



# Fire Strategy

## Linen Street Multistorey Car Park

On behalf, of

### Warwick District Council



Property Address:	Linen Street Multistorey Car Park
	Bowling Green Street
	Warwick
Postcode:	CV34 4DT

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## Executive Summary

Practical Solutions Midlands Limited has been commissioned to develop a fire engineering strategy for the existing 4.5 storey, 9 level car park which has been closed to the general public for some considerable time. However, levels 1 and 2 have remained accessible to leaseholders of car parking spaces.

The property was believed to have been originally constructed circa late 1960s to early 1970's, but there are no actual construction records available. It is believed to have been closed due to increasing maintenance costs, structural concerns and the fact that it is past its original 30-year life span design. The car park consists of the following:

Main / access egress point is off Linen Street and is accessed via a security fob and electric gate which then provides internal parking on level 2. The main entrance pedestrian access is from level 4 which is accessed from the Bowling Green Street side of the building.

The property is believed to have had a condition report undertaken in March 2026 by the Pegasus Group which highlighted a number of issues such as:

- Deterioration of the structural frame, which generally can be linked to corrosion of the reinforcement bar, which in cases includes spalling of the concrete overhead.
- Concerns regarding fire safety within the carpark, notably the lack of fire detection and concerns around fire escape routes.
- Concerns regarding vehicle restraint and fall protection to the upper levels.
- Wider issues regarding the condition of the building, including (but not limited to) waterproofing and drainage, which affect the condition of the structural frame.

The health and safety concerns regarding fire safety and the potential for falling concrete have been highlighted to the council in advance of this report.

In addition to the above, this report also highlights concerns about the existing structure and its ability to be able to remain structurally sound in the event of a significant fire and the safe evacuation of current users and the current status of the existing fire safety arrangements.

It was noted that to the south side of the car park is a residential building that is less than 2m from the open to air boundary. Although there is no single mandatory minimum distance between an open to air multistorey car park and a domestic dwelling, industry guidelines generally recommend a separation of 10m to manage the risk from heat radiation, smoke and potential fire spread. On the north elevation, additional compensatory measures have been implemented to protect the block of flats, via a solid protective concrete barrier wall between the car park and the property.

Overall conclusion is that the car park is currently deemed to be safe to utilise with its current occupants of up to 30 cars across level 1 and 2, but should the council wish the car park to reopen, then a substantial review of structural loadings, impact of modern day car fires on the building to the south of the property, and the overall structural integrity of the premises should be investigated further.

## Essential Fire Protection Features

The following section summarises the key elements of fire safety provisions that are to be provided within the project build. The table is broken down into features affecting active and passive measures and construction.

The table is a summary of the key elements and therefore, should not be read in isolation.

The full report should be read before implementation of the strategy.

	Fire Safety Requirement	Clarification
<b>Construction</b>	Guidance document	<p>CP114 Part 2 (1969) The Structural Use of reinforced concrete</p> <p>Any refurbishment undertaken going forward would need to be in line with:</p> <ul style="list-style-type: none"> <li>• BS9999:2017 Fire safety in the design, management use of building</li> <li>• BS7974:2019 Fire Safety engineering (FSE) to building design</li> <li>• Approved document B Volume 2</li> </ul>
	Occupancy	<p>Planning Classification – Sui Generis</p> <p>International building code (IBC) Group S-2 (Low Hazard Storage)</p> <p>Occupation factors – A2 persons aware of their surrounds and familiar with the premises</p>
	Fire-fighting shaft serving the building	Protected staircase to the car park from the bowling green side with a dry riser located within the car park
	Fire service access route	Access via Bowling Green Street & Linen Street
	Corridors	No corridors - all access to the car park is from the staircase at the Bowling Green end
	Compartmentation	Pre-cast reinforced concrete structure. Requirements are for the structure to support the building for 15 minutes, but ultimately concrete should provide a minimum 60-minute fire separation.

	<b>Fire Safety Requirement</b>	<b>Clarification</b>
<b>Active and Passive Measures</b>	Fire detection and fire alarm for the building	There is no requirement for active and passive controls at the time of the build. Note - currently the office area on the 4 <sup>th</sup> level has been installed with Aico hardwired Part 6 detection which is believed to have been installed in 2020 and is due for replacement by Oct 2030.
	Automatic suppression system	There was no requirement at the time of construction to install sprinkler systems, nor are these required.
	Emergency lighting	In accordance with BS5266: Part 1 2016 – Code of practice for the emergency lighting of premises, emergency lighting is in place as the power to the units is on, but there were no servicing history records in place.
	Escape signage	In accordance with BS 5499: Part 4 2013 – Code of practice for escape route signage is required to the premises. It should be noted that as the building has been void to the upper levels for some time, and the car park has restricted access, the currently level of escape signage is deemed to be poor.
	Ventilation of stair	The stairwell is open to air at level 4 on the bowling green side but is enclosed from the car park level. Note - during the original construction, there was no requirement for stair ventilation or ventilation at the head of the stairs to provide at least 1m <sup>3</sup> of free air.
	Ventilation of car park	The car park has a vent at level 1 and then is partially open to air across all levels until the roof top levels 8 and 9.
	Compartmentation - stairs	It is believed the current structure would afford 60 minutes fire resistance.
	Compartmentation - walls	It is believed the current structure would afford 60 minutes fire resistance, but where the building is currently open to air on the south side, any fire within the car park would significantly impact the adjacent building which is less than 2m away.
	Compartmentation - floors	It is believed that the current structure would afford 60 minutes fire resistance.

	Openings in compartment walls / floors	There are minor service openings from within the office and storerooms on level 4. These should be suitably fire stopped but are not deemed a significant risk to life within the car park. However, the natural vent openings on the south side may impact on the adjacent building.
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### Occupant's response in the event of an incident

