may be compliant with Part B, M, and K of The Building Regulations 2010 (as amended), compliance alone does not necessarily ensure that evacuation procedures are safe, inclusive, or effective for all occupants in a real emergency.

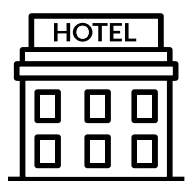
This is particularly relevant across public buildings, where occupant needs can vary significantly and may include individuals requiring additional support to evacuate safely. Such as: disabled persons, people with reduced mobility, hearing or sensor impairments, or neurodivergent individuals, among others.



Assembly venues



Educational facilities



Hotels



Public buildings

How we can help:

In this context, it is essential for building operators and responsible persons to take a proactive approach. Ensuring that evacuation strategies are robust, inclusive, and tailored to the needs of all occupants is critical, not only for compliance, but for the safety, dignity, and confidence of everyone who uses the building.

Our assessment includes:

- › Review of the existing fire strategy with egressibility focus on accessible means of escape
- › Assessment of internal circulation routes, with focus on horizontal and vertical access, final exits, signage, and wayfinding
- › Identification of non-compliances and practical limitations affecting inclusive evacuation, against Approved Document M and BS 8300-2 and opportunities for improvement
- › Assessment of evacuation procedures in relation to disabled occupants and fire scenarios
- › Detailed written report with recommendations to improve fire safety provisions for accessible escape, including management protocols and physical measures (reasonable adjustments)

Benefits to you:

- › Enhance Occupant Safety – ensure all building users can evacuate safely during a fire emergency
- › Mitigate Legal and Reputational Risk – address non-compliances and demonstrate duty of care by meeting Equality Act 2010 requirements
- › Improve Operational Readiness – align evacuation procedures with real-world scenarios
- › Demonstrate leadership in Inclusivity – position your venue as a best-practice example in accessible fire safety, reaching a larger customer base



International Fire Engineering

Delivering fire safety projects outside the UK and Ireland presents a distinct set of challenges. Regulatory frameworks differ significantly from country to country, local construction conditions vary, and the consequences of getting it wrong are serious. You need a team with genuine international experience — one that understands both the technical and practical realities of working across borders.

SOCOTEC UK & Ireland's fire engineering team has built an outstanding international track record, underpinned by a long-standing partnership with the UK Foreign, Commonwealth & Development Office (FCDO) and an extensive portfolio of projects delivered for private clients across the Middle East, Africa, Asia, and beyond. This work has given us deep familiarity with a wide range of international fire safety codes and standards — including IBC (USA and globally used), NFPA (USA and globally used), SBC (Saudi Arabia), UAE FLS Code, and QCDD (Qatar).

Our international capability is further strengthened through close collaboration with our SOCOTEC US fire protection engineering colleagues, bringing together British and American expertise on complex, cross-border projects.

What we offer

We provide end-to-end fire engineering support for international projects, including:



Fire safety strategy: For new build and refurbishment projects



Regulatory compliance: Advice across multiple international frameworks



Performance-based fire engineering design: Where prescriptive codes cannot be directly applied or where innovative solutions require engineering justification



Liaison: With local stakeholders and authorities holding jurisdiction

We work with you from early design through to handover, and we strongly recommend involvement from the outset on projects where unfamiliar regulatory frameworks or performance-based approaches are anticipated.

Why SOCOTEC UK & Ireland?

Our ability to adapt to local risks and procedures. We recognise that guidance developed in Western countries does not always translate directly to different environments, and we have the experience to adapt designs appropriately — without compromise to life safety.

Our credentials speak for themselves. We recently delivered the comprehensive fire safety strategy for Africa's largest airport, and in 2024, one of our Saudi Arabian projects was selected for presentation at the prestigious SFPE Performance-Based Design Conference in Denmark — recognition of the technical innovation and rigour that define our international work.

As part of the wider SOCOTEC Group, operating across 26 countries with over 12,000 engineers, you benefit from an international network of expertise and local knowledge that few consultancies can match.

