Fire Safety Strategy Report
TRG-220491-RT-01-I01

Project
90 Chancery Lane, London
Outline Fire Safety Strategy Report (RIBA Stage 2)

Client
WT Partnership
34 Threadneedle Street
London
EC2R 8AY

Date of Issue
17-Oct-23

TRIGON
FIRE SAFETY ENGINEERING

Contents

Amendments

Issue No.	Date	Author	Reviewer	Comment
Draft 01	6-Oct-23	R. Collins / K. Wallasch	D. Bostelmann	First draft for design team comment.
Issue 01	17-Oct-23	R. Collins / S. Bader	K. Wallasch	First issue.

Important Information

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1. Introduction

1.1. Overview

1.1.1. The outline fire safety strategy presented in this report has been prepared for the proposed refurbishment of the 90 Chancery Lane development in London. The outline fire safety strategy for the design generally follows the guidance presented Approved Document B [ADB], Volume 2 (2019 edition incorporating 2020 and 2022 amendments) [1] to meet the functional requirements of the Building Regulations 2010 [2].

1.1.2. This report sets out the principles of the fire safety strategy to be discussed with the design team and all stakeholders. This report is not considered appropriate to support Building Regulations submission. A detailed fire safety strategy, suitable for Building Regulations approval should be developed at the next design stage.

1.1.3. In some instances, where the proposals deviate from the recommendations of standard guidance, fire engineering justifications have been provided to support these deviations where deemed appropriate. Unless otherwise stated in this report, detailed aspects of the design and construction should be in accordance with the recommendations of ADB, as well as other relevant British Standards and codes of practice.

1.2. Building Description

1.2.1. Existing fire safety strategy report

1.2.2. A base build fire safety strategy has been developed for 90 Chancery Lane (Denning House) by Pell Frischmann (ref: Denning House Fire Strategy Report, K74831-VAA-R-0001-C dated 7 September 2011 [**"the base build fire safety strategy"**]) using the recommendations of ADB (2010 Edition) [3] applicable at the time of writing, and therefore this outline fire safety strategy has been also developed using the recommendations of the current version of ADB Volume 2 (2019 edition incorporating 2020 and 2022 amendments).

1.2.3. Existing Building

1.2.4. 90 Chancery Lane is an existing office building consisting of six floors (i.e., lower ground, ground and four upper floors). The height of the top floor above the lowest adjacent ground level of the existing structure is anticipated to be approximately 13m. This outline fire safety strategy has been based on this assumption, however, the exact height to the top storey of the building should be confirmed by the design team.

1.2.5. As detailed in the base build fire safety strategy, the lower ground floor is more than 1.2m below the highest adjacent ground level and therefore, in accordance with standard guidance, has been considered as a basement level throughout this report.

1.2.6. The building is currently served by two stairs, illustrated in Figure 1.2 to Figure 1.4.

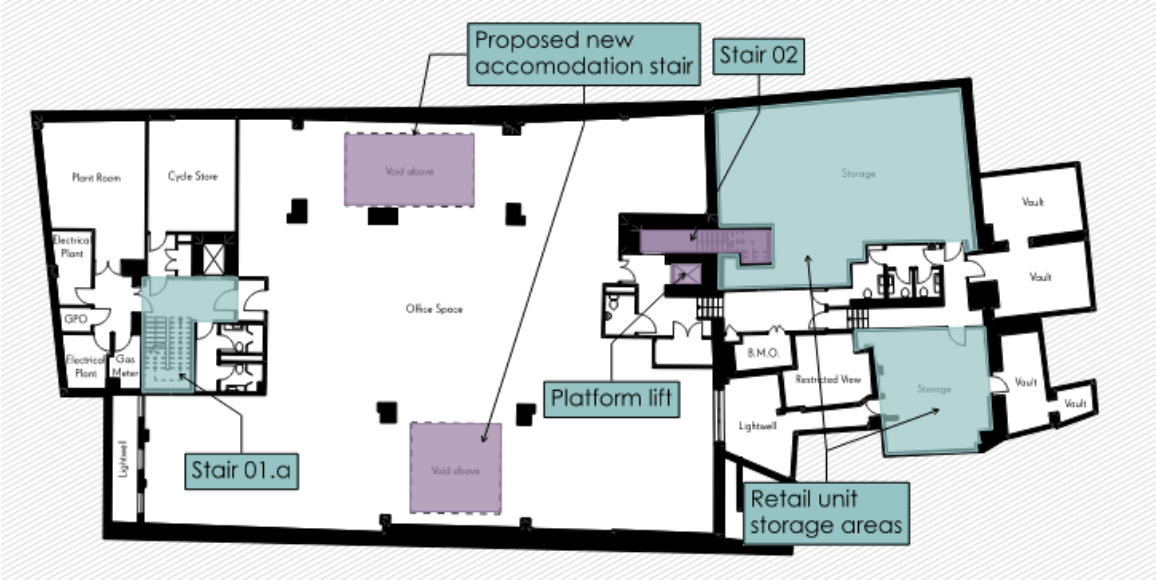
1.2.7. Stair 01 is located to the west of the building and serves lower ground to fourth floor. The upper portion of this stair [**Stair 01.b**] (i.e., connecting the third floor with the fourth floor roof terrace) is separate from the lower portion of the stair [**Stair 0.1a**] (i.e., connecting the lower-ground to the third floor). Stair 01.a and Stair 01.b are linked via the shared lobby arrangement at third floor. At third floor, occupants of the lower portion of Stair 1 (i.e., Stair

01.a) have to pass through a shared lobby before entering the upper portion of the stair (i.e., Stair 01.b) before accessing the fourth floor roof terrace.

1.2.8. Stair 02 is located to the east of the building and serves all floors (i.e., lower ground to fourth floor) within the building.

1.2.9. To the east of the building two retail units are located at ground floor level that open directly on to Chancery Lane. It is understood that these two units are not connected to the office spaces within the building in any way and will not be affected by the proposed works. This report has been developed on these assumptions and should be confirmed by the design team and reviewed during the next stage.

Figure 1.1: Floorplan of Lower-ground highlighting stair locations and retail units.



1.2.10. As existing, access to the ground floor office accommodation from the entrance to the building from Chancery Lane is provided via several steps leading from street level to the office accommodation, as well as via a platform lift situated within the stairs protected enclosure. This is also highlighted within Figure 1.1.

1.2.11. Five lightwells are located at various floor levels throughout the building.

1.2.12. Each of the floors within the building are currently occupied by office space.

1.2.13. Proposed works

1.2.14. The aim of the proposed works is to "*refurbish all of the building to include modernising receptions and common parts, proceeding with the linking of the lower ground and the ground floor demises, some work to the rooftop terrace and formation of the clubroom, refurbishing all of the floor plates to a Category A standard*", as confirmed by the design team.

1.2.15. It is also understood that future works will see the lower ground and ground floorplates divided into several tenancy units, whilst all remaining upper floors are proposed as open

plan office spaces. Once further details of these proposals have been developed, they should be addressed in the fire safety strategy developed at the next design stage.

1.2.16. In order to achieve the above, the proposed works throughout the building include:

- Two new open staircases are to be introduced linking the upper ground and lower ground floors. Future works will see both the upper and lower ground floors split into separate office tenancies, with one new open staircase accessed from each separate demise linking both levels. A skylight above each of the two new staircases will be installed at upper ground floor.
- The entrances and reception areas at lower and upper ground floor will see a complete reconfiguration, allowing direct access to each of the separate office tenancies at each floor.
- At fourth floor level, two new office spaces will be configured, accessed through one shared stair core. The two new office spaces at fourth floor level will be served by independent entrances and reception spaces, leading into open plan communal working spaces. A communal 'club room' is also proposed at fourth floor level.
- At fourth floor a roof garden is proposed with outdoor bar space. The roof garden will make use of the existing plant and storage space. The roof garden will be accessible directly from the fourth floor office space via the anteroom which serves both of the office tenancies at this level.

1.2.17. As part of the planning application for 90 Chancery Lane, it is understood that Levels 1, 2, and 3 will not be subject to any alterations. Nonetheless, for coherence and completeness, 90 Chancery Lane has been assessed in its entirety with specific sections of the report referring to each floor throughout the building. However, indicative layouts of the proposed floorplans illustrated in Figure 1.2 to Figure 1.4 present only the proposed floorplans.

1.2.18. At this stage, the outline fire safety strategy has been based on the assumption that the number of tenancy units per floor, as well as the overall building occupancy not being increased as part of the proposed works. Where more than one tenant is situated on each floor, it is anticipated that each tenant will have access to at least one stair, with less than 60 people situated where there is a room with a single exit. The arrangement and number of tenancy units per floor should be confirmed by the design team at the next design stage.

Figure 1.2: Proposed lower-ground office floor plan.

