

A guide to the updated Fire Safety Standard

# BS 9991:2024



*The BS 9991:2024 standard has been updated on 30 June 2025 to include a corrigendum taking into account feedback received. Our fire consultants are in the process of interpreting the amendments and evaluating their impact and will update any commentary.*

**CUNDALL**

# Foreword

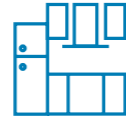
On Wednesday, 4 September 2024, the world heard the harrowing findings from the six-year public inquiry into the 2017 Grenfell Tower fire in which 72 people lost their lives and over 300 people lost their home. The findings of Phase 2 of the Grenfell Inquiry delved into the systematic failures that allowed the disaster to occur. As a result, making building safety a priority has never been more pertinent, and rightfully so. There should never be another incident like Grenfell.

Three years after the draft was first published in 2021, the final version of BS 9991:2024 Fire Safety in the Design, Management and Use of Residential Buildings – Code of Practice was published in November 2024. This final version has important implications for all residential buildings with specific focus on tall and very tall blocks of flats. It provides much needed clarity on various elements that have long been considered ambiguous by designers, whilst also capturing several enhancements to align the Standard with wider industry developments.

This guide summarises the key changes in the BS9991:2024.



BS 9991:2024 is the British Standard for Fire Safety in Residential Buildings and was published and came into effect on 30 November 2024, superseding and withdrawing the previous 2015 version. It is an alternative design standard to Approved Document B, which is a document published by the UK Government, providing guidance for the design of buildings to meet Part B – Fire Safety – requirements in the Building Regulations. Although Approved Document B has been recommended by various relevant groups such as the National Fire Chiefs Council (NFCC) and the Royal Institute of British Architects (RIBA), it is not the most recent standard for designers. The British Standard Code of Practice BS 9991, as well as BS 9999, are intended to be an equally acceptable but more advanced alternative to the Approved Documents and have historically been the preferred choice for designers as they allow more flexibility.



## Internal planning of flats

For the design of open-plan flats, recommendations now incorporate a 1.8m clear zone around cooking equipment to allow occupants to escape through the living/dining space, as is established practice in industry. This results in effectively a 2.7m distance required between a cooker and the far wall or obstruction which allows for 0.9m escape width. While this change does not preclude the use of fire engineering assessments to demonstrate a reduced distance is acceptable, however, it will likely mean this option becomes less prevalent. In addition, the outdated and onerous requirement for enclosing kitchens in open-plan flats larger than 8m x 4m has also been removed.

New guidance now also recommends that charging points for mobility scooters or electric wheelchairs are not located in an apartment's entrance hallway.



## Suppression

Sprinkler protection is now required in all residential buildings above 11m, bringing the Standard in line with Approved Document B. However, BS 9991 still recognises the benefit from the suppression by allowing buildings between 18m and 30m with sprinklers to be provided with 60 minutes of structural fire resistance instead of 90 minutes.

References to the BS 8458 Standard relating to watermist systems in residential buildings have been **removed** from BS 9991, which by omission means residential buildings should be protected with sprinkler systems exclusively. Therefore, where watermist is proposed, it is now considered a fully fire-engineered solution that will be a derogation from guidance. This change comes after years of progress in standardising the watermist systems offerings and compliance, which is expected to impact the residential watermist market.



## Smoke control in residential buildings

For buildings above 18m in height, only natural or mechanical smoke shafts are now recommended, and external Automatic Opening Vents (AOVs) direct to the outside of the building will not be acceptable.

Above 30m in height, only mechanical smoke shafts should be used for the protection of stair lobbies (either extraction or pressurisation), and in these circumstances, natural smoke shafts will no longer be acceptable.

The design of mechanical smoke ventilation systems is not directly affected, however, there are changes in how the design process and validation should be approached. It is no longer sufficient to show that a mechanical smoke extract system is at least as efficient as a natural smoke shaft system, but the effectiveness of the system needs to be demonstrated with respect to separate performance criteria.

For buildings more than 60m in height, a mechanical smoke extract system also needs to be designed to the principles set out in BS EN 12101-13 and specifically Annex D. This places additional requirements on designers with respect to the engineering method used to design the system and how that needs to be detailed and justified.

These additional requirements for the system design along with the new geometry of residential corridors and lobbies will mean that specialist input and detailed consideration of the smoke ventilation strategy will be expected at a much earlier stage than is common.

## The Standard includes and applies to:

- Fire safety design, management, and use of various residential buildings, including houses, flats, student accommodation, and care homes.
- Buildings up to 100m tall with traditional non-combustible construction (e.g. brick, concrete, steel, etc) or up to 11m tall with combustible construction (e.g. timber).
- **Excludes** Houses in Multiple Occupation (HMOs), hotels, and certain other building types.

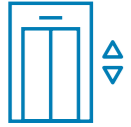
For advocates of sustainable building materials, this is promising, as the inclusion of small buildings with combustible load-bearing elements increases the possibility of using materials such as mass timber and timber frame. The increase of height limit from 50m previously, to 100m also unlocks the potential for a greater volume of quality housing to be built in very tall buildings.



