

Briefing Note

# SAFETY CASE PRINCIPLES FOR HIGH RISE RESIDENTIAL BUILDINGS



## Introduction

In this Briefing Note has been based on the recently published HSE Safety Case guidance.

New laws on building safety have been proposed to Parliament. A key element of these proposals is that certain buildings will require a safety case when they are occupied. If you manage or are responsible for a building covered by the proposed new laws, this Briefing Note will help you understand what a safety case is.

Note: the requirements of the new legislation are not yet confirmed and could be changed by Parliament. This means that you are not yet legally required to do anything about safety cases. However, you may want to start preparing for the proposed new regime now to make sure you have the necessary systems and procedures in place, if and when the new law takes effect.

## Safety cases for high-rise residential buildings – an overview

The proposed new regime aims to make sure that buildings in scope in England

- are designed and constructed to be safe and of a good standard, and
- are operated and managed in a way that protects people from the spread of fire or structural failure, and reduces the severity of a serious incident.

Buildings in scope are those at least 18 metres in height, or have at least 7 storeys, and contain at least two residential units. This includes multi-use buildings (buildings with residential dwellings and other uses, for example shops).

The new laws propose that people who manage or are responsible for high-rise residential buildings will have to take all reasonable steps to make sure their buildings are safe, put together a safety case and produce a safety case report. To meet these proposed new requirements, you will need to demonstrate:

- how you are keeping your building safe, and
- why you believe the measures you have in place to prevent and limit the consequences of a major accident in your building are sufficient and effective, and
- that you have a robust approach to the ongoing management of the building to make sure those measures remain effective. This requires you to think about your building holistically and to think of it as a system.

The safety case approach will help you to implement measures that are proportionate and effective and ensure that people in and around your high-rise residential building are safe.

## Major accident hazards

When considering hazards and risks, the focus is often on the impact on individuals. However,

**A major accident hazard is an occurrence that has the potential to adversely impact the health or safety of many people. For example, multiple injuries or deaths, or serious damage to property.**

In high-rise residential buildings this will also include, for example, events where a fire, and associated smoke, has spread beyond where it originally started and affects other parts of the building.

## Identifying major accident hazards in buildings

Major accident hazards tend to result from a combination of failures. Therefore, you will have to carry out a systematic review of your building so that you understand:

- what could go wrong
- how it could go wrong and
- how significant the impact could be.

Unlike in other safety case regimes, which may have many different types of major accident scenarios, for high-rise residential buildings it is proposed that these are limited to two broad categories of hazard:

- the spread of fire
- structural failure.

The new safety case regime is not intended to address the risk of fire and structural failure where the consequences are minor, or an incident is contained to where it started. Rather, it includes a fire or structural failure which spreads beyond its origin and exposes, or has the potential to expose, a number of people to significant harm.

Therefore, a high-rise building major accident hazard will be a fire or structural failure that:

- has the potential to impact the safety of occupants on more than one floor
- has the potential to cause harm to occupants across multiple compartments
- is one type of event that leads to another
- has an impact on surrounding populations.

## Safety case – what is it?

There are two key terms we need to understand. These are safety case and safety case report:

### Safety case

The safety case is all the information you use to manage the risk of fire spread and the structural safety of your building. In the proposed new safety case regime, you will use some of the information as evidence to demonstrate (or justify) how you are preventing major accidents

in your building and limiting their consequences.

You will already be doing a lot of things to keep people safe to meet the requirements of specific legislation (for example, the Regulatory Reform (Fire Safety) Order 2005 [as amended]). The proposed safety case requirement will not replace existing legal requirements that apply to buildings and you must continue to comply with them.

If you need to prepare a safety case, you will have to think about the major accident hazards of your building and how the things you do link together to prevent a major accident.

### **Safety case report**

The safety case report is a document that summarises your safety case. The safety case report identifies the major fire and structural hazards associated with your building. It shows how you are managing the risks they present, as far as you can, to prevent a major accident.

It need not cover risks that will only affect individuals in a single incident, such as trips and falls, unless the condition of floors, handrails and walkways could compromise how people evacuate the building in a major accident.

It should provide a narrative describing why the most important parts of the safety case are necessary and how these parts work together to keep the building safe to occupy. Documents or information used in the safety case may be referenced in the report to support that narrative.

The report should show that you have a clear understanding of the major hazards associated with your building and how the measures you have in place are effective in managing and controlling the risk of a major accident. This should give the reader confidence that the major fire and structural risks have been identified and are being properly managed and controlled.