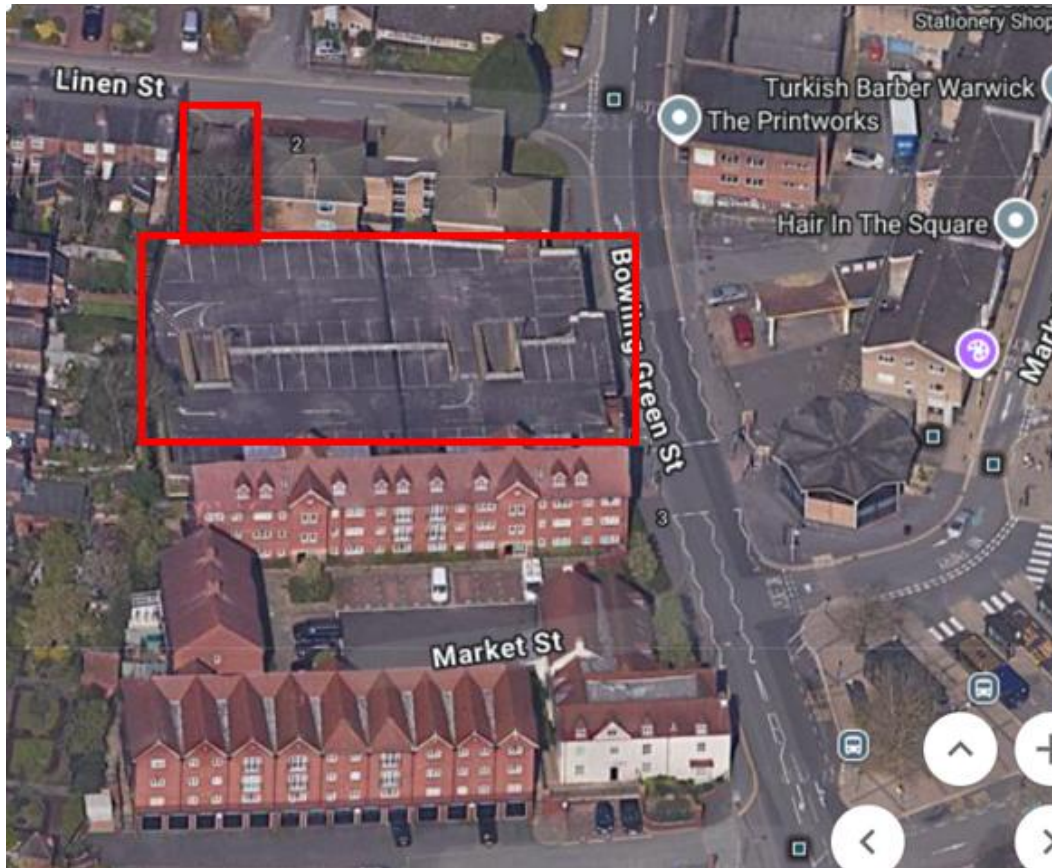
In the event of a fire, it is believed that any occupant currently utilising the car park on level 1 and 2 would vacate the car park either by the electric gate to the main ramp from level 2 to Linen Street or by accessing the stairwell from level 1 and 2 and going up to level 4 and exiting on to the Bowling Green Street. Note - as the car park is not manned or staffed by Warwick District Council, any persons evacuating the car park would generally either walk away or stand around waiting for the arrival of emergency services.

There are current concerns over whether in the event of a power failure, the electric gates would fail safe (the stairwell is accessible from all levels). With the current occupancy levels and egress route via the staircase to level 4, the current evacuation controls are deemed satisfactory.

### Fire and Rescue Service Response

Fire service arrival in the event of an incident shall be via Bowling Green Street where the main staircase is and there is a dry riser inlet at the stairwell entrance. If required, additional fire appliances could be deployed to the Linen Street entrance but could only gain access to the ramp.

The nearest fire hydrant is located at the junction of Linen Street and Bowling Green Street, with all hydrants being denoted with a square symbol shown below.



## Conclusion

The car park has sufficient fire provisions in place to meet the statutory requirements at the time of construction, and at present is deemed to be a low risk, however it is recommended that the car park is to be restricted to the parking leaseholders until the structural reports have been undertaken. If the car park is to be partially utilised, then some minor works will need to be required and a full PPM schedule will need to be undertaken in regard to the emergency lighting and dry riser servicing.

In addition to the above, it is strongly advised that prior to the reopening of the car park subject to a structural report, which must cover the impact of a typical car fire including EV car fires that could have an impact on the building, from level 5, 7 & 9 on the south side be undertaken as to the impact on the adjacent property as this is considered an area of concern.

## Introduction

Practical Solutions Midlands Limited has been commissioned to develop a fire engineering strategy for the existing Linen Street car park in Warwick which is a 5-storey open to air building comprising of car parking bays across 9 levels.

The fire strategy demonstrates a means of compliance with the requirements at the time of construction and also against those of current Building Regulations by utilising Approved Document B.

## Referenced Drawings

No layout plans or layout drawings have been provided by Warwick District Council.

## Legislation and General Principles

At the time of construction, it is believed that the following design principals were that 1970s car parks in the UK were primarily built to standards based on research from the late 1960s, which assumed that fires in open-sided car parks were unlikely to spread between vehicles. This led to relatively low fire resistance requirements compared to more modern standards.

Key fire standards and design principals for Linen Street were:

15-minute fire resistance: Open-sided, above-ground multi-storey car parks typically only required a minimum of 15 minutes of fire resistance, based on the assumption that the fire service attendance would prevent spread.

1968 Fire Research Station Note 10: The guidance largely followed [Fire Note No. 10 ("Fire and Car-Park Buildings")], published in 1968 by the Joint Fire Research Organization. This established that fire spread from one vehicle to others was unlikely.

Natural Ventilation Standards: Regulations (such as those in the Building Regulations 1972) relied on open-sided ventilation, requiring permanent openings at each level equal to at least 1/20<sup>th</sup> of the floor area.

Structural Codes: Many were designed to [BS CP 114: Part 2 (1969)] (The structural use of reinforced concrete in buildings), which is now considered to have provided insufficient protection against structural failures like punching shear in flat slabs.

In addition to the above, we will also cross reference more modern standards. There is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way. The fire strategy will utilise the above documents and Approved Document B Volume 2 to ensure compliance with the Building Regulations.

## Building Regulations

The car park should be subjected to the requirements of the Building Regulations 2010. It will be necessary, therefore, for it to meet the requirements of Schedule 1 (or an equivalent standard) of the regulations relating to:

The functional requirements required for B1 – B5 are provided below.

<b>Building Regulations</b>	<b>Functional Requirements</b>
<b>B1 Means of warning and escape</b>	The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape in case of fire from the building to a place of safety outside the building capable of being safely and effectively used at all material times.
<b>B2 Internal fire spread (linings)</b>	To inhibit the spread of fire within the building the internal linings shall adequately resist the spread of flame over their surfaces; and have, if ignited, either a rate of heat release or a rate of fire growth, which is reasonable in the circumstances. In this section, “internal linings” means the material or products used in any partition, wall ceiling or other internal structure.
<b>B3 Internal fire spread (structure)</b>	<p>The building shall be designed and constructed so that, in the event of fire, its stability will be maintained for a reasonable period.</p> <p>Where reasonably necessary to inhibit the spread of fire within the building, measures shall be taken, to an extent appropriate to the size and intended use of the building, comprising either or both of the following: (a) sub-division of the building with fire resisting construction, (b) installation of suitable automatic fire detection systems.</p> <p>The building shall be designed and constructed so that unseen spread of fire and smoke within concealed spaces in its structure and fabric is inhibited.</p>
<b>B4 External fire spread</b>	The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building. The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regards to the use and position of the building.
<b>B5 Access and facilities for the fire service</b>	The building shall be designed and constructed to provide reasonable facilities to assist fire fighters in the protection of life. Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building.

