Report

Fire Statement

NETWORK BUILDING
Derwent London

CONFIDENTIAL

Revision: 3.0 – RESPONSE TO GLA & LFB COMMENTS
Issued: 6 August 2021

Norman Disney & Young
A TETRA TECH COMPANY

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1 EXECUTIVE SUMMARY

A fire engineering assessment has been undertaken to show the suitability of the proposed fire safety strategy for Network Building, Tottenham Court Road, London, and compliance with the Performance Requirements of the Building Regulations.

The principal fire safety design guidance for the development is The Building Regulations 2010, Fire Safety – Approved Document B (ADB) Volume 2 and BS 9999:2017 Fire safety in the design, management and use of buildings. All fire safety measures are provided in line with the prescriptive recommendations in this document and other relevant British Standards.

Derwent's vision is to create a new first-class office building providing modern, attractive and flexible office accommodation at the Network Building site with Retail fronting on Tottenham Court Road.

The key design aspirations for the re-development of the Network Building are:

- Creation of a beautiful new building on a prominent corner site;
- Provide a highly sustainable and ecologically responsible building;
- Create a flexible and high-quality office building that is highly adaptable and fit for the 21st century;
- Significant improvements to the quality and width of the public realm.

Some of the key design features and targets for the Network Building will include the following:

- Ground + 8 storeys of flexible B1 office accommodation;
- 2 no. retail units (A1/A3) at ground floor fronting Tottenham Court Road;
- Basement level including B1 office accommodation, cycle storage including a dedicated cyclist entrance, end of trip facilities and BOH and plant areas;
- Roof terrace;
- Steel frame structure with Cross Laminated Timber (CLT) slabs.

The fire safety strategy and fire engineering assessment are detailed in Sections 5 - 11 of this report.

It is the responsibility of designers, contractors and sub-contractors to ensure the design solution in this report is implemented in design documentation and constructed accordingly. This includes all normal and applicable guidance and codes of practice where variations from such are NOT explicitly covered within this report.

The assessment requires the implementation of the fire safety measures listed in this report and compliance with the relevant Building Regulations not assessed by this report.

The major components of the fire safety strategy that deviate from the prescriptive provisions of Approved Document B and details of BS 9999 are outlined in Table 1-1.

Table 1-1 – Fire Engineered Proposals

Performance Requirement	Prescriptive Provisions	Assessment Method	Deviations from Prescriptive Provisions
BS 9999	Firefighting lobbies serving up to four lifts should have a clear floor area of not more than 20m^2.	Qualitative	The firefighting lobby on Level 08 will have a clear floor area of 23.5m^2.

The assessment undertaken herein concludes that the proposed alternative solutions relative to the deviations noted in Table 1-1 satisfy the Performance Requirements of the Building Regulations.

2 PROJECT SCOPE

2.1 General

This fire engineering assessment has been undertaken to show the suitability of the existing fire safety systems within the building and compliance with the nominated Performance Requirements of the Building Regulations.

In addition to the Building Regulations, the Regulatory Reform (Fire Safety) Order 2005 requires a certain level of fire safety to be provided to all buildings. The Regulatory Reform (Fire Safety) Order is a risk assessment-based legalisation, requiring regular risk assessment, including at occupation.

In general, the fire safety measures proposed are in-line with those contained within Approved Document B. However, where the strategy incorporates deviations from this document justification will be provided to demonstrate that the deviations comply with the relevant Performance Requirements is based on the methodology outlined in BS 7974 and the accompanying series of documents.

The goals of Approved Document B are to provide building occupants with an acceptable level of safety against the effects of fire. The only parts of Approved Document B that must be complied with are the Performance Requirements; the prescriptive provisions are deemed to satisfy the Performance Requirements. Where parts of this strategy deviate from the prescriptive provisions, the alternative solutions have been assessed and shown to comply with the relevant Performance Requirement.