A safety case report should not be, for example:

- a collection of individual reports, compiled without narrative, reference or context
- just a fire risk assessment (although this will form part of a safety case) and nothing else
- a 'one-off' exercise
- a standardised document containing generic information
- an overly technical or complex document
- a set of unsupported claims of safety without evidence
- a 'copy and paste' from another building's safety case: while some features may be common, the hazards and risks may be unique and need to be considered separately
- an administrative hurdle to solely satisfy the regulator and residents, and then be put on a shelf

The building, its hazards and how they are managed will change over time and the safety case will need to evolve to reflect this. Therefore, the safety case report will also have to be reviewed and updated to continue to provide assurance that major fire and structural hazards are being properly managed and controlled.



## Safety case report – what should it contain?

The safety case report should be succinct and allow the reader to understand:

- the major hazards associated with the building
- what measures are in place to manage, control and mitigate the risks from these hazards, including your safety management systems and the physical systems and precautions in the building
- how these measures are maintained
- what checks you do to make sure the measures will work when they are needed
- how you keep the safety case up to date (e.g., periodic reviews, and before and after major changes, such as when the building is refurbished).

It should also provide the reader with confidence that the associated risks are being reduced and that proportionate steps are being taken to make sure they will be kept under control and managed in the future.

To help formulate this narrative and provide confidence you should start to:

- draw together a clear description of your building
- think about the major accidents involving fire spread and structural safety that could affect your building
- describe the measures you have in place to prevent major fire and structural accidents, minimise their impact on people if things go wrong (eg, emergency evacuation and firefighting arrangements)
- set out how you make sure the measures will work when required
- think about whether your measures and your safety management system are enough to ensure the safety of the residents/building users from major accident hazards and whether any additional proportionate measures may be needed
- put together a process to ensure any modifications to the building consider the impact on fire and structural safety.

These points are explored in more detail below.

### A clear description of your building

#### What is it?

You should start by considering what your building is and the features it contains. The description should be detailed enough for the reader to have a clear sense of the building so that they can gain an understanding of what is the potential risk, ie it should include the key features that may impact on the risk to residents/building users.

This description may include:

- the address, the building height, area, use (e.g., commercial and residential), relative location (including surrounding buildings, if appropriate), occupation density, and services provided to the building

- how the building was ‘actually’ built (if known, or the basis on which assumptions are made). For a new building, this is likely to involve references to the ‘as built’ plans of the building, materials and fire safety information
- any additional information relevant to the safety of the finished building and its users with respect to fire and structural safety (e.g. areas of the building where flammable materials are stored or used; the vulnerability of certain residents and their ability to respond in an emergency)
- photographs, videos and plans to help the reader’s understanding
- identity and role of key people with responsibility for the building’s safety, management and maintenance.

## **What are the major accidents involving fire spread and structural safety that could affect your building?**

To ensure a proportionate, risk-based approach you need to think about the information you have now. Is it enough to answer the questions above or do you need more?

Your safety case report should show that you have considered:

- What could go wrong?
- How could it go wrong?
- How significant the impact could be?

You will have some assessments in place, such as your fire risk assessment, but it is possible that these do not consider major accidents hazards in enough detail or scope. For example, some fire risk assessments only assess the likelihood of fire starting, and do not consider the risk of it spreading beyond the compartment of origin.

To do so you should think critically and widely about what could go wrong and how. For example, very few fires in dwellings spread beyond the room where they start. Nevertheless, when they do they have, or could have, serious consequences for people in the building. Do not assume that something will not happen. This requires thinking about the credible, worst-case scenario and how significant it could be, including how many people could be affected.

This may require a different approach to what you are currently doing.

To answer these questions fully you may have to carry out a more detailed hazard identification of your building focusing on the major accidents. This should consider how the major hazard event could start and develop, for example, how an escalating fire may develop and what areas of the building it could affect.

## What measures do you already have in place to prevent and minimise major fire and structural accidents?

Having considered what could go wrong and how, you should then consider what you currently have in place to stop it from happening and to limit the impact should it happen:

- What is in place to stop it going wrong?
- What is in place to limit the effects should it go wrong?

Some measures prevent a fire starting or the building structure being weakened (e.g. weather protection), some control the likelihood of a major accident (e.g. fire compartmentation that prevents fire spread for a minimum period) while others mitigate the consequences (e.g. vents and smoke control systems).

These measures can include things like:

- structural protection (against, for example, fire and water)
- maintenance regimes for the building's gas network, electrical systems, plant and equipment
- fire compartmentation (including floors and walls)
- protection against water ingress
- weather protection
- inspection schemes for safety critical structural elements
- fire protection of penetrations and voids
- fire protection of front doors of flats
- fire and carbon monoxide warning systems
- evacuation plans and routes, and their testing
- equipment provided for the fire and rescue service to use
- protection provided to bin chutes and bin rooms
- electrical protection provided (from hazards including local electrical shock, mains installation, lightning protection)
- automatic fire sprinklers and suppression systems
- automatic vents and smoke control systems.

This list is not exhaustive, and you need to think about the features of your building.

When you have identified what you currently have in place, you should think critically about whether this is adequate.