## **Regulatory Reform (Fire Safety) Order 2005, Fire Safety Act 2021 & Fire Safety England Regulations 2022**

Once the buildings are occupied, the Regulatory Reform (Fire Safety) Order (RRO) becomes the controlling fire safety legislation.

The order came into force on 1st October 2006 and revoked the existing Fire Precautions Act and the Workplace Regulations. Under this order, it will be necessary for the owner/occupier of the building, Warwick District Council to carry out and maintain a fire safety risk assessment.

The building's owners and management team will also be responsible under this order to ensure that the buildings' fire safety provisions are appropriately managed, maintained and tested over the whole life of the building.

Chris Elliott CEO is the responsible person with the responsible organisation being Warwick District Council. The CEO is supported by the Deputy Chief Executive Darren Knight who is supported by the Head of Neighbourhood Services Zoe Court.

Whilst overall responsible person for fire safety within the site is Head of Neighbourhood, Zoe Court, she is supported by the Contract Services Manager, Mr Paul Garrison and the Corporate Services Asset Management and Health and Safety team.

Day-to-day management of the site is being undertaken by Contract Services Manager, Mr Paul Garrison supported by Neil Bridges, Car Parks Manager and Jamie Hill, Team Leader.

## **Construction, Design and Management Regulations (CDM Regs)**

Projects undertaken within Great Britain and Northern Ireland are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM Regs). The objective of the CDM Regs is to reduce the risk to as low as reasonably practicable concerning health and safety during construction and maintenance of construction sites and occupied buildings.

This report defines the strategy for meeting the functional and performance requirements for fire safety in the finished building. It is primarily intended to form part of the submission for Building Regulation Part B approval. Where any conclusions or recommendations have been arrived at which specify materials, products or forms of construction these will have been assessed, in accordance with CDM Regulations 9 (duties for designers).

In addition to the above, this fire safety strategy plays an important role in providing appropriate fire safety measures for people in and around the building in the event of fire. Where aspects of the strategy involve significant residual risks or health and safety critical assumptions when the building is in use, appropriate information will be made available to the CDM Coordinator (for example, this might include a tailored management regime, or controls on certain aspects of the building).

## Report Limitations

Within this report is information that is suggestive only and are envisioned only to describe the notions and principles of the building fire strategy. Property protection and business continuity is not covered within this report; the fire strategy addresses the life safety elements of Building Regulations.

## Building Summary

### Property Description

Linen Street car park is a classic 1970's open to air precast reinforced concrete structure situated in the heart of Warwick. The car park was originally built with an entrance ramp off Linen Street and an exit ramp onto Bowling Green Street. However, the car park is believed to have been partially closed since 2021 with only level 1 and 2 operating to a small group of leaseholders, as such the access ramp is the only point of access / egress in place.

The structure is a reinforced concrete frame with reinforced concrete and brickwork walls with hit and miss timber infill in places. The surface is reinforced concrete with a mastic asphalt (tarmac) layer.

The staircase to the building is currently accessed from level 4 with a security gate within the stairwell to prevent access to the upper levels, and a door that is locked to prevent access to level 3. There is also restricted access to level 1 and level 2 which is via fob access for parking leaseholders.

The property consists of the following:

- Level 1** Internal security gate access on the internal down ramp and access from the main stairwell, potential bays for 27 cars and 4 motorcycles.
- Level 2** Accessed via the fob security gate at the top of the main entrance ramp, this contains 23 parking bays.
- Level 3** This level is currently fenced off at the up ramp from level 2 and contains approximately 25 parking bays. There is no access to the general public.
- Level 4** This level houses the staff office storeroom, toilet facilities, CCTV room as well as approximately 23 parking bays. There is no access to the general public.
- Level 5** This level has approx. 27 parking bays with no access to the general public.
- Level 6** This level has approx. 25 parking bays with no access to the general public.
- Level 7** This level has approx. 27 parking bays with no access to the general public.
- Level 8** This level has approx. 27 parking bays with no access to the general public and is open to air as it is roof top level.
- Level 9** This level has approx. 30 car parking spaces with no access to the general public and is open to air as roof top level.

Note - the current condition of the white lining is such that demarcation of the bays is difficult to see in certain areas.

There is a single staircase which goes from level 1 to level 9 with notional FD30 fire doors in place. This is open to air at level 4 and is currently blocked at level 5 and level 3 to prevent unauthorised access.

## Purpose Groups

The car park is designed originally to admit and accommodate vehicles up to 2m in height for cars, motorcycles and passenger or light goods vehicles that weigh a maximum of 2500kg gross weight. It is open to the Warwick District Council lessee who have an agreement to currently park within level 1 and 2.

## Travel Distances

Travel Distance, in metres (m)				
Purpose Group	Accommodation	Travel Within	Maximum travel distance (m)	
			In one Direction	More than one direction
7 (b)	Car Park	Car Park & Escape Route	25m	45m

The car park has an overall length of approximately 47m, and although only has a single staircase located at the Bowling Green Street side, the down ramps can be utilised as a secondary means of escape. As such, the current building regulation of a maximum of 45m in more than one direction is deemed suitable and sufficient under the original guidance at the time of construction, a travel distance of 60m was deemed acceptable.

## Estimated Occupancy

Currently, the car park is utilised for approximately 20 vehicles across level 1 and level 2 with the majority of vehicles being single or double occupancy, so the current bottom two levels have a maximum of up to 40 persons at any given time.

If the car park was to reopen, approximately 225 parking spaces could be utilised with an average occupancy of the whole building in the region of 500 persons maximum.

## Statutory Considerations

Building Regulations:

Although the building was not originally constructed in line with the current Building Regulations, it is subject to a number of statutory requirements. To show how this are currently being met, we have utilised our assessment on the basis of the Building Regulations 2000, showing how the car park currently meets requirements of Part B of Schedule 1 of the regulations and what would be required to bring it up to modern standards. These requirements relate to:

- B1 – Means of Warning and Escape
- B2 - Internal Fire Spread (Linings)
- B3 – Internal Fire Spread (Structure)

- B4 – External Fire Spread
- B5 – Access and Facilities for the Fire and Rescue Service

Compliance with these requirements is normally achieved by meeting the standards contained in Approved Document B 'Fire Safety (AD:B) and/or the relevant parts of BS 5588 Fire Precautions in the Design, Construction and Use of Buildings. However, where it was not practicable to meet the recommendations contained in these 'deemed to satisfy' documents, a fire safety engineering approach has been adopted.

This legislation is primarily concerned with life safety, and property protection is not specifically considered, although the fire protection provisions to be provided for the building will offer some degree of property protection. Other issues such as insurer's requirements, cultural heritage, environmental, property protection or business continuity issues have not been specifically addressed or included within the development of the fire safety strategy.

