Fire safety statement for planning. Greggs Bakery Site.

1. Introduction.

This fire safety statement has been prepared by Hoare Lea to accompany the planning application for the Greggs Bakery site development in London and address The London Plan (March 2021) Policy D5 (Inclusive Design) and D12 (Fire Safety).

The intention of this fire safety statement is to address the main fire safety principles and provide an overview of the requirements and recommendations that the scheme will meet.

The fire safety strategy for the Greggs Bakery Site development will be based on the guidance of Approved Document B (ADB) Volume 1 and Volume 2 2019 incorporating 2020 and 2022 amendments. ADB Volume 1 will be used for dwelling houses, small single stair buildings, and block of flats. ADB Volume 2 will be used for the industrial building within the development.

2. Proposed development.

The site is located in the London borough of Richmond upon Thames, on a site that includes a vacant single industrial unit previously occupied by Greggs Bakery and a row of terrace houses. The site is bound to the North by the River Crane and east, West and South by two-storey terrace dwelling houses. The proposed development will include the demolition of existing buildings (with retention of a single dwelling) and redevelopment of the site to provide 97 residential units and 883 sqm industrial floorspace (Use Class E(g)(iii)) and 117sqm of affordable workspace (Use Class E) with associated hard and soft landscaping, car parking and highways works and other associated works The development will include two-storey and three-storey dwelling houses, three-storey small single stair apartment buildings (Block A and E) and a five-storey apartment building (Block F). The proposal also includes a two-storey standalone industrial building, at the southern end of the development.

The application site plan is shown in Figure 1.

Figure 1: Application site plan

3. The London Plan – Policy D12 (Fire Safety).

The London Plan – Policy D12 states that in the interests of fire safety and to ensure the safety of all building users, all development proposals must achieve the highest standards of fire safety and ensure that they:

1. Identify suitably positioned unobstructed outside space:
    a. For fire appliances to be positioned on
    b. Appropriate for use as an evacuation assembly point
2. Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures;
3. Are constructed in an appropriate way to minimise the risk of fire spread;
4. Provide suitable and convenient means of escape, and associated evacuation strategy for all building users;
5. Develop a robust strategy for evacuation which can be periodically updated and published, which all building users can have confidence in; and
6. Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.

All major development proposals should be submitted with a Fire Statement, which is an independent fire strategy, produced by a third party suitably qualified assessor. The statement should detail how the development proposal will function in terms of:

1. The building's construction: methods, products and materials used, including manufacturers details;
2. The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and the associated evacuation strategy approach;
3. Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans;
4. Access for Fire Service personnel and equipment: how this will be achieved in an evacuation situation, water supplies, provision and positioning of equipment, firefighting lifts, stairs and lobbies, any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these;
5. How provision will be made within the site to enable fire appliances to gain access to the building; and
6. Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures

These items are detailed in the following sections for the Greggs Bakery site development.

4. Competency statement.

All Hoare Lea design projects are headed by highly trained engineers, supported by a team of chartered engineers across the UK, with proven experience on a wide range of fire safety consultancy projects.

Our staff have appropriate expertise and experience of fire safety design on a wide range of complex buildings, not only in the UK, but also world-wide. Whilst most of our work is conducted to satisfy safety regulations within the UK (e.g. Building Regulations and associated legislation), our staff have been responsible for developing fire safety strategies based on the NFPA standards and other international codes.

This statement has been produced, reviewed and approved by the following key individuals. The design and development of the fire safety strategy will be undertaken by the same individuals.