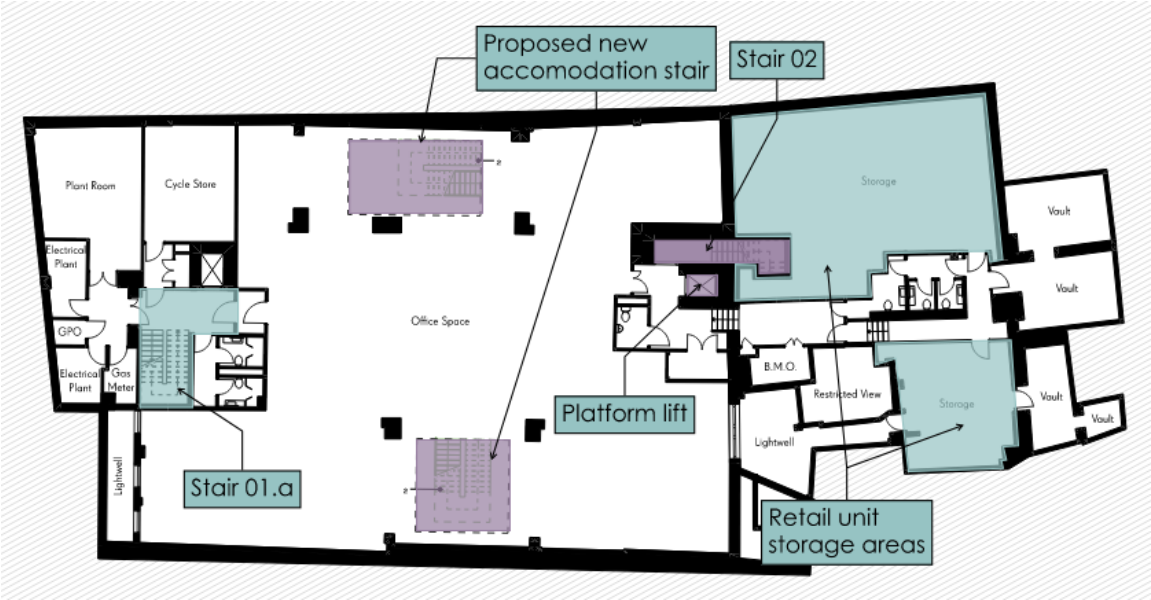
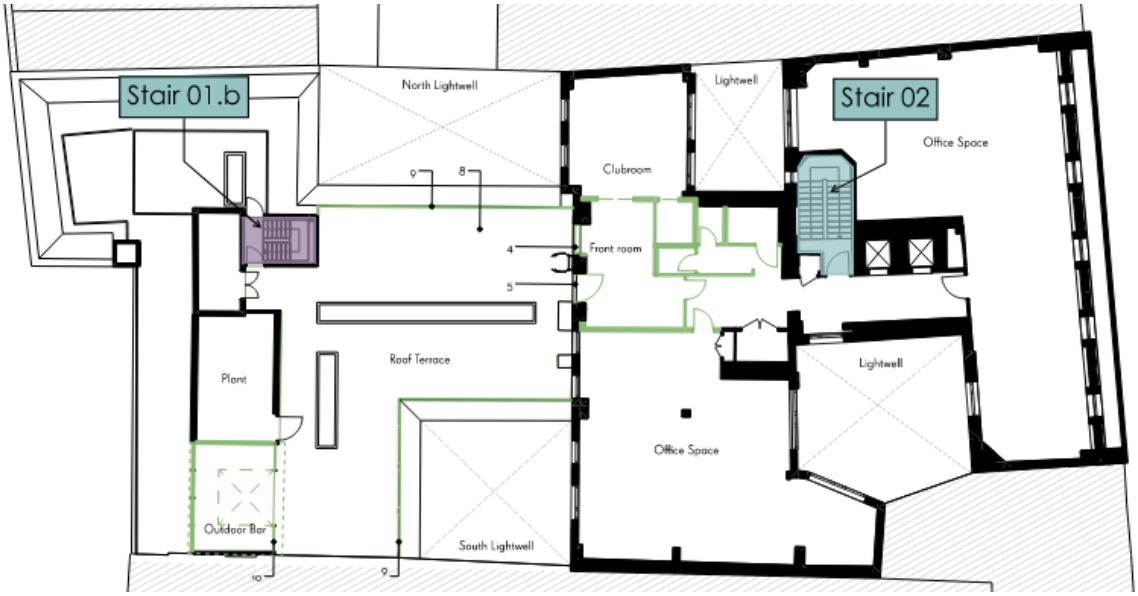


Figure 1.3: Proposed ground floor office floor plan.

Figure 1.4: Proposed fourth floor plan (external terrace and office areas).



1.2.19. Information provided

1.2.20. The following drawings outlined in Table 1.1 have been used to produce this outline fire safety strategy report. The figures included in this report are indicative and reference should be made to the architect's drawings.

1.2.21. As outlined in Section 1.2.17, as part of the planning application for 90 Chancery Lane, it is understood that Levels 1, 2, and 3 will not be subject to any alterations. As a result, Table 1.1 outlines the proposed drawings for lower-ground, ground, and fourth floor developed by Waugh Thistleton Architects.

Table 1.1: Fire safety strategy drawings by SPPARC and Waugh Thistleton Architects

Title	Drawing Number	Date	Rev.
Existing drawings (developed by SPPARC Architecture)			
Proposed Fire Strategy Lower Ground	1101 DH-C-36-B1-301	06/04/2011	T3
Proposed Fire Strategy Ground	1101 DH-C-36-0G-301	06/04/2011	T3
Proposed Fire Strategy First	1101 DH-C-36-01-301	06/04/2011	T3
Proposed Fire Strategy Second	1101 DH-C-36-02-301	06/04/2011	T3
Proposed Fire Strategy Third	1101 DH-C-36-03-301	06/04/2011	T3
Proposed Fire Strategy Fourth	1101 DH-C-36-04-301	06/04/2011	T3
Proposed drawings (developed by Waugh Thistleton Architects)			
Proposed Basement Plan	1_697-WTA-00-B1-DR-A-1001	12/10/2023	P01
Proposed Ground Floor Plan	1_697-WTA-00-GF-DR-A-1002	12/10/2023	P01
Proposed Fourth Floor Plan	1_697-WTA-00-04-DR-A-1006	12/10/2023	P01

2. Statutory Controls

2.1.1. Further details with regards to the statutory controls relevant to the building have been set out in Appendix A.3 of this report and summarised below.

2.1.2. The building works are subject to the requirements of the Building Regulations 2010 (as amended). As the existing building will be refurbished, Regulation 4(3) of the Building Regulations require that the works are carried out such that the building complies with the applicable requirements of Schedule 1 to the Building Regulations or, where it did not comply with any such requirement, is no more unsatisfactory in relation to that requirement than before the work was carried out.

2.1.3. The outline fire safety strategy set out in this report generally follows guidance referred to in ADB and in Appendix A.3 in order to meet the functional requirements of the Building Regulations 2010.

2.1.4. Responsibility for compliance with the Regulatory Reform [Fire Safety] Order 2005 [4] ("FSO") will rest with the "responsible person" and this outline fire safety strategy has been developed on the assumption that the building will be suitably managed.

3. Fire Safety Measures

3.1.1. A summary of the main fire safety strategy principles that are likely necessary to achieve compliance with the functional requirements of the Building Regulations 2010 for the current RIBA Stage 2 design of the office design are outlined below.

3.1.2. It is proposed that during the next design stage a detailed fire strategy will be produced suitable for a Building Regulations application. At the next design stage, the report will detail the fire strategy and confirm the proposed design preference following discussions with the design team, client, and Building Control.

Provision	Comment/recommendation
B1: Means of Warning and Escape	
Purpose Groups	The office will be classified as "office" (Purpose Group 3)
Evacuation strategy	The base build fire safety strategy states that "*the building should be evacuated simultaneously in the event of the activation of the fire alarm system. This includes the retail areas at the front of the building and their associated storage spaces*". The evacuation strategy for the building is proposed to retain the simultaneous strategy. At this time, the fire alarm should be a single-stage system, where, in the event of a fire alarm activation anywhere in the office parts of the building (single call point or smoke detector), all occupants within the office parts of the building will evacuate. Currently the simultaneous evacuation strategy indicates that this includes the two retail units within the building. As it is understood that access to the storage facilities to the retail units at lower ground floor is possible via lower ground within 90 Chancery Lane, it is recommended that evacuation of the retail and office areas remain simultaneous. If activation occurs in the adjacent retail unit, the retail unit and office accommodation should evacuate, and vice versa. This should be supported by a detailed review of the existing compartmentation providing separation between the office and retail units.
Fire detection and fire alarm system	The base build fire safety strategy states that "*the building should be provided throughout with an automatic fire alarm detection and alarm system compliant with the requirements of the relevant parts of BS 5839-1:2002+A2:2008 (Category L1)*". The automatic fire detection and alarm system should be retained throughout the building to a Category L1 type system in accordance with the recommendations of BS 5839-1 [5]. The fire alarm should be an addressable system in which signals from detectors, manual call points or any other devices, are individually identified at the control and indicating equipment.

<table>
<tr><th>Provision</th><th>Comment/recommendation</th></tr>
<tr><td></td><td>Further to the above, in accordance with BS 5839-1, a Category L1 system should incorporate automatic fire detectors in all rooms and areas of the building, but the following rooms or areas need not be protected if they are of low fire risk, including shallow voids (less than 800mm in depth).

Manual call points should be provided adjacent to all storey exits as recommended in BS 5839-2 [6]. Call points for electrical alarm systems should comply with BS 5839-2, or type A of BS EN 54-11 [7] and these should be installed in accordance with BS 5839-1.

