

# London Plan (Policy D12B) for Major Developments

## FIRE SAFETY STATEMENT

### **SITE ADDRESS:**

Unit 1, Hayes Bridge Retail Park, Uxbridge Road, Hayes, UB4 ORH.

### **BUILDING DESCRIPTION**

A single commercial building for employment purposes Class E(g)iii, B2 and B8, along with ancillary offices, gatehouse, associated infrastructure including service yard, car parking, drainage, hard and soft landscaping.

The development is speculative and will be subject to a tenant's fit-out in due course.

### **AUTHOR**

**Neil Eggington** MIFireE MIFSM CFPA Dip. C.Build E MCABE

Neil is a co-director of Ignis Fire Consultancy Ltd.

He joined Local Authority Building Control in 1986 where he spent the first 14 years of his career progressing to a Senior District Surveyor before joining private sector Building Control in 2000. He has dual professional qualifications in Building Control and Fire Safety Management and was the Fire Safety Manager at Birmingham Airport Ltd for over 2 years before returning to Building Control in 2018 specialising in Fire Safety matters.

With over 35 years' experience in the Construction and Fire Safety Industries he has been responsible for many major projects and developments within Birmingham City Centre and throughout the country. These include Birmingham Youth Courts, Birmingham Symphony Orchestra Building, Rolls Royce Aerospace buildings at Bristol and Tyne & Weir, Jaguar Landrover facilities at Solihull and Castle Bromwich and new Distribution Centres for John Lewis and Worcester Bosch. He also has experience within the educational sector being responsible for the 'Building Schools for the future' and 'Priority Schools' programmes in Staffordshire as well as new collegiate facilities at Warrington, Telford, Bilborough and Dudley. He has also worked on numerous Hospitals and Primary Care Medical Centres and new Criminal Justice facilities at Northampton, Gloucester, Bridgend and Merthyr-Tydfil.

During Neil's time as Fire Safety Manager at Birmingham Airport Ltd he acted as client subject matter expert and developed and managed the fire risk management system. He also advised on the fire safety technical aspects and requirements for the 2018 Terminal Expansion Project.

Following his tenure at Birmingham Airport Ltd., Neil has worked on projects with London Luton Airport, Warner Bros., Queen Elizabeth Hospital and various Extra Care Facilities. He now specialises in Warehouse/Logistics Buildings with clients including St Modwen and Amazon.

## **GATEWAY 1**

It is understood that a Gateway 1 statement has not been submitted. The building is not a 'relevant building'

## **BUILDING CONSTRUCTION**

Steel portal frame with metal wall and roof cladding. Cladding will be non-combustible including insulation. Ground floor in-situ concrete slab to the warehouse with concrete steel profile composite floors to the ancillary offices and Hub. Internal compartment wall between the warehouse and offices/ Hub will be 120 minutes fire resistance for insurance requirements. External walls that are in boundary conditions (South and West elevations) will have at least 60 minutes fire resistance to limit external fire spread between adjacent buildings.

## **MEANS OF ESCAPE**

### ***Functional requirement***

#### ***Means of warning and escape***

*B1. 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.*

### ***Design guidance***

Building Regulations are functional requirements, to comply with these functional requirements a designer may follow the prescriptive guidance contained within the Approved Documents, however there is no obligation to do this. In the case of fire safety for this development there are three principal routes to demonstrate compliance; follow the

recommendations of Approved Document B<sup>1</sup>, follow the recommendations of BS 9999<sup>2</sup>, or a bespoke fire engineered solution following the principles of BS 7974<sup>3</sup>.

### **Evacuation strategy**

The building should have a *total evacuation* strategy, this means that all occupants will evacuate from the building in the event of a fire.

### **Horizontal escape**

In the event of a fire, occupants can reach a place of relative safety, or a final exit, within a reasonable time. To do this, the distance a person must travel should be limited.

The recommendations for maximum travel distance depend on the use and risk of the building.

Approved Document B recommends the same maximum travel distance for buildings with a Purpose Group 6 Industrial or 7(a) Storage use. Where escape is available in more than one direction the distance should not exceed 45 metres.

BS 9999 recommends different maximum travel distance dependant on the risk profile. The risk profile is a combination of the occupancy characteristics and the fire growth rate. Further, BS 9999 permits greater travel distances where enhancements over the minimum fire safety precautions are provided. For example, greater travel distances are permitted when high ceiling heights are present and where enhanced early warning or sprinkler systems are provided.