- Miller Hannah BEng (Hons), CEng, MIFireE – Director
- Johan Askman BSc, MSc, AIFireE – Associate
- Carlo Marenghi MEng (Hons) –Fire Engineer

- Sangeerth Anantharaja MEng (Hons) –Fire Engineer

5. Fire safety overview.

5.1 Building construction

- The exact construction method has not been defined at the time of writing this planning statement but it will consist of traditional construction.
- To limit the spread of fire within the buildings, all wall and ceiling linings will satisfy the appropriate classification stated within BS 9991:2015.
- Each member forming part of the structural frame of the building or any other beam or column will be provided with fire resistance depending on the building height:
  - Each block of apartments have a height more than 5m, but not more than 18m, the elements of structure will have a minimum fire resistance of 60 minutes.
  - The small single stair buildings have a height more than 5m, but not more than 18m, the elements of structure will achieve a minimum fire resistance of 60 minutes.
  - Every wall separating the individual dwelling houses will be constructed as a compartment wall with a fire resistance of minimum 60 minutes, such that each dwelling house can be considered a separate building.
  - The industrial building is less than 5m in height, the elements of structure will achieve 60 minutes fire resistance.
- The fire safety strategy will include a space separation analysis to establish the necessary boundary distance around each building. Where it is considered that there is any risk of spread of fire between buildings from the accommodation, fire resistance equal to the elements if structure will be provided to the facade; however, a detailed analysis will be undertaken during the next design stage.
- Some units in the site will be located on the site boundary. As these external walls will be within 1000mm of the relevant boundary, they will be constructed of fire resisting material from both sides of the wall, achieving the same fire resistance as the elements of structure.
- The building does not have a storey that exceeds 18m in height. Either the external walls will satisfy the performance criteria described in BRE report BR135 or the external wall surface will be in accordance with Section 10 of ADB, for surface spread of flame classification, and cavity barriers in any external wall cavity are required in accordance with Section 9 of the Approved Document.

  Note: In practice, it may be necessary for external surfaces to achieve Class B-s3, d2 or better (European Classification) surface spread of flame classification to avoid the walls contributing to the space separation (unprotected areas) calculations.

5.1.1 Construction, Design and Management regulations

- Design projects undertaken in the UK are subject to the requirements of the Construction (Design and Management) Regulations 2015, the objective of which is to ensure that health and safety issues are properly considered during a project's design and development so that the risk of harm to those who have to construct, use and maintain the building is reduced.
- As a designer, in accordance with Regulation 9 of the CDM regulations, Hoare Lea will take into account the general principles of prevention in the preparation of this report and where reasonably practicable, eliminate, minimise and/or control foreseeable hazards associated with the design. Where elimination is not reasonably practicable, Hoare Lea will be required to provide 'pre-construction' information in respect of any significant and/or unusual project-specific hazards that remain.

5.2 Means of escape provisions

- Residential blocks
  - It is proposed to adopt a 'stay-put' evacuation strategy for the apartment of Block F, Blocks A and E building. That is, only the occupants of the apartment of the fire origin will evacuate on activation of the fire detection and alarm system and all other occupants will remain in place.

- The apartment of the residential blocks will be designed with protected entrance hall layout arrangements with a Category LD1 fire detection and alarm system, above the minimum LD2 fire detection and alarm system, in accordance with BS 5839-6:2019.
- The residential ancillary including the covered car park will be Category L2 fire detection system, in accordance with BS 5839-1:2017.
- The smoke ventilation system in the common corridor will be determined and proposed by measuring travel distances in a single direction from the furthest apartment door to the staircase within the residential Blocks.
  - Block F: The apartments of Block F are accessed via a corridor access arrangement, as illustrated in Figure 2. Each of the flats will be accessed via an unventilated portion of corridor (limited to 7.5m) which is approached via a ventilated protected lobby, protecting the means of escape stair. No flats will open into the protected, ventilated lobby. Either natural smoke ventilation will be provided in the common corridor by smoke shaft in accordance with Paragraph 3.51 of ADB or a suitable mechanical alternative..