## Design of common escape routes

BS 9991 recommends that any residential building with a storey height above 18m is provided with at least two escape staircases. This move brings BS 9991 into alignment with upcoming amendments to Approved Document B. A single stair approach is still acceptable for buildings less than 18m, with no additional requirements.

In the previous iteration, BS 9991:2015, the diagrams for common escape routes in Figures 6 and 7 were inadequate and failed to cover many situations where the internal corridor design was more complicated. The new Standard provides additional clear example arrangements, giving designers more certainty going forward.



## Evacuation lifts

The BS 9991 includes the biggest change in lift assisted evacuation from buildings for many years. Previously evacuation lifts had been considered in BS 9999:2008 Code of Practice for the design management and use of buildings with limited definition.

### What is a Stay Put strategy?

A Stay Put strategy is a fire safety measure used in high-rise buildings where occupants are advised to stay in their premises in the event of a fire, unless the fire directly affects their premises. This strategy is based on the assumption that the building's fire safety features, such as fire-resistant walls and doors, will contain the fire to its origin.

### When is an evacuation lift required in a residential building?

The key requirements related to when evacuation lifts are required in residential buildings as per BS 9991:2024 are:

- Buildings provided with passenger lifts should also be provided with a means to use lifts for escape (i.e. evacuation lifts).
- At least one evacuation lift should be provided for each escape stairway, and more if required (e.g. if there is a high number of persons on a floor that may rely on a lift to evacuate).
- For buildings with floors above 50m high and with a 'Stay Put' strategy, every lift should be designed as a firefighters' lift and have the ability to function as an evacuation lift.
- Buildings provided with lifts for access, should also be provided with a means of using lifts for escape. Lifts may be used for both access and escape, or be separate/different lifts with individual functions.
- Any lift provided for use in building escape should be an evacuation lift.
- One evacuation lift is needed for each escape stair as a minimum, and where escape stairs are in separate locations, an evacuation lift should be provided at the location of each stair and not in a single location.

*Note that the Standard clarifies that lift is a device compliant to EN 81-20 with a speed greater than 0.15 m/s and therefore removes the potential for a platform lift or similar (which is limited to a speed of 0.15 m/s) to be used as an evacuation lift.*

## Introducing different evacuation lift classifications

Whilst not fully covered in BS 9991:2024, mention is made that when EN81-76 is published, it will contain two classifications of evacuation lift:

**Class A: Reduced provision only acceptable in certain low-risk situations where independent secondary power is not available.**

**Class B: Full specification with all features and provisions.**

Mention is also made of a Class B evacuation lift being physically larger or having a larger capacity than a Class A evacuation lift, although this is not further expanded upon in the Standard.

### Evacuation lift requirements:

- The minimum dimensions of an evacuation lift should be 1400mm deep by 1100mm wide with a 900mm door opening width.
- Lift landing doors need to be fire doors (and it is noted that it is generally not feasible to provide smoke-sealed lift landing doors).
- Lift landing doors do not need to be physically marked or labelled as fire doors, unlike all other fire doors.
- Means to prevent water penetration into the lift shaft (such as firefighters' lifts) where the lift is located close to a firefighting main outlet.
- Clear signage at the evacuation exit floor.

### Evacuation lift's secondary power supply requirements:

The evacuation lift, emergency communications system, and both lift and lobby lighting, require both primary and secondary power supplies:

- Buildings less than 18m tall can use a fire protected diverse routed secondary supply from the main incoming electrical supply.
- Buildings over 18m require a generator, an independent supply from a different substation to the primary, or Uninterruptible Power Supply (UPS) system.



## Building design requirements related to evacuation lifts

There are many requirements related to the building layout and construction to allow the safe use of the evacuation lift. These would sit outside the lift supplier's provisions and require a coordinated approach by all involved in the building's design. These include:

- The evacuation lift shaft and lift lobbies should be constructed as a protected shaft, meaning they have minimum levels of fire resistance and ventilation.
- A visually contrasting floor surface of at least 1500 x 1500mm should be provided outside of the evacuation lift.
- Evacuation lift lobbies should be provided with an emergency voice communication system according to BS 5839-9 as well as a separate evacuation lift communication system which supports the lift evacuation process.
- Access to the evacuation lift should be step-free and include an evacuation temporary waiting area of minimum size 1500 x 2100mm which is within or connected to an evacuation stair. The Standard provides several potential layouts for such a configuration, including where the corridor in front of a lift is formed into the waiting area.
- The evacuation waiting area should be provided with some means of ventilation to minimise exposure of waiting evacuees to smoke and heat, and prevent further ingress of smoke into the area. For example, if mechanical extract only is being used, then this means adjoining corridors will also need smoke ventilation, or as an alternative, a pressurisation system could be used that protects the staircase, lift shaft and lobby. Either way, this means more smoke ventilation shafts are needed in residential buildings.
- In buildings designed with a Stay Put strategy, any firefighters' lift can also be an evacuation lift. However, where a building's evacuation strategy is not Stay Put, then firefighters' and evacuation lifts must be separate from one another.
- Lift wells should be enclosed with fire resisting materials throughout their height unless they are within a protected stair.
- Lift machinery spaces need to be protected in the same way as the lift shaft.