A fire alarm control panel should be provided and would typically be provided in the security control room or reception area. The location of this should be confirmed by the design team and agreed with the fire and rescue service.

Traditional sounders should be provided such that all occupants within all areas of the building can hear the alarm. A suitable method of warning should be provided (e.g., a visual alarm) where persons with impaired hearing may be in relative isolation (e.g., toilet facilities, plant rooms and roof) unless another suitable method of warning is provided.</td></tr>
<tr><td>Design occupancy</td><td>The base build fire safety strategy states that "the potential building occupancy has been calculated using the floor space factors for offices and retail areas which include ancillary accommodation to the main uses".

A floor space factor of 6.0m²/person has been applied for the office areas throughout the building in accordance with standard guidance.

It is understood that, as part of the works, the occupancy throughout the office spaces will not be increased above that outlined within the base build fire safety strategy.

The design team should confirm that the occupancy on the fourth floor terrace will not exceed the figures in the table below in any event scenario. Nonetheless, it is understood that any occupants situated at the fourth floor will be people already within the building, and not external visitors to the building contributing to increasing the overall building occupancy.

The following occupancy figures across the office spaces are proposed, which are not anticipated to increase those set out within the base build fire safety strategy report:
<table>
<tr><th>Level</th><th>Use</th><th>Area (m²)</th><th>Design occupancy (persons)</th></tr>
<tr><td>Lower Ground</td><td rowspan="6">Office</td><td>421</td><td>71</td></tr>
<tr><td>Ground</td><td>511</td><td>86</td></tr>
<tr><td>First</td><td>582</td><td>97</td></tr>
<tr><td>Second</td><td>584</td><td>98</td></tr>
<tr><td>Third</td><td>563</td><td>94</td></tr>
<tr><td>Fourth</td><td>210 (1)</td><td>35</td></tr>
</table></td></tr>
</table>

Provision	Comment/recommendation			
		Roof terrace	150 (2)	25 (3)
	Total occupants on upper levels (i.e., first to fourth floor)			**324**
	(1) Approximate area of office accommodation at fourth floor. (2) Approximate area of roof terrace at fourth floor. (3) Occupants on the fourth floor roof terrace are assumed to be occupants already within the building and therefore have not been included in the total occupancy. It is assumed that occupants of the terrace should be either on the fourth floor, or on another floor within the building; not simultaneously. It is anticipated that the introduction of the roof terrace at the fourth floor will not increase the occupancy of the fourth floor to exceed 60 persons. However, due to the horizontal capacity, the occupancy at this level should be limited to 60 people in any event scenario.			
	The total design occupancy on all upper floors of 324 people as highlighted in the table above is less than the total vertical capacity for the building (380 people) as seen within this report. Therefore, the anticipated occupancy would not need to be limited, but must not exceed 324 persons. This is not expected to be exceeded, but should be confirmed by the design team.			
Number of exits	Any room with a single exit should be limited to a maximum of 60 people and any room with two exits should be limited to a maximum of 600 people, in accordance with ADB. However, the occupancy is likely to be limited by the horizontal and vertical capacities as detailed in later sections of this report (summarised in occupancy section above).			
Door opening direction	In accordance with the recommendations of standard guidance, the door of any doorway or exit should open in the direction of escape whenever reasonably practicable. Otherwise, the capacity of the door is limited to a maximum of 60 people. It is therefore recommended that the door swing of all doors throughout the building are hung such that they open in the direction of escape where possible. For example, the doors leading into Stair 1 at Level 3 should be hung in the direction of escape to increase the maximum occupancy of this level to more than 60 people. Where a door on an escape route must be secured against entry when the building is occupied (i.e., leading directly to external, leading to private tenancy unit), they should be fitted with a device that is readily operated, without a key, from the side approached by persons making their escape.			
Exit widths per person	Exit widths should be confirmed during the next stage. An 850mm wide exit has a capacity for 110 persons, whilst a 1,050mm wide exit has capacity for up to 220 persons. It is understood that all floors within the building, excluding the fourth floor, after discounting the largest exit on each floor, are served by a storey exit measuring at least 850mm in clear width which will provide the capacity in excess of the anticipated occupancy on each floor. The fourth floor, after discounting the largest exit, is served by an alternative exit measuring 750mm in clear width.			

<table>
<tr><th>Provision</th><th>Comment/recommendation</th></tr>
<tr><td></td><td>
If more than one exit will be provided, then the exit capacity should be based on omitting one exit (the widest) as part of the occupancy capacity calculation as it may be blocked in a worst case due to a fire. This is indicated in this section by the exit with a strikethrough.
<table>
<tr><th>Floor</th><th>Use</th><th>Design occupancy (see relevant section)</th><th>Exit widths measured from plans (mm)</th><th>Horizontal capacity</th></tr>
<tr><td>Lower ground</td><td>Office</td><td>71</td><td><s>1,025</s>
950</td><td>110</td></tr>
<tr><td>Ground</td><td>Office</td><td>86</td><td><s>1,520</s>
950</td><td>110</td></tr>
<tr><td>First</td><td>Office</td><td>97</td><td><s>950</s>
950</td><td>110</td></tr>
<tr><td>Second</td><td>Office</td><td>98</td><td><s>950</s>
950</td><td>110</td></tr>
<tr><td>Third</td><td>Office</td><td>94</td><td><s>1,000</s>
1,000 (1)</td><td>110</td></tr>
<tr><td>Fourth</td><td>Office/ External Terrace</td><td>48</td><td>750
<s>950</s></td><td>60</td></tr>
<tr><td colspan="5">(1) Assuming storey exit leading into Stair 1 from the office accommodation is rehung to open in the direction of escape.</td></tr>
</table>
After discounting the widest exit, the remaining available storey exit to the roof level provides capacity for up to 60 persons, therefore, the fourth floor should be limited to a maximum of 60 people. <u>This is inclusive of occupants situated within the available office space and external roof terrace at this level.</u>

Alternatively, the design team should investigate options to reconfigure the exit into Stair 01.b at fourth floor such as to achieve a clear width of at least 850mm to allow for up to 110 people at this level. This should be discussed and confirmed at the next design stage.

All other floors within the building should limit the occupancy to 110 persons per floor as a result of the horizontal exit capacity. It is anticipated that each floor will not be occupied by greater than 110 persons as seen within the occupancy section within this report.

Means of escape routes should not pass through adjacent tenancy units where tenancy splits are provided on a floorplate (see relevant section for more information).
</td></tr>
</table>

Provision	Comment/recommendation
	It should also be noted that BS 9999 recommends that all exits accessible to wheelchair users should measure a minimum clear width of 850mm wide. The design team should also consider the recommendations of Approved Document M[8], which is outside the scope of this report.
Travel distances – Office	For the current proposals, the direct travel distances should be measured as opposed to the actual travel distances, as the layout in most of the floors and rooms is not known. Therefore, two thirds (2/3) of the actual travel distance is adopted for the direct travel distance in accordance with ADB. To meet the recommendations of standard guidance, the actual travel distances in an office in a single direction should not exceed 18m, or 12m when direct travel distances are applicable. Where more than one exit is available, escape to the nearest exit should be achieved within 45m or 30m when a direct travel distance is appliable. Currently travel distances are within the recommended limits of standard guidance. However, the travel distances should be reviewed as the internal fit-out of the building is developed to ensure that internal travel distances do not exceed the recommended limits of standard guidance.
Travel distances – Plant rooms	To meet the recommendations of standard guidance, the actual travel distances in a plant room in a single direction should not exceed 9m. Where more than one exit is available, escape to the nearest exit should be achieved within 35m when a direct travel distance is appliable.
Travel distances – External terrace	Occupants using the external fourth floor terrace are provided with alternative directions of escape (i.e., escape via Stair 01.b and Stair 2). Travel distances for external terraces have not been considered explicitly in ADB. However, the single direction travel distances being measured up to 9m and alternative directions of escape well within 45m. As such, the travel distances on the roof terrace are within the recommended limits for office (without consideration of it being an external space), therefore, the travel distances presented on the fourth floor are proposed as appropriate.
Stair protection	Every internal escape stair should be protected within a fire resisting enclosure achieving a minimum of 60 minutes fire resisting construction as each stair will pass through compartment floors. The stairs should have a minimum of FD30S doors tested to BS 476-22[9]. It is recommended that there is lobby protection to each of the stairs (minimum 30 minutes fire resisting construction), which would prevent the need for discounting the wider of these stairs when considering the vertical escape capacity. Although not affected by the proposed works, it is noted that current plans indicate that Stair 01.a is not accessed via a protected lobby at first and second floor levels. Therefore, for vertical capacity assessment, Stair 01 has not been considered. Stair 02 is provided with lobby protection at every level and provides sufficient capacity for the anticipated occupancy throughout the building.

<table>
<tr><th>Provision</th><th>Comment/recommendation</th></tr>
<tr><td></td><td>Should the design team wish to increase the occupancy above that within this report, it is recommended that each protected stair is approached via a protected lobby on each upper storey, except the top storey (i.e., fourth floor) such as not to discount the stairs vertical capacity. This would be subject to a further detailed review and has not been considered within this report.

Due to Stair 01.a and Stair 01.b being separate and linked via a lobby space at third floor, the capacity of Stair 01.b has been discounted from vertical means of escape calculations.