2.2 General Objectives

2.2.1 Introduction

The objectives of this performance assessment are to:

- Outline a fire safety strategy for the building
- Assess the compliance of nominated design aspects with the Performance Requirements of the Building Regulations

2.2.2 Building Regulations Objectives

The goals of the Building Regulations are:

- To ensure satisfactory provision of fire alarms and a satisfactory standard of means of escape for persons in the event of fire in a building (B1)
- That fire spread over the internal linings of a building is inhibited (B2)
- To ensure the stability of buildings in the event of fire; to ensure that there is a sufficient degree of fire separation within buildings and between adjoining buildings; to provide automatic fire suppression where necessary; and to inhibit the unseen spread of fire and smoke in concealed spaces in buildings (B3)
- That external walls and roofs have adequate resistance to the spread of fire over the external envelope and that spread of fire from one building to another is restricted (B4)
- To ensure satisfactory access for fire appliances to buildings and the provision of facilities in buildings to assist fire-fighters in the saving of life of people in and around buildings (B5)

Fire safety guidance given in the Building Regulations is fully functional. There is, therefore, no obligation to adopt any particular solution contained in Approved Document B if it is intended to meet the relevant requirement (B1–B5) in some other way.

2.3 Relevant Stakeholders

Development of this Fire Safety Strategy included consultation with the relevant stakeholders as identified in Table 2-1.

Table 2-1 - Relevant Stakeholders

Role	Organisation
Client	Derwent London PLC
Project Manager	Blackburn & Co
Cost Consultant	AECOM
Approved Inspector	Sweco
Fire Authority	London Fire Brigade
Architect	Piercy & Company
Structural Engineer	Elliott Wood
M&E and Fire Engineer	Norman Disney & Young
Façade Consultant	FMDC Ltd

2.4 Information Sources

The main sources of information used in the compilation of this report were:

- The Building Regulations 2010. Fire safety - Approved Document B Volume 2;
- BS 9999: 2017 Code of practice for fire safety in the design, management and use of buildings;
- Architectural drawings as listed in Table 2-2 by Piercy & Company.

Table 2-2 – Architectural Drawings

Drawing No.	Description	Revision
099	Proposed Basement Floor Plan	1
100	Proposed Ground Floor Plan	1
101	Proposed Level 1 Plan	1
102 - 106	Proposed Level 2 to 6 Plan	1
107	Proposed Level 7 Plan	1
108	Proposed Level 8 Plan	1
109	Proposed Level 9 Plan	1

2.5 Limitations

This report does not provide guidance in respect of areas which are used for bulk storage, processing of flammable liquids, explosive materials, multiple fire ignitions or for areas/fire safety systems which are subject to sabotage.

Norman Disney & Young have compiled this report based on the following activities:

- Discussions with parties listed in Table 2-1
- Review of available project information and drawings

Apart from where noted in the specific sections of this report, NDY have not verified any written and/or verbal information provided by other parties. In addition, the following work has not been undertaken:

- Verification of the design
- Checks of design calculations

Any application of the content of this report should be made taking into full account the following items:

- Observations of the buildings' fire safety systems and fire hazards listed in this report have been based on examination of documentation made available by the design team
- Any change in the above information to suit future re-organisation or planning will require further assessment to confirm compliance with the intent of the objectives of this report
- The report does not consider property damage; e.g. building and contents damage caused by fire, potential increased insurance liability and/or, loss of business continuity
- Property insurers have not been consulted in the preparation of this report. Any insurer requirements over and above the recommendations of this report should be addressed by the client/building user

It is the responsibility of the design team to ensure the strategy outlined in this report is implemented in design documentation and the finished building accordingly.

The strategy requires the implementation of the measures outlined in this report and compliance with the relevant and remaining prescriptive clauses of ADB not specifically mentioned in this report.

This strategy does not cover fire incidents arising from arson where fire is started in multiple locations or accelerant is used. Conventional building design only provides limited protection against malicious attack and large-scale incendiary and multiple ignition sources can potentially overwhelm any fire safety systems. Strategies such as security, housekeeping and other management practices may be more effective than additional fire protection in addressing arson.

2.6 Liability

This report is applicable to the proposed development at Network Building, Tottenham Court Road, London.

The fire engineering analysis contained in this report demonstrates that the level of life safety offered by the proposed fire safety strategy meets the performance required by the Performance Requirements of Building Regulations.