“The Approved Documents are intended to provide guidance in regard to compliance of the car park. However, there may well be alternative ways of achieving compliance with the requirements. Thus, there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way”.

The fire engineering design of the building may include a number of variations from the general guidance documents, with alternative or additional fire safety provisions and strategies employed to ensure that an adequate and appropriate level of fire safety is achieved within the building. A fire engineering approach is permitted under Approved Document B.

‘Fire safety engineering can provide an alternative approach to fire safety. It may be the only practical way to achieve a satisfactory standard of fire safety in some large and complex buildings and in buildings containing different uses e.g. airport terminals. Fire safety engineering may also be suitable for solving a problem with an aspect of the building design which otherwise follows the provisions in this document’.

## Guidance documents used for reference

- BS 9999: 2017, British Standard code of practice for fire safety in the design, management, and use of buildings
- Health and Safety at Work Act 1974
- BS 9999:2107 Fire Safety in the design, management and use of buildings
- BS 9997:2019 Fire Risk Management Systems
- PAS 79-1 Fire Risk Assessment Guidance
- CIBSE Guide E: Fire Engineering 2019
- Building Regulations Approved Document M
- Building Regulations Approved Document B Vol 2
- BR187-2014
- BS 5839 Part 1 2025 code of practice for designing, installing, commissioning, and maintaining fire detection and alarm systems in **non-domestic premises**

- BS 5306 Parts (0,1,2,3,4,8) fire extinguishing installations and equipment, primarily focusing on the selection, installation, and maintenance of portable fire extinguishers.
- BS 5266 Code of practice for emergency lighting in non-domestic premises, ensuring safe evacuation during power failures.
- BS 9990:2015 Code of practice for non-automatic fire-fighting systems.
- BS7974:2019 British Standard providing a framework for applying fire safety engineering (FSE) to building design.

## Emergency Escape Strategy

Evacuation principles - car park

The car park apart from level 1 is open to air on a number of sides. The car park itself will operate a simultaneous evacuation which must be denoted via the relevant fire action notices located at the staircase on each floor. Note - there is no fire alarm system to detect a potential fire, but as the car park is classed as an open to open sided property, then there is no legal requirement to have a form of early warning in place as the natural ventilation should allow smoke to dissipate.

## Means of Warning and Escape

Means of escape – car park.

## Means of Escape and Exits

The car park currently has two means of escape, either via the staircase that runs from level 1 to level 7 with access at street level via level 4 or via a fob access through the security gates from level 1 to level 2 via the ramp or from the top of the main entrance ramp.

For the low level of occupants utilising level 1 and 2, this is deemed acceptable. However, it should be noted that the fob system has not been tested to show that it fails safe during a power failure to the car park. With the current occupancy of less than 40 persons at key times at present, this is not deemed a significant risk

Staircases need to be wide enough to accommodate all occupants of the building. Table 3.2 (ADB V2 2019) refers to the maximum number of persons that a staircase will accommodate in the event of an incident. Referring to the occupancy capacity, it can be seen from the chart below that a single 1000mm staircases is wide enough to accommodate all occupants from basement level should there be a need for a full simultaneous evacuation.

**Table 3.2 Capacity of stairs for basements and for simultaneous evacuation of the building**

No. of floors served	Maximum number of people served by a stair of width:								
	1000mm	1100mm	1200mm	1300mm	1400mm	1500mm	1600mm	1700mm	1800mm
1	150	220	240	260	280	300	320	340	360
2	190	260	285	310	335	360	385	410	435
3	230	300	330	360	390	420	450	480	510
4	270	340	375	410	445	480	515	550	585
5	310	380	420	460	500	540	580	620	660
6	350	420	465	510	555	600	645	690	735
7	390	460	510	560	610	660	710	760	810
8	430	500	555	610	665	720	775	830	885
9	470	540	600	660	720	780	840	900	960
10	510	580	645	710	775	840	905	970	1035

**NOTES:**

1. The capacity of stairs that serve more than 10 storeys may be obtained by using linear extrapolation.
2. The capacity of stairs not less than 1100mm wide may also be obtained by using the formulas in paragraph 3.18.
3. Unless a central handrail is provided, stairs with a rise of more than 30m should be a maximum width of 1400mm (see paragraph 3.10).
4. Stairs wider than 2000mm should have a central handrail (see paragraph 3.11).

## Fire Alarm & Fire Detection

There is no legal requirement for fire detection and an alarm system in open to air car park areas either when the building was first constructed or to meet current building regulation standards.

It has been suggested with new electric vehicle (EV's) guidance OFR document CPD/004/122/039 Real Fires: Open-sided car park fire resistant documents that with a high fire loading or EV's there can be a justification to provide early warning of a fire even within a open to air car park. However, this car park has no EV charging facilities and is used by a limited number of individuals, as such there is no requirement now or in the future to install an automatic fire alarm system within this car park.

There is currently an Aico Part 6 detection system within the staff store / office room accessed from level 4. This is a hardwired 10-year lithium back-up battery Aico smoke detector which appears to have been installed on the 12<sup>th</sup> of May 2020 and has a replacement date of October 2030.

## Ventilation and Smoke Shaft

The car park is classified as an open to air car park and is fully open on the top floor levels, levels 8 & 9 whilst levels 4-7 have permanent openings that total at least a minimum 1/20<sup>th</sup> (5%) of the floor area open to the elements.

Levels 1-3 are slightly different as these are open at the far end and between the split levels, but there is a natural smoke shaft that runs from level 1 to level 3 at the Bowling Green Street end. This is partially obscured by a steel plate at present, but as only level 1 and 2 are being utilised,

there are no issues in regard to the current natural ventilation and smoke shafts within the building.

The stairwell runs from level 1 to level 8 with a small external set of stairs from level 8 to level 9. The fire doors in place from level 7 down to level 1 are partially open to air at level 3 and level 4.

## Sprinkler Systems

There is no legal mandate for a sprinkler system to this car park, nor is one installed. Additionally, a sprinkler system is never likely be recommended for a structure of this nature as Approved Document B primarily relies on natural ventilation to manage smoke. Although sprinklers are increasingly recommended to protect property against fire spread, particularly in modern, higher risk scenarios or where the structural integrity of the building cannot be guaranteed in a fire scenario.