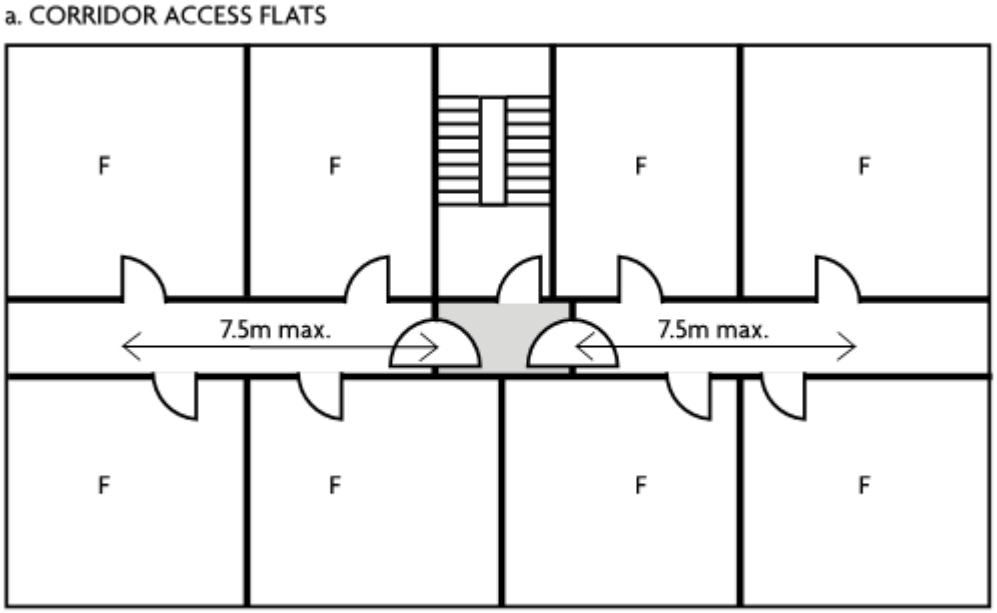


Figure 2: Corridor access to flats.

  - Blocks A and E are considered to be small single stair buildings. The flats in block A and E will provided with protected entrance halls, with no more than two flats per storey. These blocks will be designed to conform to Diagram 3.9b of ADB, as shown in Figure 3.