This report is prepared in good faith and with due care for information purposes only and should not be relied upon as providing any warranty or guarantee. Attention is drawn to the nature of the inspection and investigations undertaken and the limitations these impose in determining with accuracy the state of the building, its services, equipment and life safety.

Users of this report should not rely on any statements or representations contained within but should undertake further and more detailed investigations to satisfy themselves as to the correctness of any statement or representation contained in this report.

Norman Disney & Young will not be held liable for any loss or damage resulting from any defect of the building, services, equipment or for any noncompliance of the building, services or equipment with any legislative or operational requirement, whether or not such defect or non-compliance is referred to or reported upon in this report.

2.7 Revision History

Revision	REF	Date Issued	Comment
Draft Stage 2 Issue	1.0	9th November 2020	Issue for Information / Comment
Stage 2 Issue	2.0	11th December 2020	Issue for Information / Comment
Fire Statement	3.0	6th August 2021	Issue for Information / Comment

2.8 The London Plan 2021 - Policy D12 Fire Safety

This Fire Statement has been produced by a suitably qualified and competent professional with the demonstrable experience to address the complexity of the design being proposed.

The statement details how the development proposal will function in terms of:

- The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach.
- Features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans.
- 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. Provision for fire appliances to gain access to the building.
- Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.
- The building's construction: methods, products and materials used.

Table 2-3 – Details of Competent Person

Name	Qualifications & Professional Affiliations	Experience
Richard Sherwood	BEng (Hons), Al Fire E, IOSH Managing Safely	15 Years

3 BUILDING DESCRIPTION

3.1 General

The Network Building will be located on a prominent corner site. Its main entrance will open onto Howland Street while its north-east and south-west facades will be flanked by Tottenham Court Road and Whitfield Street respectively. The back of the building will adjoin two others and will be approached by Cypress Place.

The building will be 27.5m tall as measured from fire service access level on Howland Street to the finished floor level of the uppermost storey. The proposed basement is 5.3m below the building's entrance and its largest compartment is approximately 350m².

Much of the site is located within a protected view from Assessment Point 2B (Parliament Hill) towards the Palace of Westminster.

Please refer to Table 3-1 and Figure 3-1 for further site details.

Table 3-1 – Summary of Proposed Site Usage

Level	Use	Purpose Group – (ADB Table 0.1)
Basement	B1 Office; Plant; Cycle Store; Changing Facilities	3 – Office
Ground	Reception; B1 Office; A1/A3 Retail; UKPN Substation; Refuse Store	3 – Office; 4 – Shop & Commercial
First – Sixth	B1 Office	3 – Office
Seventh – Eighth	B1 Office; External Plant	3 – Office
Ninth	Roof Terrace	N/A