## Emergency Lighting

Emergency lighting has been provided throughout the Car Park on each level and within the stairwell. Currently there is power to the lighting units as seen with active led display on each unit however there is currently no records to indicate that the lighting is inspected with a monthly flick test or that it is having a annual 3hr battery discharge test,

BS5266-1 - Emergency lighting code of practice for the emergency lighting of premises requires emergency lighting to be provided in escape routes, open areas, high-risk areas and strategic points of importance including:

- Near each exit door intended to be used in an emergency
- Near to stairs so that each flight of stairs receives direct light
- Near change in levels
- Mandatory emergency exit and safety signs
- At each change of direction
- At each intersection of corridors
- Near to each final exit and outside the building to a place of safety
- near each piece of fire-fighting equipment and call points
- All facilities exceeding 8m<sup>2</sup>
- “Near” is normally considered to be within 2m measured horizontally

Emergency lighting within the scheme appears to meet all of the requirements of BS5266-1 and ADB V2 standard requirements of lighting in common escape routes.

### Lighting of escape routes

**5.25** All escape routes should have adequate artificial lighting. If the mains electricity power supply fails, escape lighting should illuminate the routes listed in Table 5.1.

**5.26** Escape stair lighting should be on a separate circuit from the electricity supply to any other part of the escape route.

**5.27** Escape lighting should conform to BS 5266-1.

## Exit & Escape Signage

Exit and escape signage should be provided above every door or exit providing access to a means of escape, other than exits in ordinary use, such as the main entrance doors. The car park has a single staircase, and as such suitable signage must be in place from all the car park levels directing persons to the stairwell and from the stairwell to outside.

Advice for fire safety signage, including emergency escape lighting is given in the HSE publication: Safety Signs and Signals: Guidance on Regulations.  
<https://www.hse.gov.uk/pubns/priced/l64.pdf>

Current signage is deemed satisfactory in regard to the current operational areas, but if the building was to reopen then additional signage would be required.

## Manual Fire Fighting Equipment

There is no legal requirement for the introduction of fire extinguishers to be installed within public areas which are unmanned, as such no extinguishers are required within the main car park areas.

Extinguishers are located within the plant rooms and specific rooms dedicated to Warwick District Council and where staff members are in place then manual firefighting equipment such as portable fire extinguishers must be installed, ensuring that they are suitable for the occupation at the time and escape routes of the commercial units. Portable fire extinguishers should be installed and commissioned in accordance with BS5306-3 and BS5306-8.

Currently, fire extinguishers are located within the CCTV server room and the office / store area and have been serviced by Baydale Control Systems Ltd in November 2025 with the next service due November 2026.

## Internal Fire Spread (Linings)

The choice of materials for walls and ceilings can significantly affect the spread of a fire and its rate of growth, even though there are not likely to be the materials first ignited, it is particularly important in circulation spaces where the rapid spread of fire is most likely to prevent occupants escaping.

The car park is constructed from solid concrete or solid brickwork, and as such all-surface finishes and internal linings are to be designed in accordance with ADB. With all products being identified as Class A1 – non-combustible materials with low thermal conductivity and built in fire resistance deemed to be satisfactory.

## Internal Fire Spread (Structure)

Consideration must be given to the construction and finishing within the building so that suitable materials are provided that offer adequate fire resistance in the structure and segregation of the fire risks. This will prevent the rapid fire spread throughout the building and limit premature collapse of the structure.

All internal structures were originally designed, constructed, repaired or replaced with materials that conform to British Standards and or European Standards. The structural performances will be in accordance with ADB's Appendix B: Performance of materials, products and structures Table B3 & B4 ADB 2019.

## Compartmentation

The spread of fire within a building can be limited with the introduction of passive fire protection, which is sub-dividing the structural compartments separated by walls and or floors with a degree of fire resisting construction. Consequently, these can restrict the spread of fire that could trap occupants and, reducing the risk of fires becoming large.

Passive compartmentation will be provided in accordance with Appendix B: Performance of materials, products, and structures Table B3 & B4 ADB 2019. A summary of the compartmentation can be found below:

<b>Compartmentation</b>	<b>Time Requirements</b>
Compartment floors	60 minutes
Compartment walls	60 minutes
Staircase enclosure	60 minutes
Storerooms/plant rooms	60 minutes

It is noted that walls have been formed of concrete and or a masonry construction.

## Elements of Structure

The elements of structure are required to have adequate fire resistance to ensure they do not fail prematurely and contribute to the collapse of the load bearing elements of the building that could endanger the lives of the building occupants and the Fire Service.

The requirements of the Building Regulations, with regard to the building structure is that the building shall be designed and constructed so that, in the event of fire its stability will be maintained for a reasonable period.

Within the UK, the car park was initially designed as a standard open sided car parks under 30m in height. The requirement was to ensure that the structural of the car park can achieve at least 15 minutes of fire resistance to allow safe evacuation of the building.

Currently Warwick District Council have instructed Gareth Stevens from JNP Group to undertake a full structural survey of the Linen Street car park. From a fire safety point of view, the structure should provide at least 30 to 60 minutes of fire resistance being reinforced pre-cast concrete.

## Fire Rated Doors

The car park is required to have fire doors in place to the stairwell which is deemed a protected escape route.

All fire resisting doors indicated with suffix(s) should be fitted with intumescent strips and cold smoke seals. The following sizes of strips and seals should be fitted to the frame or door.

Fire Door Rating	Intumescent strip and cold smoke seal sizes
FD30s	15mm x 4mm
FD60s	20mm x 4mm or two 10mm x 4mm

Fire door sets and 'smoke sealing' will be provided in accordance with BS 476. The fire rated door sets are to be rated in accordance with the table below:

*Note – 's' indicates intumescent strips and cold smoke seals*

Door set location/use	Door set fire rating	Self-closing devices required	Signage required
Protected lobby or stair entrance	FD30s	Yes	Fire Door Keep Shut
Staff office store	FD30s	Yes	Fire Door Keep Shut
Doors on plant rooms or special hazard rooms	FD60s	Yes	Fire Door Keep Locked Shut

All fire door sets, except those covering cupboards and service ducts that are normally kept locked shut, are kept closed using automatic self-closing mechanisms.

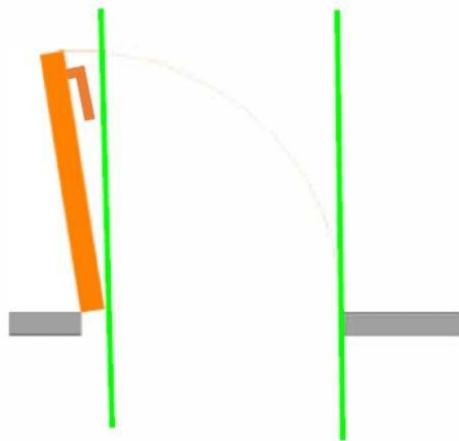
Where suitable or deemed necessary, self-closing fire door sets may be fitted with an automatic release mechanism to enable them to be held open. These devices would be connected to the fire alarm (see section 3.2.1) and release upon local smoke detector activation or power failure.