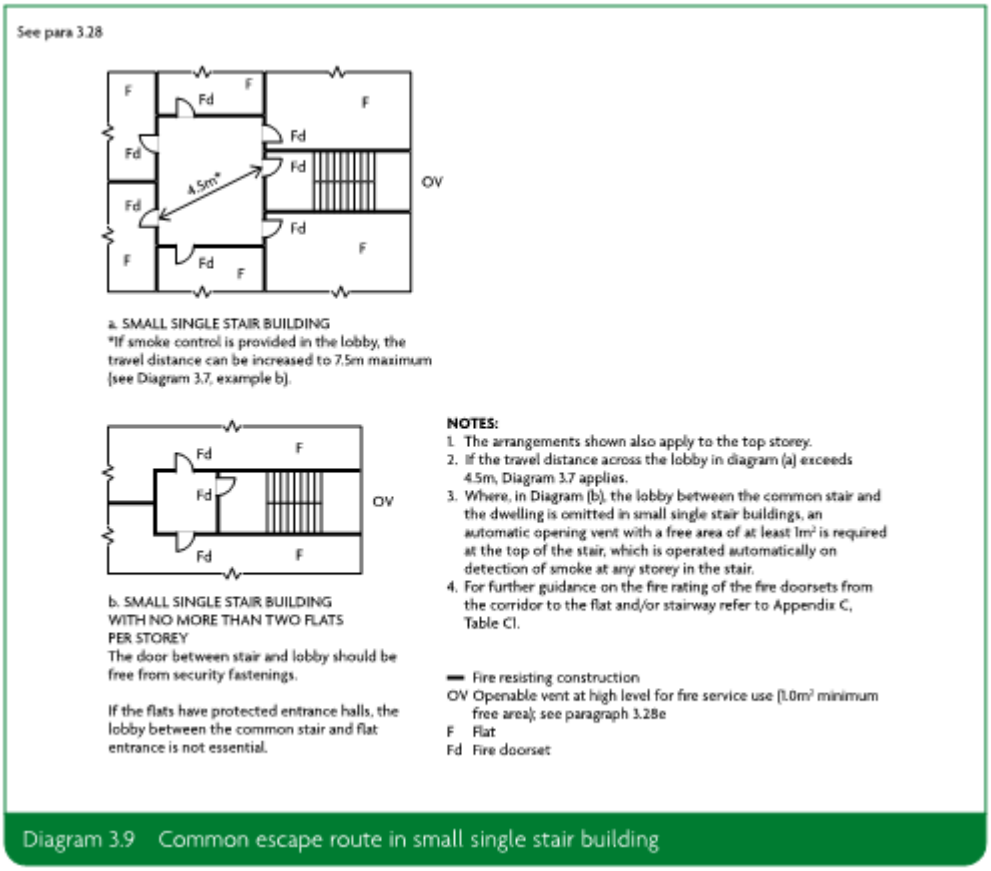


Figure 3: Common escape route in small single stair building

- Each block will be served by a single protected stair, the stairway will direct occupants straight to a final exit to the outside or to a protected exit passageway.
- The stairs will be provided with a 1.0m^2 AOV at the head of the stair enclosure to smoke ventilate the stair.
- Furthermore, one lift per block will be provided as an enhanced feature lift for evacuation purposes, the evacuation of mobility impaired occupants, this will be provided in order to meet the recommendations of Policy D5 (inclusive design) of the London Plan and will be provided in accordance with the policy. Further detail of the provision of the evacuation lift will be provided as the design develops. A suitable management procedure of the evacuation lifts will be developed during future design stages.
- A Category L2 fire detection system, is proposed for the car park. Protected lobbies will be provided to separate the stairways from the car park, with at least 0.4m^2 permanent ventilation to the lobbies.
- To obtain minimum standard of natural ventilation the car park will have a minimum aggregate free vent area of 1/40th of the floor area, with at least half of the vent area split equally across two opposing walls.

- The Town Houses
  - Are proposed to be provided with a Category LD1 fire detection and alarm system throughout the dwelling houses.
  - For each of the three-storey, to facilitate escape from the ground floor, all rooms on the ground floor will open directly into a hall leading directly to a suitable exit.
  - Each of the three-storey dwelling house will be provided with a protected stairway, that leads to a final exit or two suitable escape routes, as the uppermost floor is greater than 4.5m above ground level, as per ADB.
  - The two storey dwelling houses are less than 4.5m in height to the uppermost habitable floor and will be provided with either:

  - Escape window from the first floor which complies with ADB; or
  - Direct access to a protected stairway, as outlined above.
- Industrial
  - A simultaneous evacuation strategy is proposed for the industrial building. That is upon activation of the fire detection and alarm system in the building, all the occupants will escape simultaneously.
  - A category L2 fire detection and alarm system will be provided in the industrial premises in accordance with BS 5839-1:2017.
  - The industrial building will be provided will be designed as a two-storey premise, with a mezzanine level on the upper level:
    - Travel distances will be limited based on the hazard of the industrial unit with 25m in single direction and 45m where escape in more than one direction is possible for a normal hazard and 12m in single direction and 25m where escape in more than one direction is possible for a higher hazard.
- Suitable locations for the assembly point/s will be developed in due course once the relevant and necessary information becomes available. Detailed evacuation points are required as part of agreement of construction methodology and will be included at that time.

5.3 Features incorporated to reduce the risk to life

- L2 fire detection and alarm system for the industrial space.
- LD1 fire detection and alarm system for the apartment. L2 fire detection and alarm system for the car park.
- Residential sprinklers will be provided to Block F in accordance with BS 9251:2014.
- The potential need for a fire suppression to the car park will be assessed in detail during the next design stage.
- Each residential block of apartments and the small single stair buildings are more than 5m, but not more than 18m in height, the elements of structure will achieve a minimum fire resistance of 60 minutes.
- The industrial building is less than 5m in height. Therefore, the elements of structure will achieve 30 minutes fire resistance.
- The residential units will be separated from each other and from the common corridor by 60 minute fire resisting compartment walls.
- The protected stairs of the residential blocks will achieve 60 minutes fire resistance.
- Protected lobbies will be provided to separate the stairways from the car park, the lobby will have at least 0.4m^2 permanent ventilation.
- A building management plan will be developed during future design stages and will include aspects such as:
  - Timeframes for updating the evacuation strategy over the lifetime of the building; and
  - The testing and maintenance of all active and passive fire protection systems.