Active Fire Protection Consultancy

When it comes to fire safety, the systems designed to actively detect, control, suppress and extinguish fire are just as critical as the building's structure itself.

Active Fire Protection (AFP) encompasses the full range of systems that respond during a fire event — from fire detection and alarm systems that alert occupants and emergency services, to automatic sprinkler and water mist suppression systems that control a fire, to smoke control systems that will extract the hot and toxic gases from the area to safeguard the escape routes and firefighting operations.

Unlike passive fire protection measures — such as fire-resistant walls, floors, and fire doors — AFP systems require activation, either automatically or manually, to perform their function. Getting the design of these systems right and ensuring they work in harmony with the building's overall fire safety strategy is essential. Especially for complex buildings, such as Higher-Risk Buildings (HRBs) and non-standard applications, additional support in the form of our AFP services can identify issues early and can develop practicable solutions.

How we can help

We provide independent technical consultancy across the full range of AFP systems. Our role is to bridge the gap between your fire strategy and the specialist systems being designed and installed — ensuring everything aligns, complies, and performs as intended.

Our services include:

- › **Design review and assessment** — we review AFP system designs against the building's fire strategy and applicable UK and international standards, identifying any gaps or inconsistencies early in the process.
- › **Technical and comparative analysis** — where multiple system options are available, we provide objective, evidence-based analysis to support informed decision-making.
- › **Coordination support** — we work alongside architects, designers, and specialist subcontractors to resolve coordination issues and ensure the AFP systems integrate seamlessly with the wider building design.
- › **Building Control and BSR support** — we prepare and support technical submissions to Building Control or the Building Safety Regulator (BSR), providing the documentation and justification needed to progress approvals.
- › **Construction and installation review** — our involvement does not stop at design. We can support you through installation, testing, and commissioning to ensure systems are delivered as intended.

Why appoint SOCOTEC UK & Ireland?

You benefit from a team with deep practical knowledge of AFP systems across a wide range of building types and project complexities, as well as training in fire safety. Our independence means our advice is objective — focused entirely on achieving the right outcome for your project, not on promoting a particular product or system.

By involving us early, you gain confidence that your AFP systems are compliant and coordinated, whilst reducing the risk of costly redesign, delays, or complications during Building Control and BSR reviews.

Fire Research Services

Advancing fire safety through evidence-based research.

At SOCOTEC UK & Ireland, we believe that the best fire safety advice is built on the strongest possible foundations. Where established guidance ends, and complex, real-world challenges begin, our dedicated fire research capability steps in — filling the gaps that matter most to your projects.

What we do

Our fire research service tackles the questions that existing literature and guidance cannot yet fully answer. We identify the knowledge gaps that arise directly from live engineering projects and design research programmes to address them — ensuring that the advice we provide to you is not only compliant with the functional requirements of the Building Regulations 2010 (as amended) – Schedule 1, part B, but genuinely substantiated by evidence.

Our current research includes:

- › [Ageing factor of open-state cavity barriers](#) — investigating how the performance of cavity barriers deteriorates over time, with findings already published in the internationally recognised [Fire and Materials Journal](#), as well as ongoing research with the University of Liverpool
- › [Reliable AI-driven Fire Safety design: enhancing CFD modelling efficiency with trustworthy AI](#) — exploring how artificial intelligence can be harnessed responsibly to improve the accuracy and efficiency of computational fire modelling.
- › [The fire performance of aged versus modern timber in heritage structures across the UK](#) — a critical area as the built heritage sector faces increasing scrutiny under evolving fire safety regulations.
- › [Passive Fire Protection defects and their impact on compartmentation](#) — quantifying the real-world consequences of installation deficiencies to inform better design, inspection and remediation practice.

A collaborative approach

We do not work in isolation. Our research team collaborates with leading academic institutions — including HVL (Western Norway University of Applied Sciences), the University of Liverpool, the University of Edinburgh, and Newcastle University — bringing together the rigour of academic research and the practical insight of experienced fire engineers.