## Doors on escape routes

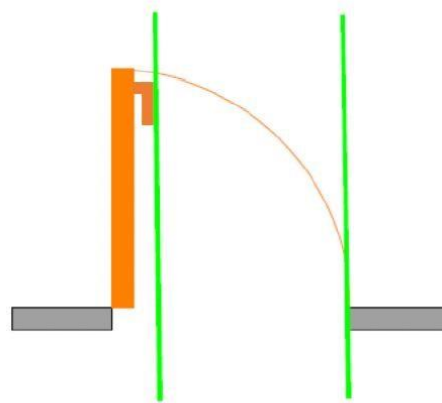
All doors on escape routes should be hung to open no less than 90 degrees (see figure below).

Any door that opens towards a corridor or a stairway should be sufficiently recessed to prevent its swing from encroaching on the effective width of the stairway or corridor.

### Effective door width



Because the door opens further than 90° you can measure the clear width from the door to the door casing

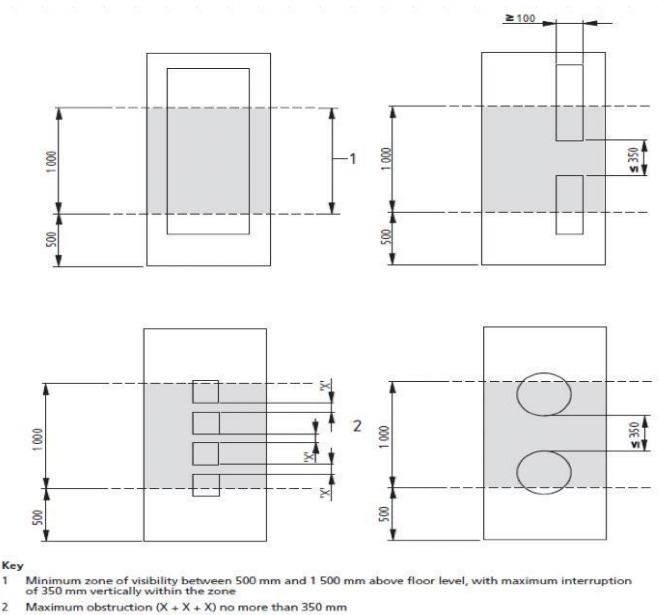


Because the door opens, less than 90° the ironmongery is now protruding into the space and therefore, the clear effective width is less. In this situation, you measure from the door ironmongery to the door casing.

### Vision panels

Vision panels have been installed to the doors leading onto the staircase to alert people approaching a door to the presence of another person on the other side. If a door has a single viewing panel, the minimum zone of visibility should be between 500mm and 1500mm from the floor. If a door has multiple viewing panels, the minimum zone of visibility should not be interrupted by opaque areas that obstruct more than 350 mm of the vertical height of the zone.

Where the minimum zone of visibility is interrupted, there should be a vision panel at both the top and bottom of the zone. Vision panels should be positioned centrally on the door or offset towards its leading edge (see figure below). Each individual viewing panel should be not less than 100mm in width.



Currently the doors are deemed to be a notional FD30 doors to all areas.

## Unseen Fire Spread (Cavity Barriers)

The building is constructed from solid concrete and solid blockwork with no cavity barriers are present.

## Fire-Stopping and Protection of Openings

If a fire-separating element is to be effective, every joint or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by fire collars, fire resistant sealant or intumescent fire stopping so that the fire resistance of the element is not impaired.

All service penetrations through fire resisting walls are adequately fire stopped to the standard recommended in Section 32 of BS9999:2017 or in line with sections 10.5-10.8 ADB.

For a fire separating element to be effective, all joints and openings must be effectively protected by a sealing or fire-stopping with the intention that the fire resistance of the element is not impaired.

Pipes, which pass through a fire-resistant element, have been protected from promoting fire spread by any one of the following methods:

- Provide a proprietary sealing system, which has been shown by test to maintain the fire resistance of the wall, floor, or cavity barrier.
- Fire stopping has been used around the pipe, keeping the opening as small as possible. The nominal internal diameter of the pipe should not be more than that given in table 15 of Approved Document B (Fire Safety).

All services, cables or pipe work that penetrates a compartment wall or floor will be fire-stopped in line with sections 10.5-10.8 ADB and the following table 11 below.

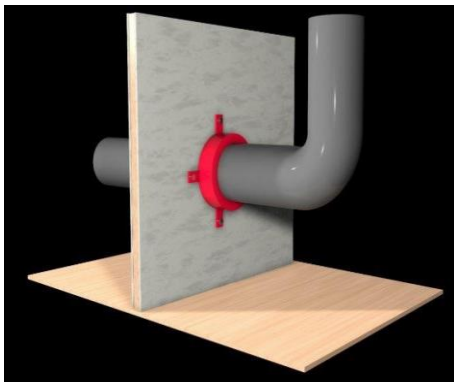
The period of fire resistance of any fire stopping materials used, should match that of the compartment wall or enclosure it is sealing.

All ventilation that may possibly span compartmentation will be fitted with fire dampers to prevent the spread of fire from one compartment to another. The exhaust paths for the ventilation shall not be located within communal areas and should be expelled external to the building.

Pipes that pass through a fire-separating element (unless the pipe is in a protected shaft), should meet the appropriate provisions in alternatives A, B or C below.

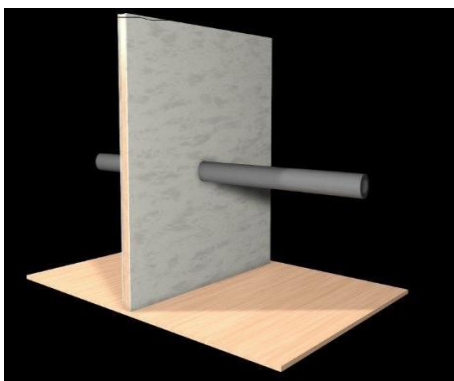
Alternative A: Proprietary seals (any pipe diameter).

Provide a proprietary sealing system, which has been shown by test to maintain the fire resistance of the wall, floor or cavity barrier.



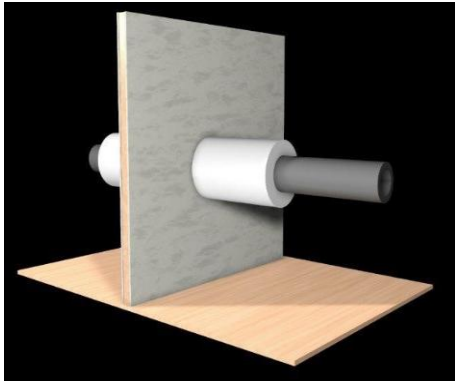
Alternative B: Pipes with a restricted diameter

Where a proprietary sealing system is not used, fire-stopping may be used around the pipe, keeping the opening as small as possible. The nominal internal diameter of the pipe should not be more than the relevant dimension given in the table above.