5.4 Fire-fighting access within the building

- Access for the Fire and Rescue Service will be provided at Ground Floor level for each individual building.
- The apartment block is less than 18m in height to the uppermost habitable floor and therefore, there is no requirement for a firefighting shaft.
- It is proposed to install a dry riser in each of the staircases in Block F to ensure each point on the floor plan is within 45m from a fire main outlet.
- The small single stair buildings in the proposed design will have all points on the floor plate within 45m of vehicle access (and suitable perimeter access) for a pump appliance.
- The two-storey industrial premise in the proposed design will have all points on the floor plate with 45m of vehicle access (and suitable perimeter access) for a pump appliance.
- The cark park will be accessible within 45m from a fire vehicle parked outside.

5.5 Fire-fighting access to the building

- The site will require suitable access, which in the proposed design is facilitated by the road passing through the entire length of the development. Fire vehicle access is provided throughout the site, suitable turning facilities at the end of the access roads will be provided if through access is not available. Please refer to appendix A for data on the fire vehicle tracking, developed by Velocity transport planning.
- Fire vehicle access will be provided to within 18m from a dry riser fire main inlet to Block F, placed at the ground floor façade of each block near the entry point.
- Hydrants will be provided within 90m of the dry riser inlet points serving the site.

5.6 Measures to protect the base build fire safety strategy

- Any future modifications to the scheme will be subject to Building Regulations approval and should consider the base build fire strategy, such that fire safety measures are not compromised within the development.

6. Conclusion.

This fire safety statement has been prepared to outline the approach and provisions relating to fire safety for the Greggs Twickenham development, in our view the fire strategy detailed above will satisfy the requirements of The London Plan Policy D5 and D12.

This statement demonstrates that the proposals have considered fire safety at the earliest stage, and the further development of the fire strategy will be based upon these principles. The fire strategy will be further developed for submission to the Approving Authority at the appropriate time and will meet the functional requirements of the Building Regulations 2010, taking recommendations from ADB and the requirements of Policy D5 and D12 of The London Plan.

Regulation 38 of the Building Regulations requires that fire safety information be given to the person responsible for the occupied building. Therefore, copies of the fire safety strategy, once agreed with the Approving Authority, and other relevant fire safety information should be issued to the responsible person. This will ensure publication of the proposed evacuation strategy and assist in evacuation of all building users.

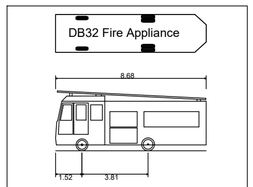
Any future modifications to the scheme will be subject to Building Regulations approval and should consider the base build fire strategy.

Miller Hannah BEng (Hons), CEng, MIFireE

Appendix A – Fire vehicle tracking

Notes:

1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
3. THIS DRAWING IS TO BE PRINTED IN COLOUR.
4. THIS DRAWING HAS BEEN ISSUED FOR INFORMATION PURPOSES AND MUST NOT BE USED FOR CONSTRUCTION.



DB32 Fire Appliance

Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	7.910m

Rev	Date	Description	Drn	Chk	App
D	20/07/22	UPDATED GA LAYOUT	GSF	MP	SF
C	06/04/22	UPDATED GA LAYOUT	GSF	MP	SF
B	28/03/22	SWEPT PATHS REVISED	GSF	MP	SF
A	10/03/22	FIRST ISSUE	GSF	MP	SF

VELOCITY Transport Planning

Drawing Status
S2 - FOR INFORMATION

Client
LONDON SQUARE

Architect
ASSAEL

Project Title
GREGGS FACTORY, TWICKENHAM

Drawing Title
RESIDENTIAL & INDUSTRIAL SCHEME
GROUND FLOOR PLAN
SWEPT PATH ANALYSIS - FIRE APPLIANCE

Scale @ A2	Date	Designed/Drawn	Checked	Approved
1:500	10/03/22	GSF	MP	SF

Project Ref	Drawing Number	Rev
3760-1180	3760-1180-T-045	D

Drawing file: 3760-1180-T-044-048-D - Resi+Ind - Swept Path Analysis.dwg Date: Jul 20, 2022 - 3:24pm