Equally important is how we work within SOCOTEC UK & Ireland. Our researchers draw on the wider expertise of colleagues across Building Pathology (Heritage), Environmental & Safety (Battery Safety), and UKTC (Fire Testing), ensuring our findings are stress-tested across disciplines and directly applicable to the full range of challenges you may face.

Why appoint us?



Industry-relevant expertise:

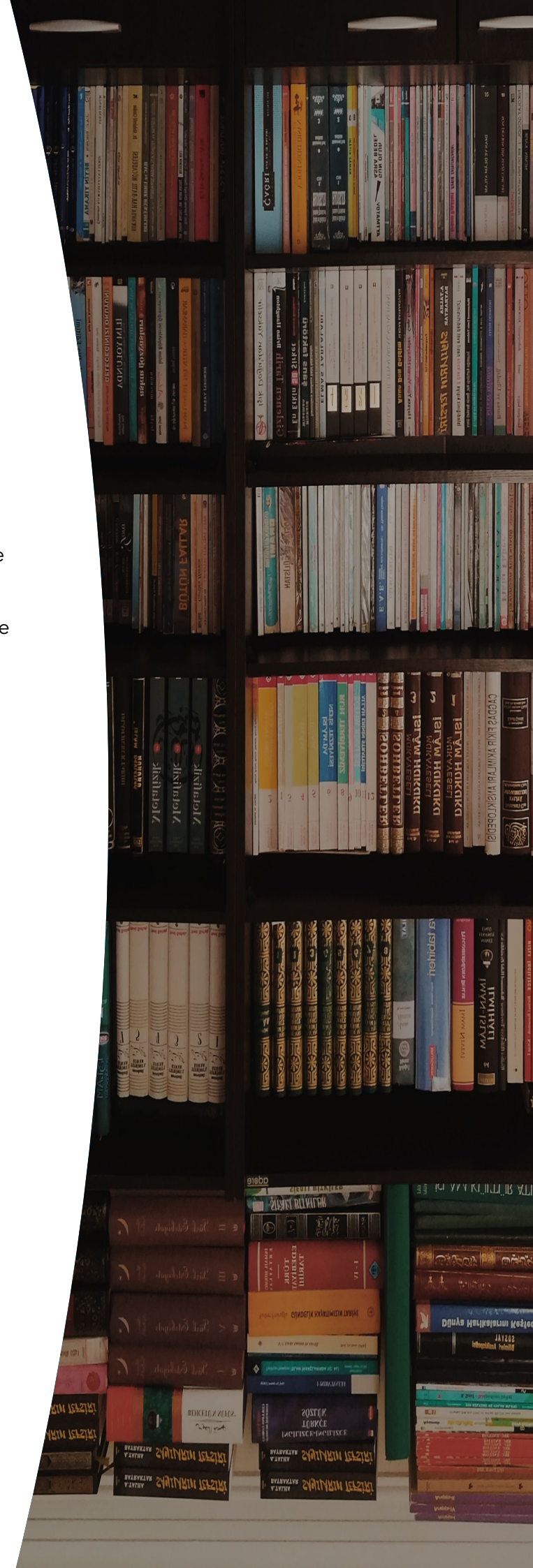
Our research team is made up of fire engineers with hands-on project experience alongside academic credentials. This means our research never loses sight of what matters in practice — and the insights we generate translate directly into better engineering decisions for your projects. Learn more about our experts [here](#).



Internationally recognised work: Our research is selected for presentation at some of the most prestigious forums in the fire safety world, including, most recently, the SFPE Performance-Based Design Conference (2024 and 2026) and RISE Fire Safety of Façades 2024. Our published work appears in the peer-reviewed journals, giving you confidence that our findings meet the highest standards of scientific scrutiny.



Filling the gaps that others cannot: When your project encounters a scenario where no established research exists, we have the capability, the partnerships, and the determination to find answers. You will not be left with assumptions where evidence should be.



SOCOTEC GROUP



26
COUNTRIES

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Singapore
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United Kingdom
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7
PLATFORMS



€1.85Bn
TURNOVER

250
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2,300
PEOPLE

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CLIENTS

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£200M
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