The proposed new internal circulation stairs located within the ground floor tenancy units are between ground and lower ground. Protection for these stairs is discussed within the Openings between floors section, however, these stairs are <u>not</u> considered for means of escape.</td></tr>
<tr><td>Single stair office</td><td>Occupants located within the office space overlooking Chancery Lane to the east of the building may only have access to a single stair (i.e., without having to pass through a separate tenant space to access Stair 01.a should the upper floorplates be provided with a tenancy split as part of future works).

However, it is not anticipated that more than 60 persons would be situated within this east portion of the building. Nonetheless, the proposed tenancy arrangements of each floor within the building should be confirmed by the design team at the next stage.</td></tr>
<tr><td>Escape at fourth floor level</td><td>Means of escape from the external terrace space at fourth floor level is provided via two stairs i.e., Stair 01.b and 02.

Stair 01.b only connects to the third floor level below, and subsequently Stair 01.a via a shared lobby, as outlined in Section 1.2.6. As occupants escaping from Stair 01.b down to third floor into the shared lobby and therefore are not separated via a lobby, Stair 01.b is not considered lobby protected. Occupants at fourth floor level can escape alternatively via Stair 02 which leads directly to the final exit at ground floor.

This is discussed in more detail in the vertical capacity section.</td></tr>
<tr><td>Escape from roof plant space</td><td>It is understood that the MEP plant spaces at roof level (i.e., above fourth floor office space) will be accessed via a fixed access ladder. In accordance with standard guidance, fixed ladders should not be provided as a means of escape for members of the public. They should only be provided where a conventional stair is impractical, such as for access to plant rooms which are not normally occupied.

As the fixed access ladder will only afford access to the MEP plant space not occupied by the public and access will be only for maintenance and staff, therefore the current proposals are deemed as acceptable.</td></tr>
<tr><td>Vertical capacity</td><td>An initial stair capacity study has been undertaken for the office levels. A summary of all stair capacities is provided below:
<table>
<tr><th>Stair</th><th>Levels served</th><th>Final exit location</th><th>Lobby protected (Y/N)</th><th>Clear width (mm) (1)</th><th>Vertical capacity</th></tr>
</table></td></tr>
</table>

<table>
<tr><th>Provision</th><th colspan="6">Comment/recommendation</th></tr>
<tr><td></td><td>01.a</td><td>4 (LG-L3)</td><td>G</td><td>N</td><td>1,100</td><td>340 (2)</td></tr>
<tr><td></td><td>01.b</td><td>1 (L3-L4)</td><td>L3</td><td>N</td><td>850</td><td>60 (3)</td></tr>
<tr><td></td><td>02</td><td>5 (LG-L4)</td><td>G</td><td>Y</td><td>1,100</td><td>380</td></tr>
<tr><td></td><td colspan="5">Total</td><td>380</td></tr>
<tr><td></td><td colspan="6">(1) Measured at narrowest point within the stair, in line with base build fire safety strategy. Design team should confirm the width of each stair.
(2) Omitted from total vertical capacity as Stair 01.a is not approached by a protected lobby on every upper storey. The design team should confirm provision of lobby protection at each lobby to prevent this stair capacity being discounted.
(3) Omitted from total vertical capacity as this stair discharges into shared lobby arrangement at third floor, before linking to Stair 01.a.</td></tr>
<tr><td></td><td colspan="6">As seen in the table above, the total vertical capacity of 380 people is in excess of the anticipated occupancy for the building of 337 people. Therefore, the anticipated occupancy would not need to be limited.</td></tr>
<tr><td>Final exits from stairs</td><td colspan="6">Final exits should facilitate the evacuation of persons out of and away from the building. Accordingly, they should be of sufficient width for the number of people using the exit.

Each of the protected stairs within the building should lead to a final exit, either directly or via an internal passageway. Any protected exit corridor or stair should have the same standard of fire resistance and lobby protection as the stair it serves and not reduce in width at any point on the way to a final exit.

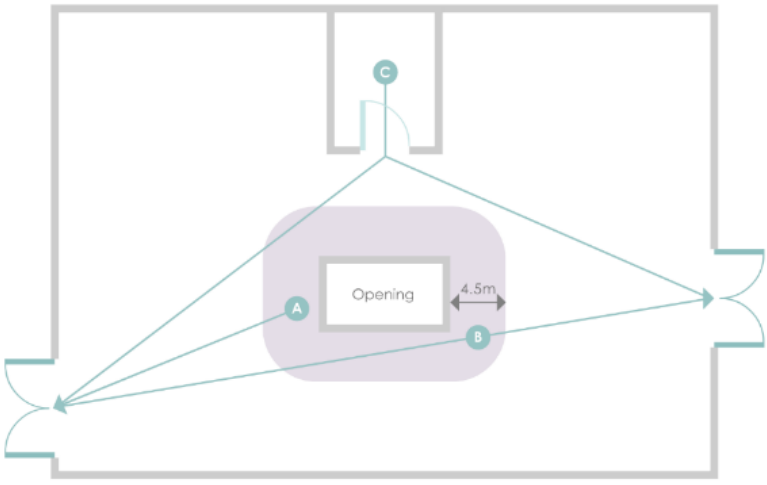
The current design follows the recommendations of standard guidance and indicates that Stairs 01.a and 02 lead directly to outside at ground floor. Stair 02 leads to a final exit via the entrance reception to the east of the building.

In accordance with standard guidance, as Stair 02 is not the only stair serving the building, a reception desk or enquiry office area at ground or access level. The reception or enquiry office area should have a maximum area of 10m^2. Therefore, as it is understood that the primary reception space is currently greater than 10m^2, a further investigation into the contents and use of the reception space should be undertaken at the next stage to assess whether a fire engineered justification can be developed to support such proposals.

As Stair 01.a and 02 serve floors above and below the final exit level, with both parts of the stair and the ground floor sharing a common final exit, therefore a merging flow calculation has been undertaken (see Merging flows section).</td></tr>
<tr><td>Merging flows</td><td colspan="6">Merging flow calculations have been undertaken as a portion of the stair merges with the basement or ground floor occupants before the final exit. The purpose of merging flow calculations is to avoid a bottleneck scenario, where the occupants merge as they escape through the same final exit.

Merging flows will occur for Stair 01.a and 02, where the basement occupants merge with ground floor occupants and the upper portion of the stairs before the final exit. The ground floor occupants from the office units that will also be using the same final exits are accounted for in the stair capacity (see Vertical</td></tr>
</table>

Provision	Comment/recommendation
	means of escape section) therefore have not been included in the merging flow calculations. The final exit from **Stair 01.a** at ground level currently measures 1,100mm clear width, with the upper portion Stair 01.a measuring an effective clear width of 1,100mm (see *Stair Capacity* section), and the lower portion of Stair 01.a serving the basement measuring 1,100 mm. The final exit from **Stair 02** at ground level currently measures 1,080mm clear width, with the upper portion Stair 02 measuring an effective clear width of 1,100mm (see *Stair Capacity* section), and the lower portion of Stair 02 serving the basement measuring 1,100 mm. The number of occupants from the lower-ground is indicated by the design occupancy to be 71 people. Therefore, is has been assumed that an even distribution of 35 people will escape via Stair 01.a and 36 people via Stair 02. Standard guidance within ADB does not refer to merging flow calculations when merging flows occurs for stairs from above and below. ADB only refers to a scenario where a ground floor storey exit and stair share a final exit, whereas Section 15.6.6 of BS 9999 (see Figure 6 – Merging flow at final exit level) outlines the method for determining the recommended final exit width where merging flows occur from the stair above and from the stair below the final exit level. The approach within BS 9999 treats occupants evacuating from the basement and ground floor in the same manner. Therefore, the method outlined in Section 2.23 (see ADB Diagram 2.6 – Merging flows at final exit) of ADB has been applied using the same approach, accounting for the occupants evacuating from the basement the same as one would account for occupants from ground floor. As a result, the following merging flow calculations has been undertaken in accordance with the following equation: W = ((N/2.5) + (60S))/80 Where: W = Width of the final exit (m) N = Number of people served by the stair from basement level S = The width of the stair (m) **Stair 01.a:** W = ((35/2.5) + (60 x 1.1))/80 = 1.00m Therefore, the final exit is acceptable as it measures 1,100mm which is greater than 1.00m recommended. **Stair 02:**

Provision	Comment/recommendation
	W = ((36/2.5) + (60 x 1.1))/80 = 1.00m Therefore, the final exit is acceptable as it measures 1,080mm which is greater than 1.00m recommended.
Basement stairs	In accordance with standard guidance, where multiple escape stairs are provided serving the upper storeys, only one needs to terminate at ground floor and other stairs may connect with the basement (lower ground as highlighted in Section 1.2.5) storey, if there is a protected lobby or a protected corridor between the stairs and accommodation at each basement level. In this instance, the proposed arrangement for both stairs to serve the basement level is considered acceptable as: • The basement stairs are remote from one another, with a high degree of separating construction provided between them. • The building will be provided with comprehensive fire detection providing an early warning of fire. This approach will need to be developed further at the next stage and agreed with the approval authorities.
Openings between floors	It is proposed to have two openings, in the form of open stairs connecting the office units on different floors (i.e., between lower-ground and ground floors). The escape route for occupants should not be within 4.5m of any void unless an alternative escape route is available as illustrated in Figure 3.1. *Figure 3.1: Open spatial planning (escape past a void).*  From A and B at least one direction of travel is away from the opening. From C, where the initial direction of travel is towards the opening, one of the escape routes is not less than 4.5m from the opening. The current proposals allow for escape away from the void in each instance in accordance with the above. The open circulation stair will pass through a compartment floor and therefore ADB recommends that it should be designed in accordance with the atria