- Are there enough measures in place for each of the major accident hazards?
- What condition are these measures in?
- Will they work as you expect them to, should an event start to happen?
- Are there other reasonable steps that you could take?

High-rise residential buildings are often assumed to be safe based on the design principle of compartmentation. Common assumptions are that a building has been designed to relevant standards and is therefore 'safe', and that the measures will be fully effective in all situations

for the lifetime of the building. You should test these assumptions, to ensure they remain valid as experience has shown that where these measures are present, they sometimes do not work as expected. They may not have been maintained effectively, or they may have been compromised, removed, or rendered inoperable over time. For example, the assumption of 30 or 60-minute fire resistance provided by a fire door is only valid if the door has been manufactured, installed, and maintained to the relevant standard.

To be confident in preventing a major accident, you should have adequate measures in place to provide levels of protection (this is known as ‘defence in depth’ or ‘layers of protection’). These will include measures that manage, control and/or mitigate risk and their ongoing management. These measures should be critically assessed to make sure they operate effectively. When deciding if more measures are required you will need to take into account the cost of implementation and ongoing maintenance balanced against the reduction in risk that will be delivered.

## **How do you make sure your safety measures will work when required?**

Once you have identified the measures you have in place to prevent and limit the consequences of a major accident and considered assumptions about how they will operate – what next?

Now you should consider what systems to have in place to ensure that the assumptions are valid and that you can be confident that the measures would work as you expect. In other words, what are your ongoing management arrangements?

## **How do you ensure the controls would operate effectively when required?**

This is about the systems you have in place such as processes, procedures, preventative maintenance, instructions, training, and supervision (this is not an exhaustive list) and will form part of your Safety Management System (SMS).

Your SMS should effectively manage and provide assurance that all the measures work together to make sure the building is safe. It should reflect the major accident hazards that are present and support how the building works and is run in practice. To achieve this, the SMS should include processes to identify, monitor, maintain, audit, and review the range of measures on which safe occupation depends.

Organisations that manage major accident hazards well measure key aspects of their SMS and controls through leading indicators that help identify potential problems before they go wrong and cause a serious safety incident. They also recognise that managing major accident hazards is a continuous task and actively challenge their performance data – both where this shows things are working, as well as where improvement is needed.



- Are your measures and your SMS enough to ensure the safety of the building users from major accident hazards?
- Do you have the right information about how the measures are working?
- Are you doing enough?
- Is there anything else you should do? What further proportionate and effective steps could you take to prevent, control and mitigate the spread of fire and structural failure?
- What is your plan to implement any further measures?

In other words, you should be clear, and able to describe in your safety case report, why you believe you have done enough to protect people from a major accident and what more you may have to do if there are still areas of weakness.

There are many sources of information that will help you work out if you have done enough to protect people and to ensure that the measures you have in place will work when needed. These include British Standards, industry good practice and/or guidance from regulators and industry bodies.

Responding to any weaknesses you find will require you to think about what more you might need to reasonably do to manage, control and mitigate the risk of spread of fire and structural failure. For example, even if you have sufficient measures in place, you may need to improve your SMS to make sure that these measures stay in place and will work when they are called upon.

If there are serious weaknesses or immediate risks to people in and around the building, you will want to take swift action. Examples of this might include, if you were to find that a number of fire doors are damaged and will not prevent fire from spreading, or parts of the fabric of the building are in poor repair and could fall and strike someone. In such circumstances you may have to swiftly implement interim or temporary measures until more permanent solutions can be put in place.

You may also need to plan ahead for improvements to the building or your SMS, e.g. if these require capital expenditure or the development of new procedures. These might need to be phased over several years and will need to take into account the relative cost of the measures needed to manage, control and mitigate the risks, and other necessary changes or improvements you need to make.

Clearly planned works and improvements that are not related to fire or structural failure may, nevertheless, offer opportunities to put in place measures to manage, control or mitigate the risk of major accidents in a more effective and less disruptive way.

To protect the people in and around the building you will want to find the right combination of prevention, control and mitigation, supported by the right SMS. You will want to make sure that whatever steps you take are reasonable, reflect the level of risk to the safety of those in and around the building, and are proportionate to the risk of a major accident.

You will need to provide a reasoned justification and argument to support the statements and claims you make in your safety case report.

With that in mind, we recommend you are critical and curious of your building management system as a whole and of the statements you are making.

Ask the following:

- Why is your building safe to occupy?
- Why do you believe that is the case?
- Have you set this out clearly in your safety case?

## Has the purpose of the safety case report been met?

In developing a well-structured and coherent safety case report you will demonstrate that:

- you have a good understanding of the factors that influence risk and the measures required to minimise the chance of risks causing harm to people
- you have the right management systems in place to ensure that the measures function effectively when required
- you have engaged with the right people in building the safety case, including residents, designers, surveyors, and those who manage and maintain the building for you.