## Fire-fighting facilities

There are a few specific new recommendations which come as a result of issues observed during the Grenfell Tower fire. For example, the enhancement to fire-fighting resulting from the requirements for additional stairs, improved stair protection and additional fire-fighting lifts in very tall buildings.

There is now a requirement to provide enhancements to fire and rescue service communications in buildings over 50m as radio communications can be impacted by the building's construction. There are a number of options suggested such as a 'leaky feeder' cable, distributed antennae system (DAS) or fire telephones. The leaky feeder cable is likely to be the simplest option in most situations.

There should now be protection against falling debris provided around fire service entry points and fire main connections. This risk is often challenging to manage, especially on very tall buildings as recent history has shown. It is also something not normally regulated. However, there is no further guidance offered on specific protection measures that can be used to address this risk, so early consideration from the design team will be expected.

A further minor, but potentially impactful change, is an updated requirement for floor coverings in fire-fighting shafts. While until now, there were some requirements specific to carpet and resilient floor finishes, these have more generally been replaced with a requirement for floor coverings to achieve Class Bfl flame-retardant floor coverings in accordance with BS EN 13501-1:2018.



## New escape stair features

With respect to escape stairs, there is now a requirement for stairs to comply with BS 5395-1. This is notable as the alternative to this Standard is the guidance within Approved Documents K and M. Similarly to the relationship between Approved Document B and BS 9991, the different guidance documents provide an equally acceptable but not identical approach to demonstrating compliance. This could result in a change in the typical stair dimensions if designing to the British Standard, which would be expected where full compliance with BS 9991 is sought.

A specific requirement for staircases in buildings over 50m is the provision of a low-mounted way guidance system within the staircase according to BS 5266-2 (withdrawn). This is in addition to normal emergency lighting and will serve to provide lights or illuminated strips at low level within the escape stairs leading to an exit. This is similar to the systems we are familiar with in planes or cinemas, and would only operate in a fire event, and assist with visibility if smoke were to enter the stairwell. The concern with this requirement is that the referenced standard was withdrawn in 2020, so availability and certification of such installations may be challenging around the time of publication.

## Regular maintenance and inspection of evacuation and firefighters' lifts

Evacuation and firefighters' lifts should be maintained and undergo periodic testing of correct function:

- Weekly tests of firefighters' and evacuation lift recall switches and any fire alarm recall features connected to the lifts.
- Notification to the fire service if a fault to the lift cannot be rectified within 24 hours.
- Failure of the primary power supply should be simulated once a month, and where a generator provides the standby power, it energises the lift for at least 60 minutes.
- Firefighting and evacuation lifts should be inspected and tested every six months by a competent person.
- Annual performance tests should be carried out (which we understand to be a coordinated test of the interconnected and interrelated systems).





## Progress continues

This latest version of the Standard is more in line with industry expectations, providing guidance that will hopefully result in higher quality fire safety design. This should lead to greater consideration of inclusive design and sustainable material selection options for the built environment.

As it stands, this is the highest standard of fire safety, with clearer instructions, higher demand for accessible design, and greater scope covered by this iteration of the Standard. The right changes are beginning to be made, but the Standard will hopefully continue changing and evolving in the future to reach even greater heights.

Although this update goes a long way to bridge the gap between the previous guidance and current industry best practice, particularly as the previous version was published 10 years ago, there is still more to be done. There is still more to be done to provide direction to other known and emerging fire safety concerns in buildings such as understanding modern methods of construction, electric vehicle charging risks, or even closing out existing inconsistencies within the guidance. We are hopeful that the pace set by the standards institutions and the Government will not slow down and there will be continued developments.



### External wall construction updates

Guidance related to external wall construction has largely been brought functionally in line with the requirements published by the UK Government in legislation and Approved Document B. There has already been significant changes over the past few years. Notably, the requirement for external walls in residential buildings over 11m to have Euroclass A2-s1,d0 construction - products which have no significant contribution to fire, and will produce little or no smoke and no flaming droplets.

A new update is the strict requirement for cavity barriers to be a tested and certified appropriate fire resisting product, including around openings for windows, doors and vents etc. Guidance previously allowed certain non-tested robust construction such as 0.5 mm steel plate, mineral wool slab, or similar to be used in lieu of a proprietary cavity barrier product around openings in external cavity wall. This is now only permitted in the construction of houses.



### Guidance for care homes

Sprinklers will be required in all care homes regardless of storey height and should either be in accordance with BS 9251:2021 or BS EN 12845:2015. There are also specific recommendations for maximum travel distances in care homes depending on the dependency of the residents. For low and medium-dependency residents, travel distances to the nearest relative place of safety should be 15m for single-direction escape and 32m for multi-direction escape. For high-dependency residents, this is reduced to 12m and 25m respectively.