Provision	Comment/recommendation
	recommendations of BS 9999. However, BS 9999 does not recommend any further provisions for buildings with containing a two-storey atrium, with one of the two storeys being at ground level, which are designed for simultaneous evacuation of occupancy characteristics A and where the storey exits are remote from the atrium. As the building will be an office building it will be considered as an occupancy characteristic A (awake and familiar) and therefore will meet with the recommendations in guidance without any further fire safety measures. This will be subject to further at the next design stage. To reduce possibility of smoke spread between floors, fire and smoke curtains, achieving a minimum of 60 minutes integrity and radiation could be provided. These are currently not recommended, however, as the design develops, should the arrangement of tenant splits change, further discussions about the provision of fire and smoke curtains should be undertaken.
Evacuation of mobility impaired person	As per guidance in ADB, refuge spaces should be provided in each protected stairway (or lobby) affording egress from every storey. Each refuge space should be 900mm x 1,400mm and not reduce the width of escape route. The refuge should be accompanied by a blue mandatory sign worded "refuge – keep clear". The base build fire safety strategy states that "*where access is afforded to people of reduced mobility (PRM), disabled refuges are to be located in both protected stairs. All disabled refuges are to be 1400 x 900mm in size*". The proposed designs indicate that a refuge space is provided in either the protected lobby or in a location enabling access to the stair (i.e., within the protected stair enclosure), of each the stair providing a storey exit at each floor level where level access is not provided, in line with standard guidance. A refuge point is not provided to Stair 01.b at fourth floor, however, is provided to Stair 02 at this level. As the storey exit into Stair 01.b at this level is 750mm, it is not anticipated that mobility impaired persons would use this exit. An emergency voice communication (EVC) system should be provided within the refuges in accordance with BS 5839-9 [10]. The system will consist of Type B outstations which communicate with a master station located adjacent to the fire panel. It is understood that the building is currently equipped with some form of EVC, in line with the base build. However, the extent and operation of the existing system is unclear. Therefore, the design team should undertake a review of the existing EVC system. Whilst not needed to meet the recommendations of the current fire safety guidance in ADB, Trigon would recommended the provision of an evacuation lift to assist with the evacuation of people who require assistance. This would support evacuation of people who require assistance and supports achieving equitable escape for all in accordance with the Equality Act [15], and is recommended by Trigon as best practice. However, the design team have investigated the feasibility of evacuation lifts and confirmed that the provision of an evacuation lift is not feasible. As a result, suitable management procedures will need to be developed to ensure that all

Provision	Comment/recommendation
	building users will be able to safely evacuate the building, which would typical involve the development of Personal Emergency Evacuation Plans (PEEPs).
Lifts	In accordance with standard guidance, any lift connecting different compartments should form a protected shaft. This should achieve a minimum of 60 minutes fire resisting construction (minimum REI 60). The platform lift which links lower ground and ground floor as well as affording access to the office accommodation from the street level. The platform lift is situated within the enclosure of Stair 02. As this lift is sited within the protected enclosure of Stair 02, it does not need to be self-contained in further fire resisting construction. Any lifts serving the basement floor should be approached only via a protected lobby or protected corridor (minimum REI 30). The lifts within Stair 2 are approached via a protected lobby at lower ground and every upper floor level.
Inner rooms	An inner room is defined as any room where the only escape route is through another room, the access room. For example, the proposed 'clubroom' at fourth floor level is accessed only via the 'front room' and would therefore be considered as an inner room. All inner rooms should be designed in accordance with the following requirements: • The occupant capacity of the inner room should not exceed 60 occupants. • The inner room should be entered directly from the access room and only pass through a single access room. • The travel distance from any point in the inner room to the exit(s) from the access room should not exceed the allowable one-way distance. • The access room should not be a place of special fire hazard and is in the control of the same occupier as the inner room. • The access room should be provided with an automatic smoke detector that operates an alarm audible in the inner room.
Means of escape route	The base build fire safety strategy does not make specific recommendations for means of escape routes across tenancy units as it deals only with the "shell-and-core" of the building. As mentioned within this report, at this stage the strategy is based on one tenant demise per floor and all occupants being able to access at least 2 stairs. However, should it be the case that future works see more than one tenant occupying each floor, standard guidance outlines that where a storey is divided into areas of occupancy under separate ownership or tenancy, then the means of escape from each occupancy should not pass through any other occupancy. Furthermore, if a common corridor or circulation space is on the escape route, it should be a protected corridor or equipped with a suitable automatic fire detection and alarm system throughout the storey. The current proposals indicate that each sub-tenancy at lower ground and ground floor will discharge directly into a protected lobby, without passing

Provision	Comment/recommendation
	through an adjacent tenancy unit. Any further sub-tenancy units within the building should not pass through another sub-tenancy units. This should be reviewed in further detail at the next stage when the internal layout of the building has been confirmed. Management procedures will need to be developed to ensure that each tenancy units suitably always manage and maintain each escape routes.
Emergency Lighting	The base build fire safety strategy states that all common areas of the building are provided with emergency lighting in accordance with BS 5266 [16]. This will include: • *"Common corridor, stairs and lobbies* • *Open areas in excess of 60m²* • *All plant rooms, switch rooms, etc.* • *Toilet accommodation over 8m²"* In accordance with the above, all escape routes should have adequate artificial lighting (including external escape routes). All new accommodation should have escape lighting which illuminates the route if the main supply fails. Escape lighting should be installed in accordance with BS 5266-1 [16].
Signage	All means of escape routes should be distinctively and conspicuously marked by emergency exit signs of adequate size complying with the Health and Safety (Safety signs and signals) Regulations [17] and the FSO. The signs should be in accordance with the guidance in BS 5499-1 [18].
B2: Internal Fire Spread (Linings)	
Wall and ceiling linings	Wall and ceiling linings should meet with the recommendations of Table 6.1 of ADB. Internal linings within small rooms of area not more than 30² should have internal linings confirming to Class D-s3, d2 (European). Rooms greater than 30m² should conform to Class C-s3, d2 when tested in accordance with BS EN 13501-1 [19]. Internal linings within circulation spaces, including the common areas, should meet Class B-s3, d2 (European).
B3: Internal Fire Spread (Structure)	
Sprinklers	Sprinklers are not provided to the existing building and as the height to the top storey of the building will remain below 30m, the guidance in ADB does not recommend the provision of sprinklers as part of the planned works.
Elements of structure	The base build fire safety strategy states that "*all structural elements shall be designed in compliance with Table A2 of ADB (reproduced below), as a minimum. For an unsprinklered retail / office building more than 5m but not exceeding 18m in height, the fire resistance of elements of structure shall be 60 minutes, in line with Table A2 of ADB (reproduced below)*". In accordance with standard guidance, based on the height of top storey of the building, all loadbearing elements of structure should achieve at least 60 minutes fire resistance.

Provision	Comment/recommendation
	The existing fire resisting protection to the elements of structure should be reviewed and upgraded where identified that the elements of structure do not achieve a minimum of 60 minutes fire resistance.
Compartmentation	The base build fire safety strategy states that: *"All walls and floors within the building separating different occupancies should be a compartment floor or wall with a fire resistance of at least 60 minutes as described in Table A2 of ADB (above).* *Shafts forming protected stairways should have a fire resistance of at least 60 minutes.* *Services risers should be constructed from materials offering a minimum of 30 minutes fire resistance.* *The boiler room is considered to be a 'Place of Special Fire Hazard' and should be enclosed to a minimum fire resistance of 30 minutes".* In line with the above, standard guidance recommends that the floor of the ground storey should be compartment floor as the building has a basement level. The ground floor is understood to be constructed as a compartment floor. The compartmentation provisions relating to the new open accommodation stairs is discussed within the relevant section of this report. Following the recommendations of the base build fire safety strategy, the internal protected stairs should be enclosed in 60 minute fire resisting construction. Each stair should be approached by a protected lobby achieving 30 minutes fire resistance. Walls separating the sub-tenancy units such as those at lower ground and ground floor should be designed as 60 minute fire resisting construction. The walls separating the office accommodation from the retail units should be designed and constructed as 60 minute fire resisting. Furthermore, any penetrations including internal riser shafts and lifts not in the stair, should be enclosed in a minimum of 60 minutes fire resisting construction where they pass through compartment floors. Alternatively, fire separation can be provided at each floor level for risers that pass through a compartment floor. Enclosure to any places of special fire hazard (i.e., transformer, switchgear, and battery rooms) should also be enclosed within 30 minutes fire resistance. Although not within the recommendation of standard guidance, the enclosure to any rooms used for the storage of lithium-ion batteries (i.e., E-bikes) should be enclosed in 60 minutes fire resisting construction and further consideration should be given at the next design stage to address the potential risks. Depending on internal and external fire spread assessment, fire resisting construction may be needed to enclose the proposed open voids which breach the compartment floors. This will be reviewed in detail at the next stage.