## Safety case report and the Building Safety Regulator

The safety case is primarily to help you to manage the major accident hazards during the lifecycle of your building. However, once the regime is operational, you will have to provide the safety case report to the Building Safety Regulator (BSR).

BSR will use it to assess and verify your arrangements for managing, controlling and mitigating major fire and structural risks. The report can also be used as the basis for providing information to other interested parties, including residents as part of your residents' engagement strategy under the proposed new regime.

## What you can do now to start to prepare

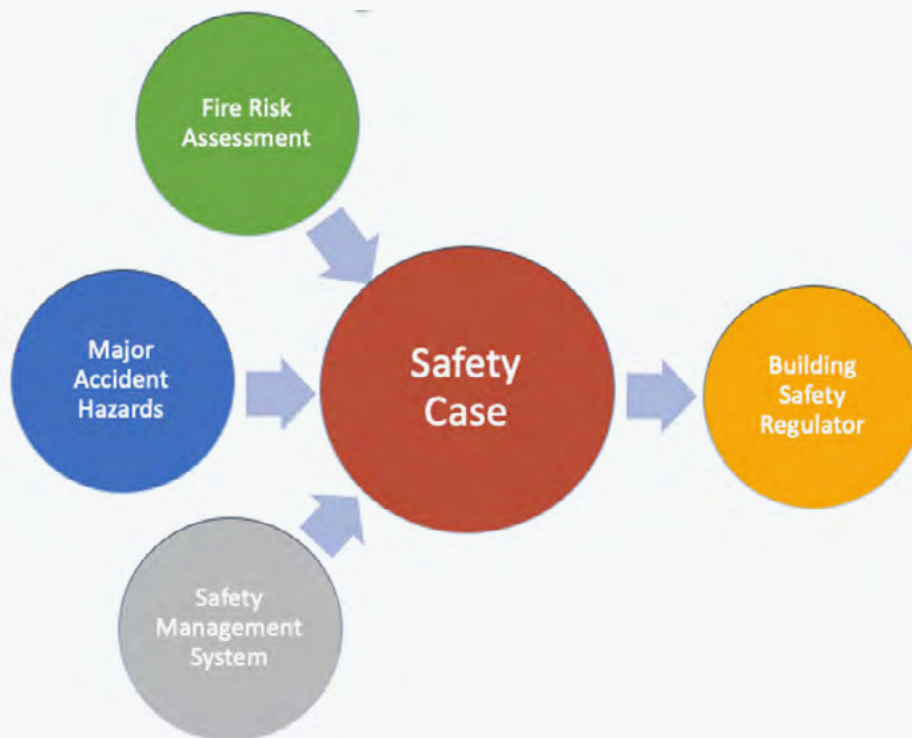
This will be a different type of regime that will require you to think about how you are managing the functional safety of each individual building and demonstrate to the BSR that you are doing the right things. To help you prepare for the new regime, we recommend that you:

- think about how your building works as a system, not just as individual components
- think about your organisation and the competence of the people who work there:
  - ◆ Who has the building knowledge you need?
  - ◆ Where does the leadership for safety come from?

- ♦ What is your organisation's current safety focus and what will have to change for the new regime?
- think about the scenarios for fire spread and structural failure
- gather your existing information about the building. This should include:
  - ♦ how the building is used and managed as well as the physical construction
  - ♦ some analysis of which elements of the building are safety critical
  - ♦ some review of which component specifications are safety critical
  - ♦ involving residents and others who use and maintain the building who can provide valuable insights into the building
- think about the controls you already have in place. These might be in place to meet the requirements of other regulatory regimes (e.g., fire safety regulations). They may contribute to the management and control of the risks of a major accident hazard, and they may be enough. But you should not assume this. There may be more or different things that you need to do

## To Summarise

The following graphic aims to simply illustrate the relationship between the key components to consider in compiling safety cases for high rise residential buildings.





## Compliance without compromise

We create next-generation property compliance by fusing clever consultancy with cutting-edge technology, so our clients can grow. Our products include:




Unparalleled expertise to safeguard your people and property.



Our online compliance and risk management platform gives you total visibility.



Take control of your supply chain, confidently and efficiently.

 0203 819 8829

 [enquiries@wmcompliance.co.uk](mailto:enquiries@wmcompliance.co.uk)

 [wmcompliance.co.uk](http://wmcompliance.co.uk)

---

Health & Safety • Legionella • Fire Safety • Asbestos • Contractor Management • Accessibility • Environmental • Training

---

London Office, 20 Grosvenor Place, London, SW1X 7HN

Registered Office at 20 Grosvenor Place, London, England SW1X 7HN

William Martin is part of Marlowe Software, Risk & Compliance. Our other brands are Elogs and Barbour EHS.