It is possible to determine the occupancy characteristic for the buildings as 'A' (Awake and familiar), however a range of fire growth rates are possible dependant on the type of materials present and the way in which they are arranged.

BS 9999 has 4 fire growth rates, low, medium, fast, and ultra-fast, as shown in the table below.

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<sup>1</sup> Approved Document B – Fire Safety. Volume 2: Buildings other than dwellings. 2019 edition incorporating 2020 amendments.

<sup>2</sup> British Standard 9999: 2017 – Fire safety in the design, management and use of buildings. Code of Practice

<sup>3</sup> British Standard 7974-1: 2019 – Application of fire safety engineering principles to the design of buildings. Code of Practice.

Table 3 Fire growth rates

Category	Fire growth rate <sup>A)</sup>	Fire growth parameter <sup>B)</sup> kJ/s <sup>3</sup>	Description	Typical examples <sup>C)</sup>
1	Slow	0.003	Evenly distributed low level fire load, small discrete packets of fuel or material of limited combustibility <sup>D)</sup>	Reception areas, concourses (without concession outlets) and halls with limited fire load such as sports stadia and foyers
2	Medium	0.012	Evenly distributed low to mid-level fire load comprising a mix of combustible materials	Offices, lounges, classrooms, auditoria, seating areas, galleries and car parks <sup>E)</sup>
3	Fast	0.047	Stacked combustibles (on or off racking and shelving but excluding high rack storage), some small quantities of materials other than materials of limited combustibility <sup>D)</sup> (or where larger quantities are stored in separate fire-resisting enclosures), process, manufacturing or storage of combustible materials	Shop sales areas <sup>F)</sup> , workshops, factories and small storage buildings
4 <sup>G)</sup>	Ultra-fast	0.188	Medium to large quantities of materials other than materials of limited combustibility <sup>D)</sup> , high racked storage, flammable liquids and gases or where rapid uncontrolled fire growth could occur	Warehousing <sup>H)</sup> , processing plants and car parks <sup>E)</sup> utilizing a car stacker or similar method where there is no fire separation between stacked cars

In the case of this development the buildings have a haunch height more than 10m. The fitting of the warehouse fire alarm is understood to be the responsibility of an incoming tenant. The table below provides an indication of the maximum permissible travel distances for different risk profiles.

Risk profile - BS 9999:2017	A1	A2	A3
Minimum standard of fire alarm	Manual	Manual	L2
Single direction of travel	26m	22m	18m
More than one direction of travel	65m	55m	45m
<b>Additional fire protection measures – Enhanced fire alarm system may provide 15% benefit to exit widths and travel distances to A1 and A2 profile only</b>			
<b>Ceiling height exceeds 10m and provides a further 30% benefit to exit widths and travel distances</b>			
Travel (one direction only)	30m	26m	22m
Travel (two directions)	90m	75m	58.5m

An 'A4' risk profile has not been included above as this would only be permissible with the inclusion of sprinkler protection. In this case the sprinklers would be considered to lower the fire growth rate by one, meaning an A4 risk profile would become an A3 risk profile.

The travel distances are acceptable under the recommendations of BS 9999, but this depends upon the layout and fire growth rate which cannot be defined at this stage. It is noted that in the case of certain fire growth rates a sprinkler system or fire engineered solution may be required.

A fire engineered solution would focus on an analysis of the Available Safe Egress Time v's the Required Safety Egress Time (ASET – RSET). This analysis can only be undertaken once the fire growth rate has been defined.

The development is a speculative base build and will be subject to additional work and Building Regulation approval at fit-out stage.

There will be two alternative egress points from the roof, each into a different fire compartment. Travel distance on the roof will not exceed 100m

## PASSIVE AND ACTIVE FIRE SAFETY MEASURES

**Internal Fire Spread:** The ancillary offices and the Hub will be compartmented from the warehouse by 120- minute fire resistant construction. This is an insurance, rather than Building Regulation requirement.

**External Fire Spread:** There are two external walls in boundary conditions (South and West elevations). These walls will be 60-minute fire resisting (stanchions and cladding).

Fire resistant protected staircases are specified to the offices and Transport Hub. There will be refuge points with communication in accordance with BS 5839 Part 9 within any refuge area.

It is understood that evacuation lifts are not intended because the building is a speculative logistics distribution building and is not intended for sleeping risk or highly dependent persons. Refuges with communication systems to BS 5839 Part 9 will be provided to protected staircases and the tenant will be responsible for managing the evacuation of all building users including implementing bespoke Personal emergency evacuation plans (PEEPS) as necessary.