Provision	Comment/recommendation
Cavities	Cavity barriers should be provided within concealed voids in accordance with Section 9 of ADB and as outlined below: • To subdivide any cavity such that the distance between cavities does not exceed 10m. This distance can be increased to 20m where the surface and product exposed in the cavity is either Class 0 or Class 1. • To close the edges of cavities, including around openings. • At the junction between an external cavity wall and compartment walls and floors. • At the junction between an internal cavity wall and every compartment wall and floor, or other fire resisting barrier. Cavity barriers, tested from each side separately, should provide a minimum of both of the following: • 30 minutes fire resistance for integrity (E 30). • 15 minutes fire resistance for insulation (I 15). Penetrations through cavity barriers should also be suitably fire stopped. The confirmed internal layout for multiple tenancies occupying each floorplate should reflect current cavity barrier recommendations and limit any cavities extending greater than 20m when internal partition walls are installed.
Fire doors	Fire doors should meet the following recommendations: • To means of escape stairs: E 30Sa • To risers or service shafts: E30 • Lift doors: E 30 • To protected lobbies or corridors: E30Sa • To plant and storerooms: E30 • To cycle stores (used for the storage/charging of electric bikes: E30Sa Any doors on escape routes should be provided with a smoke seal (Sa) to prevent smoke ingress onto the escape route.
B4: External Fire Spread	
External fire spread	The base build fire safety strategy states that "*there is no proposal to change the external openings in the existing building*". The proposed works to the existing lightwell enclosures, situated at ground floor will include a new enclosure to the open accommodation stair linking lower-ground and ground floor. Therefore, were the proposed works will impact the external envelope of the building, a detailed review of the external envelope of the building will be undertaken to assess the external fire spread during the next design stage.
External surface of walls	Any building that is constructed with a height of below 18m should only have materials of Class B-s3, s2 or better where the façade is within 1m from the relevant boundary. However, should the façade be more than 1m from the relevant boundary, standard guidance does not set any provisions for the construction of the external wall do the building.

Provision	Comment/recommendation
	Notwithstanding the above, it would be recommended that any new materials which would become part of the external wall, such as those used in the extension of the lightwell enclosure, or specified attachment should achieve Class A2-s1, d0 or Class A1. A further review of the external wall surface should be undertaken at the next design stage.
Roof planters	It is understood that the design team are proposing to incorporate planters on the fourth floor (external terrace) of the building. The roof planters would not be restricted as part of the external wall construction. ADB does not include any recommendations for objects on the roof of the building, therefore the planter and their contents would meet recommendations of standard guidance for the roof of the building. However, Trigon recommend that the type of plants is managed to prevent growth down the external wall to prevent introducing combustible material on the external wall. A detailed justification and management should be developed at the next stage, however, will likely draw on the following points: • Strict management regime to ensure that plants are not dry or outgrow the planters. • Ensuring ease of access to planters for maintenance. • Planters should be provided with an automatic irrigation system which should prevent the plants from drying out. This would significantly prevent the risk of fire spread by the plants drying out. • Plant species are specially selected such that those of high inherent fire risk are not included and plants with high oil content (e.g., eucalyptus) are avoided. • Any LED lighting will be located remote from the planters to further reduce the risk of representing an ignition source to the planters and materials within.
B5: Access and Facilities for the fire service	
Provision of firefighting shafts	The height of the top floor of the building is less than 18m and the single basement level less than 10m deep, therefore, no fire-fighting shafts are required.
Fire vehicle access	The base build fire safety strategy states that "*the height of the top storey of the building is over 11m and the total area of all floors is between 2000m and 8000m. Access to 50% of the perimeter of the building shall be provided for high reach appliances. The existing arrangements are adequate*". It is understood that access to the building perimeter is possible via Chancery Lane. The existing fire service access arrangements will be retained as exiting during the works. The works will not increase the height of the existing building. This should be reviewed in detail at the next stage. The design team should confirm that the existing fire access routes are still available.

Provision	Comment/recommendation
External hydrants	External hydrants should be located within 90m of each dry riser inlet point within the building. Each fire hydrant should be clearly indicated by a plate, fixed nearby in a conspicuous position, in accordance with BS 3251 [20]. It is understood that "*a fire hydrant is available to the north at the junction of Chancery Lane and Breams Buildings which is approximately 35m from the entrance foyer*". The exact locations suitable for external hydrants should be confirmed at the next design stage.
Basement ventilation	In accordance with the standard guidance, smoke and heat ventilation should be provided from a basement where the floor area is more than 200m^2 or more than 3m below the adjacent ground floor. The base build fire safety strategy states that "*the basement shall be provided with natural smoke ventilation with a free area equalling not less than 2.5% of its floor area distributed to provide cross-ventilation. It is proposed to provide opening vents in the glazed light wells; these should be either automatic opening vents linked into local fire detection or be capable of being opened remotely by the Fire Brigade*". Upon review of the information provided, the smoke ventilation is understood to be provided via Automatically Openable Vents (AOVs) within the existing lightwell enclosures. Given the proposal to introduce new open stairs linking the lower ground and ground floors, the works proposed should nonetheless ensure that the existing ventilation provisions defined within the base build strategy are retained, in line with the recommendations of ADB.

4. The London Plan

4.1.1. General

4.1.2. Under the legislation establishing the Greater London Authority (GLA), the Mayor is required to publish a Spatial Development Strategy (SDS) and keep it under review. The SDS is known as The London Plan (March 2021). As the overall strategic plan for London, it sets out an integrated economic, environmental, transport and social framework for the development of London.

4.1.3. The London Plan is an integrated policy framework and must be read as a whole. The placement of the topic chapters and the policies within the chapters is no reflection on their importance or weight – it does not represent a hierarchy.

4.1.4. Format of report to address The London Plan

4.1.5. The London Plan states that:

> *"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."*

4.1.6. The Town and Country Planning Order provides a definition of major developments. Generally, major developments are:

- Development of dwellings where 10 or more dwellings are to be provided, or the site area is 0.5 hectares or more;
- Development of other uses, where the floor space is 1,000 square metres or more, or the site area is 1 hectare or more.

4.1.7. Trigon therefore considers that, for major developments, the relevant information should be provided in a report, and it is not considered important whether this report is called a "Fire Statement" or a "fire safety strategy report".

4.1.8. Competency

4.1.9. Regarding competency The London Plan states that:

> *"Fire statements should be submitted with all major development proposals. These should be produced by a third-party independent, suitably qualified assessor. This should be a qualified engineer with relevant experience in fire safety, such as a chartered engineer registered with the Engineering Council by the Institution of Fire Engineers, or suitably qualified and competent professional with the demonstrable experience to address the complexity of the design being proposed. This should be evidenced in the fire statement. Planning departments could work with and be assisted by suitably qualified and experienced officers within borough building control departments and/or the London Fire Brigade, in the evaluation of these statements."*

4.1.10. Further information about the competencies of the author of this report are set out in Annex A.2 of this report.

4.1.11. Fire Safety Policies

4.1.12. As stated in The London Plan:

> *"All Development Plan Documents and Neighbourhood Plans have to be 'in general conformity' with the London Plan."*

4.1.13. To be 'in general conformity' the fire safety strategy (or fire statement) should be developed to consider the following fire safety Policies of The London Plan:

Policy D5: Inclusive Design
Policy D12 Fire Safety - Policy D12A
Policy D12 Fire Safety - Policy D12B

4.1.14. Notwithstanding the above, it has been confirmed by the design team that 90 Chancery Lane is not considered a 'major development' and is not subject to the requirements of The London Plan. However, for completeness the following sections of this fire safety strategy outlines how the proposed works to 90 Chancery Lane still meets the intent of Policies D5 and D12A to ensure the safety of all building users, including commentary of the creation of inclusive design.

4.1.15. Table 4.1 addresses the fire safety policy of The London Plan for 90 Chancery Lane.

Table 4.1: Fire Safety Principles within The London Plan.