### Alternative C: Sleeving

A pipe of lead, aluminium, aluminium alloy, fibre-cement or UPVC, with a maximum nominal internal diameter of 160mm, may be used with a sleeving of non-combustible pipe as shown below.



Examples of fire stopping or fire barrier installation in riser or compartment breach situations.



### External Fire Spread

The Building Regulations require that reasonable precautions are to be taken to minimise the risk of fire spreading between buildings by radiant heat transfer. This can be achieved by ensuring that buildings are located far enough apart to prevent fire spread or by reducing the level of unprotected area (glazing) on a façade wall.

## External Wall Fire Spread and Space Separation

External wall surfaces will achieve a Class 0 surface spread of flame classification. As this is an internal refurbishment, the external facade will not be adversely affected therefore, the external fire spread from the building will be deemed acceptable if all cavities, areas of insulation etc., are suitably protected against fire spread.

Note - Buildings over 11m or less than 1m from a relevant boundary (not including assembly or recreation buildings of more than one storey). The external envelope of the building needs to be comprised of materials that achieve A2 to BSEN13501 - limited combustibility with a surface spread of flame of Class 0 (BS476:7 & 6) or A2-s3, d2 (BSEN13501) or better. Or additionally tested as a system to BS8414 parts 1 or 2 (depending on the system) with a BR135 classification.

Note – the car park building is constructed from solid concrete and solid brickwork, as such is deemed to be of a Class O material.

## Space separation

The car park is located adjacent to two properties to the south side of the car park with the adjoining boundary within 2 m of a purpose-built block of flats. Although there is no legal spacing distance, industry practice is at least 6m, if not 10m separation should be provided, see photo below.



Typical example of level 5 & 7 grilles adjacent and level 9 where a car fire could impact on the adjoining property.

If a fire breaks out on the end elevation on levels 5, 7 and 9, it has the potential to have impact on the adjacent property. As this is a newer build, the impact of a car fire from the car park should have been taken into effect in line with BR187 Table G, whereas a fire from within this building should not overly affect the car park structure.

To the north side of the car park is an older 1970's block of flats which is within 1.5m of the structure at the Bowling Green Street end, and approximately 4m away towards the main entrance of the car park. However, this is protected by a solid reinforced concrete wall clad with solid bricks to prevent the property being affected by a fire from within the car park.



Should a fire occur in a building, heat will radiate through the natural ventilation openings in the external walls on the south side. This heat can be enough to set fire to nearby buildings. In order to reduce the chance of this occurring, the Building Regulations place limits on the area of the external elevation with no fire resistance. This area is known as the unprotected area. The distance of the building from other buildings, the use of the building and the compartment size are all factors in determining the acceptable degree of unprotected area for each elevation.

Consideration needs to be given to the impact at the south end of the property only and if the car park is to re-open then a detailed calculation should be undertaken based on the BR187 Table G on the impact of a modern day car fire and whether additional protection measures need to be introduced within the localised area.

## Access and Facilities for the Fire & Rescue Service

To assist the Fire and Rescue Service, some or all the following facilities may be necessary depending on the size of the building:

- Access for fire-fighting personnel
- Vehicle access for fire appliances
- The provision of fire mains within the building
- The provision of adequate water supplies

The requirements of the Building Regulations in respect to access and facilities for the fire service are as follows:

- The building shall be designed and constructed so as to provide reasonable facilities to assist fire-fighters in the protection of life.
- Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building.

## Fire-Fighting Approach

In accordance with AD B, any points within any apartment will likely be within 45m of a fire service appliance parking point or a fire main outlet.

Due to the height of the building and the geographical location, at some point in its design a dry riser has been installed. A dry riser inlet is located on Bowling Green Street adjacent to the car park stairwell entrance and is easily visible from the fire appliance. This location is also within 18m of the fire service appliance parking location.

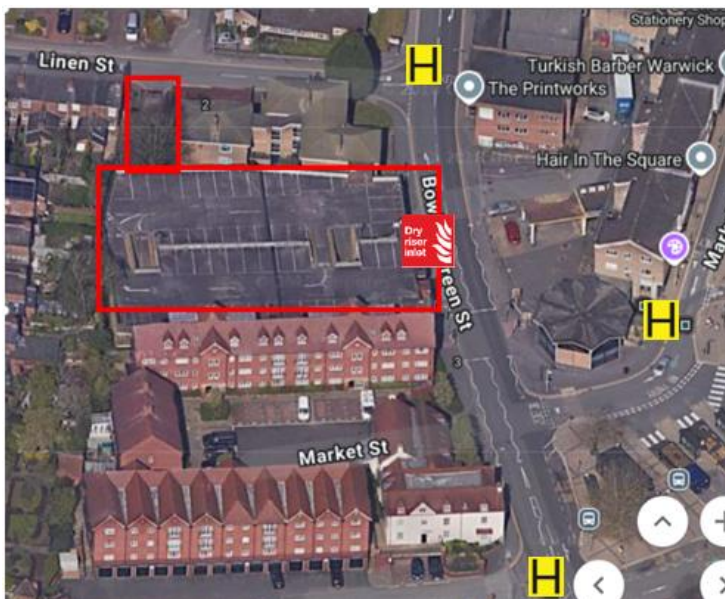
Dry riser outlets seen on each floor of the car park. The dry fire main appears to have been designed, installed and commissioned in accordance with BS9990 to ensure that the hose laying route is within 45m.

Due to the height of the building, a firefighting shaft will not be required, but the staircase does act as a firefighting shaft if required.

## Way Finding Signage

To assist the fire service to identify each floor, floor identification signs and flat indicator signs should be provided on every floor.

## Fire Fighting Approach Infographic



## Fire Service Vehicle Access Route

Fire appliances will likely be able to access the property from Bowling Green Street, with appliances able to park to the front of the staircase accessed from Bowling Green Street, although an appliance could pull up to the entry ramp at Linen Street if required. The fire service access route appears to conform with information of requirements given in the following table.