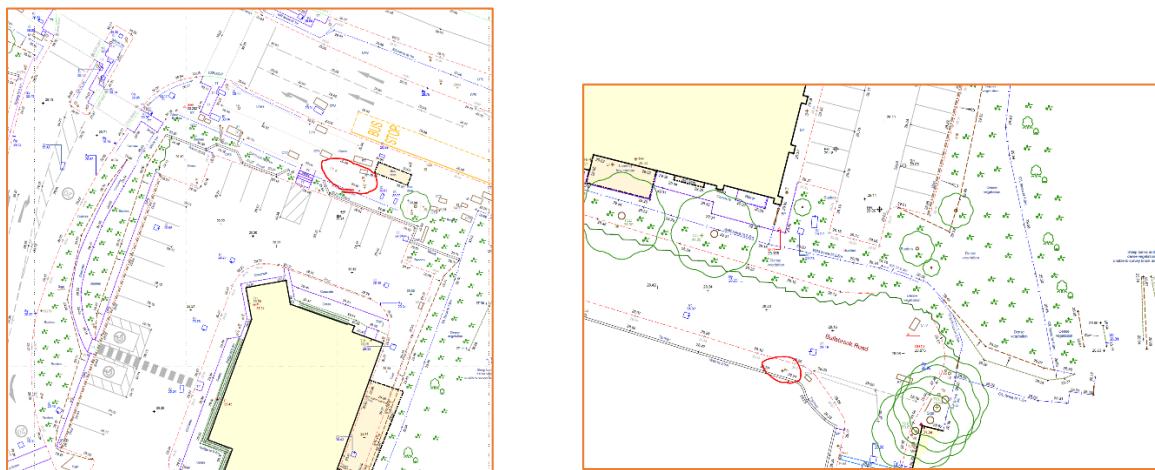
An L2 automatic fire alarm system will be provided in accordance with BS 5839 Part 1. If not provided at base build stage, it will be a requirement of the tenant fit out

Emergency lighting will be provided in accordance with BS 5266.

## ACCESS AND FACILITIES FOR THE FIRE SERVICE

The building has an aggregate floor area of 16,168m<sup>2</sup>. This is very slightly over (168m<sup>2</sup>) the maximum floor area permitted with 50% vehicular perimeter access for high reach fire appliances. However, in addition to the 50% site access provided to the North and East elevations access is possible from Bullsbrook Road, albeit at a slightly further distance than the 2m distance guidance suggests. This gives an overall vehicular perimeter access for high reach appliances of in the region of 65% of the building perimeter. This additional 15% access is felt to adequately compensate for the additional 168m<sup>2</sup> of floor area, however it would be possible for fire mains or other measures to be added if requested by the Fire Service during the Building Regulation consultation process.

There are two existing fire hydrants within 100m of the building and this satisfies Building Regulation guidance. They are located near Metro Bank and in Bullsbrook Road. Fire hydrants can be extended into the site as necessary if requested by the Fire Service during the Building Regulation consultation process.



*Figures 1 & 2 – Location of existing hydrant positions*

Water flow rates from existing hydrants are not known at this stage but if found to be inadequate, additional measures will be agreed with the Fire Authority through the Building Regulation consultation process (e.g. static tanks).

## FIRE SAFETY INFORMATION / GOLDEN THREAD

Regulation 38 of the Building Regulations 2010 (as amended) makes a mandatory requirement for fire safety information relating to the design and construction of the building to be made available upon completion of the project. The purpose of this is to ensure that the identified 'Responsible Person' is provided with adequate information to enable them to complete their obligations under the Regulatory Reform (Fire Safety) Order 2005.

The type and extent of information provided depends on the size and complexity of a building. As a minimum information should consist of a fire safety plan indicating the key elements of the buildings fire strategy (escape routes, compartmentation, fire resistance, fire doors and door furniture etc.), fire alarm, emergency lighting, sprinkler (not applicable to the base build) details and any fire strategy report.

## **FIRE SAFETY OPERATIONAL MANAGEMENT**

The Regulatory (Reform Fire Safety) Order 2005 imposes a general duty to take such fire precautions as may be reasonably required to ensure that premises are safe for the occupants and those in the immediate vicinity and establishes a general duty to carry out regular fire risk assessment.

## **REPORT PREPARED BY**

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