No.	The London Plan - Item	Trigon comment
1	**Policy D5: Inclusive Design**	
1.1	*"The development should be designed to incorporate safe and dignified emergency evacuation for all building users. In all developments where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building."*	90 Chancery Lane is an existing building served by two stairs, with each of Stair 01.a and Stair 2 being served by an associated lift. As part of the proposed works, the design team have investigated the feasibility of the provisions of an evacuation lift and confirmed that the provision is not feasible. As a result, suitable management procedures will need to be developed to ensure that all building users will be able to safely evacuate the building, which would typical involve the development of Personal Emergency Evacuation Plans (PEEPs). In support of the above managed approach to equitable escape, suitable refuge points are provided throughout the building, with associated EVC systems that will allow for the managed evacuation of mobility impaired persons.
2	**Policy D12A: Fire Safety** *"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:"*	
2.1	*"1)a) identify suitably positioned unobstructed outside space for fire appliances to be positioned on."*	This fire safety strategy report identifies that there will be suitable fire service vehicle to the building via Chancery Lane. This will allow the most direct access to primary

No.	The London Plan - Item	Trigon comment
		reception to the building, in close proximity to Stair 2 which serves all floors within the building and approached via lobby protection on all upper floors.
2.2	*"1)b) identify suitably positioned unobstructed outside space appropriate for use as an evacuation assembly point."*	Although not required for developments which is not considered to be 'major developments', it is recommended that the design team confirms proposed location of the evacuation assembly points. This location will be suitably remote from the building.
2.3	*"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."*	This report outlines the appropriate fire safety features to minimise the risk to life and serious injury in the event of a fire. The key fire safety measures include: • automatic fire alarm and detection system Category L1 in accordance with BS 5839-1; • a voice alarm system will be provided throughout reducing time pre-movement times; • compartment floors will be retained thereby reducing the likelihood of fire spread; and • provisions for emergency lighting and signage in accordance with standard guidance.
2.4	*"3) are constructed in an appropriate way to minimise the risk of fire spread."*	The risk of fire spread is proposed to be minimised as the internal wall and ceiling linings are proposed to meet with the recommendations of Table 6.1 of ADB:V2. In addition, any new materials which become part of an external wall or specified attachment, such as those used in the reconfiguration and extension of the existing lightwells, are recommended to achieve Class A2-s1, d0 or Class A1.
2.5	*"4) provide suitable and convenient means of escape, and associated evacuation strategy for all building users."*	The existing simultaneous evacuation strategy is proposed to be retained throughout 90 Chancery Lane, inclusive of the adjacent retail units. Stair 01.a and Stair 01.b have not been considered for the vertical capacity assessment. However, Stair 2 is suitable sized to accommodate all anticipated occupants within the building. All exits will be suitably sized for the proposed building occupancy.
2.6	*"5) develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in."*	A fire safety strategy report will be developed during the next design stage as the design progresses and will assist building users with maintaining the evacuation strategy and fire safety provisions. The fire safety strategy report can be used as a basis for any future alterations or proposed works not covered herein.

No.	The London Plan - Item	Trigon comment
2.7	*"6) provide suitable access and equipment for firefighting which is appropriate for the size and use of the development."*	Access to the office accommodation will be provided for a pump appliance to 50% of the perimeter and within 45m of every point on the projected plan area of the building thereby meeting the recommendations of ADB for a space with an area of greater than 2,000m^2 but less than 8,000m^2 and a floor above 11m above ground.

5. Conclusions

5.1.1. This report describes the outline fire safety strategy principles for 90 Chancery Lane, suitable to support the planning application.

5.1.2. The report is an outline fire safety strategy report suitable for RIBA Stage 2 (Concept Design) design to illustrate how the scheme is intended to comply with the functional requirements of the Building Regulations 2010 and the need for further development in the next design stage in order to provide further details and justifications as part of a Building Regulations approval submission.

5.1.3. It is proposed to follow the recommendations as outlined in ADB - Volume 2 for the fire safety strategy development. Unless otherwise stated in this report, detailed aspects of the design and construction should be in accordance with the recommendations of ADB, relevant British Standards and codes of practice. As discussed within this report, the scheme is not considered as a 'major development' applicable to The London Plan (March 2021), however, Section 4 details how the fire strategy proposes to meet the intent of Policies D5 and D12A nonetheless.

5.1.4. The proposed fire safety arrangements require further development at the next design stages and are subject to statutory consultation and Building Regulations approval. It is recommended that no construction works are undertaken until agreement is reached with the Approval Authorities to the fire strategy principles as set out in this report.

A.1. References

The following documents have been referred to in this report:

[1] HM Government, *Approved Document B - Volume 2: Buildings other than dwellings*, 2019, incorporating 2020 and 2022 amendments ed. RIBA Books, 2022.
[2] HM Government, *Building and Buildings, England and Wales - Building Regulations 2010*. Her Majesty's Stationery Office (HMSO), 2010.
[3] HM Government, *Approved Document B - Volume 2: Buildings other than dwellings*, 2006, incorporating 2007 and 2010 amendments ed. NBS, 2010.
[4] HM Government, *Regulatory Reform (Fire Safety) Order 2005*. The Stationery Office Limited, 2005.
[5] The British Standards Institution (BSI), *BS 5839-1: Fire detection and fire alarm systems for buildings - Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*. BSI Standards Limited, 2017.
[6] The British Standards Institution (BSI), *BS 5839-2: Fire detection and alarm systems for buildings - Specification for manual call points*. BSI Standards Limited, 1983.
[7] The British Standards Institution (BSI), *BS EN 54-11: Fire detection and fire alarm systems - Manual call points*. BSI Standards Limited, 2001.
[8] HM Government, *Approved Document M - Volume 2: Buildings other than dwellings*, 2015, incorporating 2020 amendments ed. RIBA Books, 2020.
[9] The British Standards Institution (BSI), *BS 476-22: Fire tests on building materials and structures. Method for determination of the fire resistance of non-loadbearing elements of construction.* BSI Standards Limited, 1987.
[10] The British Standards Institution (BSI), *BS 5839-9: Fire detection and fire alarm systems for buildings - Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems*. BSI Standards Limited, 2021.
[11] Mayor of London, *The London Plan: The spatial development strategy for Greater London*. Greater London Authority (GLA), 2021.
[12] Department for Communities and Local Government, *BD 2466: Guidance on the emergency use of lifts or escalators for evacuation and fire and rescue service operations*. 2009.
[13] The British Standards Institution (BSI), *BS EN 81-20: Safety rules for the construction and installation of lifts. Lifts for the transport of persons and goods - Passenger and goods passenger lifts*. BSI Standards Limited, 2020.
[14] The British Standards Institution (BSI), *BS EN 81-70: Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts. Accessibility to lifts for persons including persons with disability*. BSI Standards Limited, 2021.
[15] HM Government, *Equality Act 2010*. 2010.
[16] The British Standards Institution (BSI), *BS 5266-1: Emergency lighting - Code of practice for the emergency lighting of premises*. BSI Standards Limited, 2016.
[17] HM Government, *The Health and Safety (Safety Signs and Signals) Regulations 1996*. Her Majesty's Stationery Office (HMSO), 1996.
[18] The British Standards Institution (BSI), *BS 5499-1: Graphical symbols and signs, Safety signs including fire safety signs. Specification for geometric shapes, colours and layout*. BSI Standards Limited, 2013.
[19] The British Standards Institution (BSI), *BS EN 13501-1: Fire classification of construction products and building elements - Classification using data from reaction to fire tests*. BSI Standards Limited, 2018.
[20] The British Standards Institution (BSI), *BS 3251: Specification. Indicator plates for fire hydrants and emergency water supplies*. BSI Standards Limited, 1976.
[21] The British Standards Institution (BSI), *BS 7974: Application of fire safety engineering principles to the design of buildings - Code of practice*. BSI Standards Limited, 2019.
[22] HM Government, *Fire Safety Risk Assessment Guides*. TSO (The Stationery Office), 2006.

[23] HM Government, *London Building Acts (Amendment) Act 1939*. 1939.
[24] HM Government, *Building Safety Act 2022*. 2022.
[25] Health and Safety Executive (HSE), *Construction (Design and Management) Regulations. Guidance on Regulations*. 2015.

A.2. Trigon Fire Safety

A.2.1 Our Team

A.2.1.1 Trigon is a wholly independent fire engineering consultancy founded in 2019. Our three Directors are Chartered Engineers, registered with the Institution of Fire Engineers, with over 50 years of combined experience. We specialise in solving unique fire safety challenges for all building types and uses.

A.2.1.2 All projects are led by a Chartered Engineer registered with the Institution of Fire Engineers. As per BS 7974, this would provide a good indication of competency in that a process of education, training and experience is required in order to achieve this.

A.2.1.3 The preparation of the fire safety strategy for the proposed development was led by Karl Wallasch. Karl has been supported by a team of fire engineers including another Chartered Engineer. Karl has extensive experience working on the design of office and mixed-use developments of all size and complexity.

A.2.2 Management Systems

A.2.2.1 Trigon's Management Systems have achieved certification by a UKAS accredited body to the following standards:

- ISO 9001 - Quality Management Systems
- ISO 14001 - Environmental management systems
- ISO 45001 - Occupational health and safety management systems

A.2.2.2 This demonstrates Trigon's commitment to providing our clients with consistently high-quality fire safety advice. Trigon is also committed to minimising our impact on the environment and ensuring an adequate control of health and safety risks.

A.2.2.3 Trigon is Safety Schemes in Procurement (SSIP) accredited. This valued and recognised accreditation demonstrates Trigon's compliance with legislation and our ability to effectively manage risk. SSIP is approved by the Health and Safety Executive (HSE) and aims to promote a single standard for health and safety.

A.3. Statutory controls

A.3.1 The Building Regulations 2010

A.3.2 The proposed building works are required to comply with the functional requirements of the Building Regulations 2010.

A.3.3 For fire safety, the functional requirements of the Building Regulations are set out under the following headings:

- Requirement B1 – Means of Warning and Escape.
- Requirement B2 – Internal Fire Spread (linings).
- Requirement B3 – Internal Fire Spread (structure).
- Requirement B4 – External Fire Spread.
- Requirement B5 – Access and Facilities for the Fire Service.

A.3.4 The existing building will be refurbished. Regulation 4(3) (see also Section A.3.17) of the Building Regulations require that the works are carried out such that the building complies with the applicable requirements of Schedule 1 to the Building Regulations or, where it did not comply with any such requirement, is no more unsatisfactory in relation to that requirement than before the work was carried out.