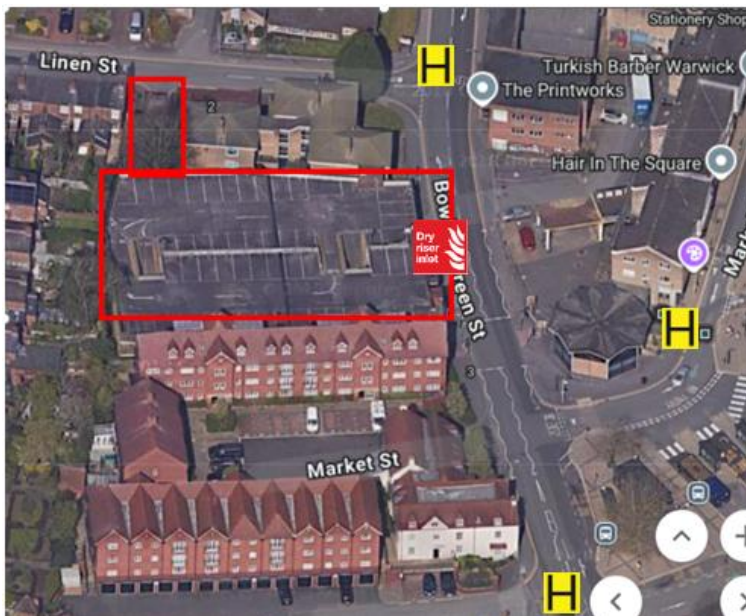
Typical fire and rescue service vehicle access route specification						
Appliance Type	Minimum width of roads between kerbs (m)	Minimum width of gateways (m)	Minimum turning circle between kerbs (m)	Minimum turning circle between walls (m)	Minimum clearance height (m)	Minimum carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5
High Reach	3.7	3.1	26.0	29.0	4.0	17.0

### Internal Access for Fire Service Personnel

Access to the car park will be via the main stairwell but the fire service will utilise any access as required.

### External Fire Hydrants

External fire hydrants are provided in accordance with the requirements of the Building Regulations within 90m of the property. Hydrants are situated as detailed below with the main one on the junction of Linen Street and Bowling Green Street.



### Fire Safety Management

It is widely acknowledged that the design and engineering put into a building for life safety can only do its job properly if it can be managed, maintained, and tested over the whole life of the

building, and if the staff are trained to handle incidents and operate effective and tested emergency plans.

Good management of fire safety becomes the key element to fire safety for the life of the building. Effective management of fire safety can contribute to the protection of the building occupants in many ways:

- By working to prevent fires occurring in the first place (e.g. housekeeping, regular building maintenance, security)
- By being aware of the types of people in the building and any special risks or needs (such as disabled people)
- By ensuring that all of the fire safety measures in the building are kept in working order, and in particular that the means of escape are always available
- By undertaking safety system reviews and fire risk assessments and ensuring that they are both constantly reviewed so that the precautions are adequate and effective in the event of a fire until the fire service arrives.

Fire safety provisions are dependent upon a sufficient level of management within the building, and these responsibilities can reside with a single defined individual or be distributed amongst a number of managers or staff. For the management of fire safety to be effective, the fire safety manager needs to be empowered and to command sufficient resources to maintain the systems. The manager or managers with responsibility for fire safety need to be empowered to enforce requirements, initiate testing, maintenance or repair and where necessary command staff.

Reference is made in this document to BS 5588 Part 12, which gives recommendations for the management of fire safety over the lifetime of a building and considers issues during the design process. Additionally those that will apply whilst the building is in use or which need to be taken into account when alterations to the building or the use of it are being considered. These issues are the responsibility of the management of the occupied building.

Fire safety management within the building, including any eventual tenancies, will be detailed in a “Fire Safety Management Plan”. This plan would be a working document and therefore frequently updated to reflect the nature of the changing risks within the building.

## **Fire Safety Management Assumptions**

The strategy contained herein has been written on the assumption that the building concerned will be properly managed. This section of the report defines the minimum standard of management that has been assumed as well as any specific management requirements or procedures that are required to validate the strategy defined in subsequent sections. Failure to comply with these requirements will invalidate this fire strategy.

## Management Standards

The building should be properly managed, and a fire safety management plan should be developed. Once the building is in use, the management regime should be maintained and any variation in that regime should be the subject of a suitable fire risk assessment (FRA).

## Regulatory Reform (Fire Safety) Order 2005

The Regulatory Reform (Fire Safety) Order came into force on the 1<sup>st</sup> October 2006. The order consolidates nearly all previous fire safety legislation revoking the Fire Precautions Act and the Workplace Regulations. The Order places a general duty of fire safety care on employees, occupiers and / or owners of businesses to provide and maintain adequate fire precautions throughout their premises.

The responsible person has a duty to carry out a fire risk assessment which must focus on the safety in case of fire of all 'relevant persons'. The risk assessment should pay particular attention to the following areas:

- Identifying Fire hazards – sources of ignition, fuel and oxygen
- Identifying people at risk
- Reducing the risk
- Recording the findings
- Reviewing the outcomes.

## References

- The Building Regulations 2010. SI 2010/ 2214.
- Approved Document B Approved Document B (Fire Safety) 2006 (incorporating 2010 and 2013 amendments).
- Non-Domestic Buildings. Department for Communities and Local Government, 2013.
- The Regulatory Reform (Fire Safety) Order 2005.
- BS 5266: Emergency lighting. Part 1: Code of practice for the emergency escape lighting of premises. 2011.
- BS 5499: Graphical Symbols and Signs - Safety Signs, Including Fire Safety Signs - Part 5: Signs with Specific Safety Meanings, 2002.
- BS 5499-1:2002. Graphical symbols and signs. Safety signs, including fire safety signs. Specification for geometric shapes, colours and layout
- BS 5499-4:2013. Safety signs. Code of practice for escape route signing
- BS 5839: Part 6 – Fire Detection and Fire Alarm Systems for Buildings. Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings 2004.
- BS 5839-1:2013. Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises.
- BS 9251: Code of Practice for Sprinkler Systems for Residential and Domestic Occupancies. 2014.
- BS EN 12845, Fixed Fire Fighting systems – Design, installation and maintenance. 2004.
- BS EN 1366: Part 2. Fire Resistance tests for Service Installations. Fire Dampers. 1999
- BS 476: Part 4. Fire Tests on Building Materials and Structures. Non-combustibility test for Materials. 1970.
- BS 476: Part 11. Fire tests on building materials and structures. Method for assessing the heat emission from building materials. 1982.
- BS 476: Part 22 – Fire Tests on Building Materials and Structures. Methods for determination of the fire resistance of non-load bearing elements of construction. 1987.
- BS 476: Part 31 – Fire Tests on Building Materials and Structures. Methods for measuring smoke penetration through door sets and shutter assemblies (Part 3 – Smoke control doors). 1983.
- BS EN 1634-3:2001. Fire resistance tests for door and shutter assemblies. Smoke control doors and shutters.
- BS 476: Part 6 Fire tests on building materials and structures. Method of test for fire propagation for products. 2009.
- BS476: Part 7. Fire tests on building materials and structures. Method of test to determine the classification of the surface spread of flame of products. 1997.
- BRE 187. External fire spread building separation and boundary distances 2014.
- BR 135. Fire Performance of External Thermal Insulation for Walls of Multi-storey Buildings. 2nd edition. 2006
- BS 8414 Fire performance of external cladding systems – Part 1: Test method for non-loadbearing external cladding systems applied to the face of the building. 2015.
- BS 8414 Fire performance of external cladding systems – Part 2: Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame. 2015.