A.3.5 This report presents an outline fire safety strategy suitable for supporting a planning application and discussions with the design team, client and other stakeholders. It is not considered suitable to support Building Regulations approval.

A.3.6 As the requirements are functional in nature, there is no obligation to follow the guidance of ADB if compliance can be demonstrated in some other way. However, this fire strategy has been developed on the basis of the guidance presented in ADB. In the fire safety strategy, reference has been made to other British Standards for example BS 5839.

A.3.7 Departures or deviations from the relevant fire safety guidance document are detailed within this report. Where not explicitly described within this report, in all other respects, the building should be designed to comply with the relevant sections of ADB or the relevant supporting British Standards referenced therein.

A.3.8 Fire Engineering

A.3.9 Fire safety engineering is recognised within ADB as an alternative approach to fire safety. Fire safety engineering may be the only practical way to achieve a satisfactory standard of fire safety in some complex buildings and buildings that contain different uses.

A.3.10 Fire safety engineering may also be suitable for solving a specific problem with a design that otherwise follows the provisions of this document.

A.3.11 ADB refers to BS 7974 which provides a framework for and guidance on the application of fire safety engineering principles to the design of buildings. BS 7974 outlines different fire engineering methods including qualitative analysis which is a non-numerical examination of a proposal using experience, knowledge, and engineering judgement alone.

A.3.12 The Regulatory Reform (Fire Safety) Order 2005

A.3.13 Responsibility for compliance with the Regulatory Reform [Fire Safety] Order 2005 (FSO) will rest with the "responsible person". In a workplace this will usually be the employer together with persons who may have control of other parts of the premises. In other cases, the person(s) who has control of the premises should be the "responsible person".

A.3.14 Where building work and fire protection measures comply with Part B of the current Building Regulations, additional physical measures should not normally be required under the FSO unless high-hazard materials or processes are introduced into the building.

A.3.15 The FSO places on the "responsible person" specific duties such as carrying out a fire risk assessment. More detailed guidance is available in a series of Fire Safety Risk Assessment Guides published for HM Government [22].

A.3.16 This outline fire strategy has been developed on the assumption that the building will be suitably managed. This includes documenting the basis on which the fire safety design was planned, the type of management organisation envisaged for running the building, and the consequential management responsibilities. Guidance on fire safety management is provided in BS 9999.

A.3.17 Regulation 4(3)

A.3.18 As per Regulation 4(3) of the Building Regulations, all building work should be carried out so that, after it has been completed:

- Any building which is extended or to which a material alteration is made; or
- Any building in, or connection with, which a controlled service or fitting is provided, extended, or materially altered; or
- Any controlled service or fitting, complies with the applicable requirements of Schedule 1 or, where it did not comply with any such requirement, is no more unsatisfactory in relation to that requirement than before the work was carried out.

A.3.19 Regulation 4(3) is not applicable for the context of this report, as any proposed works to the building are outside the scope of this report.

A.3.20 Nonetheless, this report will identify how any future works may be able to comply with Regulation 4(3) by ensuring that the fire safety measures are no worse than they were before the works being undertaken. Notwithstanding the above, this report will also advise on how the project will provide a level of safety adequate to comply with the FSO and any potential upgrades to fire safety measures (as far as is reasonably practical).

A.3.21 Regulation 7

A.3.22 As per Regulation 7[2] of the Building Regulations 2010 (as amended), all building work should be carried out with adequate and proper materials which are:

- appropriate for the circumstances in which they are used,
- adequately mixed or prepared, and
- applied, used, or fixed so as adequately to perform the functions for which they are designed, and in a workmanlike manner.

A.3.23 The Building Regulations 2010, as amended by the Building (Amendment) Regulations 2018, restrict the use of combustible materials in the external walls of 'Relevant Buildings' over 18m in height.

A.3.24 A 'relevant building' is defined as a building with a storey at least 18m above ground and which contains one or more dwellings; an institution; or a room for residential purpose contains a room for residential purposes (excluding any room in a hostel, hotel, or boarding house). This development will not be deemed as a 'relevant building'; therefore, the requirements of Regulation 7(2) do not need to be applied.

A.3.25 Please refer to Section 'B4: External Fire Spread' of this report which sets out the recommendations for the external façade and the materials recommended within the external walls.

A.3.26 Regulation 38

A.3.27 Regulation 38 of the Building Regulations requires fire safety information for new or altered buildings to be passed to the responsible person at completion of the project or on occupation, whichever comes sooner.

A.3.28 The aim of this requirement is to provide the responsible person with appropriate information to assist to operate and maintain the building in reasonable safety. This information can therefore assist the responsible person in undertaking a Fire Risk Assessment to meet the requirements of the Regulatory Reform [Fire Safety] Order 2005 (FSO).

A.3.29 Section 20

A.3.30 When 90 Chancery Lane was originally constructed, Section 20 of the London Buildings Acts [Amendment] 1939 [23] was applicable. This legislation introduced additional measures, for example, related to sprinklers and firefighting provisions for buildings above certain heights or area thresholds, to buildings located in London.

A.3.31 Section 20 of the London Buildings Acts was applicable where:

- A building is to be erected with a storey or part of a storey at a greater height than 30m; or 25m if the area of the building exceeds 930m^2.
- A building of the warehouse class, or a building or part of a building used for the purpose of trade or manufacture, exceeding 7,100m^3 in extent unless it is divided by division walls in such a manner that no division of the building is of a cubical extent exceeding 7,100m^3.

A.3.32 Therefore, at the time of construction, 90 Chancery Lane would not have been considered a relevant building under the guidelines of Section 20. In addition, Section 20 has since been repealed, with effect from 9 January 2013, and the requirements no longer apply.

A.3.33 Building Safety Act 2022

A.3.34 The Building Safety Act 2022 (The Act) [24] (BSA) gained Royal Assent on 28th April 2022. The Act has been set out with the objective of delivering the biggest changes to building safety for nearly 40 years. The reformed building safety system will cover the performance of all buildings as well as the management of fire and structural safety risks in new and existing buildings 'in scope'.

A.3.35 The proposed legislation requires 'higher-risk buildings' to go through several 'gateway points' as part of the design and construction process. A new Building Safety Regulators (BSR), part of the Health and Safety Executive (HSE), will oversee the process and ensure appropriate measured are being implemented to manage risk.

A.3.36 The regime will also introduce accountability and statutory responsibilities to 'dutyholders'. As such, it is recommended that building information should be created, stored, and updated throughout the design and construction process and a detailed record of the as-built information should be collated.

A.3.37 For 'in-scope' buildings a safety case report will need to be developed.

A.3.38 The building will neither be greater than 18m in height nor contain any residential accommodation, therefore, the building will not be classified as 'in-scope' buildings. Nonetheless, Trigon recommended that all fire safety information should be clearly recorded and assembled throughout the project for the building refurbishment and extension.

A.3.39 The London Plan (March 2021)

A.3.40 Where developments will be located within London and undergo a planning application, the implications of The London Plan, March 2021 need to be addressed. As stated in The London Plan 2021: "*All Development Plan Documents and Neighbourhood Plans have to be 'in general conformity' with the London Plan*.". The London Plan states that: "*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.*"

A.3.41 The design team have confirmed that the proposal works for 90 Chancery Lane are not considered as a 'major development'. Nonetheless, Section 4 of this report outlines how the fire safety strategy proposes to be 'in general conformity' and consider the fire safety intent of Policies D5(B5) and D12A of The London Plan.

A.3.42 Property Protection

A.3.43 Property protection is not a requirement of the Building Regulations and therefore is not explicitly considered in this report. However, it should be noted that many of the fire safety provisions will afford some degree of property protection to the building.

A.3.44 Construction Design and Management (CDM)

A.3.45 The Construction Design and Management (CDM) Regulations 2015 [25] must be followed during the design and construction of the building.

A.3.46 Under the CDM Regulations a client must make suitable arrangements for managing a project, including the allocation of sufficient time and resources to ensure that the construction work is carried out so far as is reasonably practicable. The client is also responsible to provide all pre-construction information as soon as is practicable to every designer and contractor appointed. Furthermore, it is the client's responsibility to ensure that a construction phase plan is drawn up before construction begins.

A.3.47 Where there is more than one contractor, the client must appoint a principal designer and a principal contractor to ensure the information is coordinated by responsible person(s). All designers or contractors should be ensured that they have the skills knowledge and

experience, and if they are an organisation, the organisational capability, necessary to fulfil the role they are appointed to undertake.

A.3.48 Quality of work and testing

A.3.49 The successful implementation of the fire safety strategy is dependent on the quality of workmanship within the buildings. It is therefore recommended that the installation and maintenance of fire safety provisions is carried out by suitably competent persons who have been accredited to third party certification schemes for fire safety professionals.

A.3.50 Where certain fire safety performance classifications need to be met, it should be necessary to demonstrate that a system or product can meet the relevant performance classification. It is recommended that this is achieved by ensuring the system or product complies with one of the following:

- They should be in accordance with a specification or design that has been shown by a specific test to be capable of meeting that performance classification.
- They should have been designed by using relevant design standards in order to meet that performance classification.