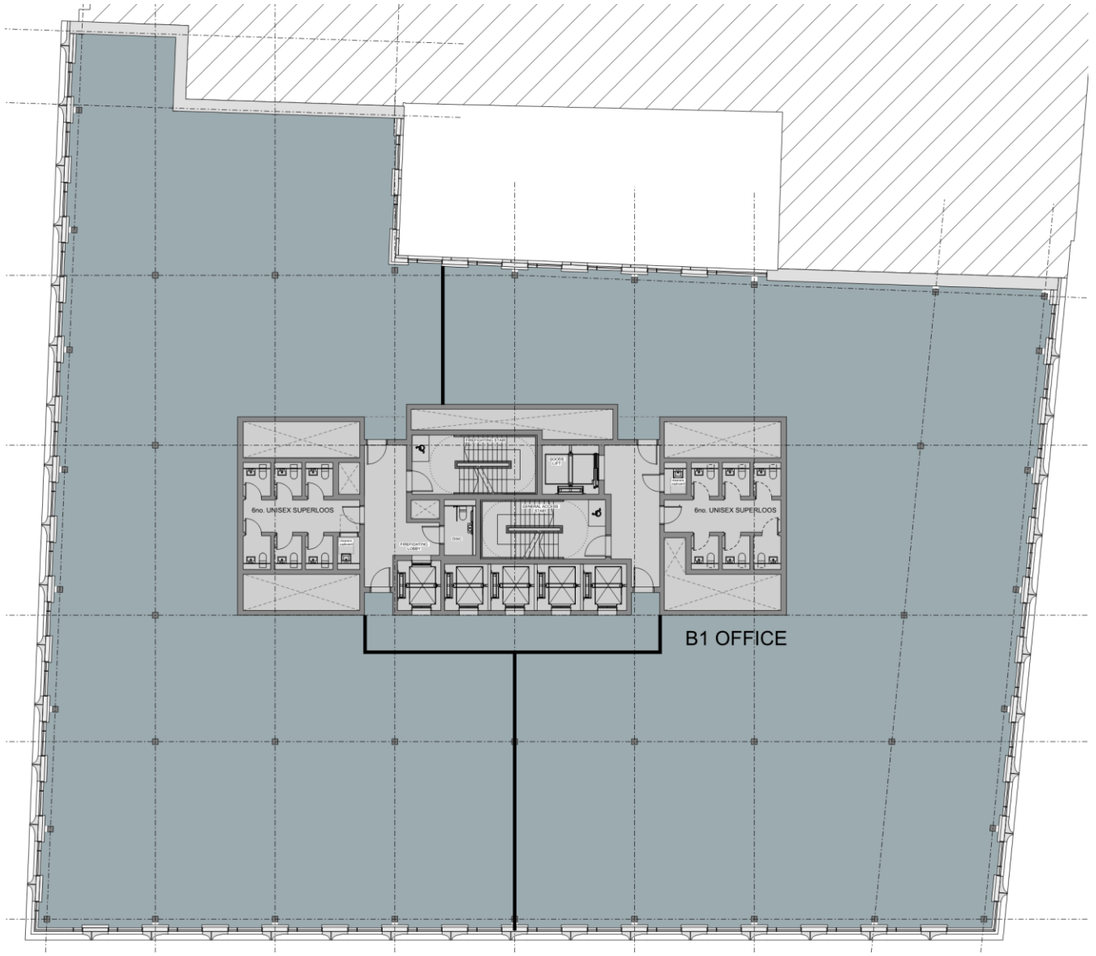


Figure 3-1 – A Typical Above Ground Floor

4 OCCUPANT CHARACTERISTICS

Following consultation with the design team, we understand that the characteristics of the building population are as described below.

4.1 Distribution

Occupant numbers have been calculated in accordance with:

- Published floor space factors;
- Distribution (via judgement);
- A justified combination of the above.

The number of persons that are assumed to occupy the building is given in Table 4-1.

Table 4-1 – Building Population

Level	Floor Area, m^2	Floor Space Factor, m^2/person	Max. Expected Occupancy
Basement:			
B1 Office	281	6	47
Plant	715	30	24
Cycle Store & Changing Facilities	614	N/A	130 Note 1
Ground:			
B1 Office	371	6	62
Reception	N/A	N/A	10 Note 2
A1/A3 Retail	280	2	140
A1/A3 Retail	180	2	90
Plant & BOH	N/A	N/A	10 Note 3
First:			
South-West B1 Office	725	6	121
North-East B1 Office	660	6	110
Second – Sixth			
South-West B1 Office	840	6	140
North-East B1 Office	790	6	132
Seventh:			
South-West B1 Office	720	6	120
North-East B1 Office	790	6	132
External Plant	N/A	N/A	2 Note 4
Eighth:			
South-East B1 Office & Terrace	605	6	101
External Plant	N/A	N/A	8 Note 4
Ninth: Roof Terrace	N/A	N/A	318 Note 5
Total (Below Ground)			**201**
Total (Above Ground)			**1,954**

Note 1: To rationalise occupancy figures within the cycle store and changing facilities, it is assumed that the space will be occupied at 50% of the designed capacity (bike spaces).

Note 2: Occupancy figure for the ground floor reception is derived from predicted usage.

Note 3: Occupancy figure for the ground floor plant and BOH is derived from predicted usage.

Note 4: Numbers of occupants in the external plant areas are considered minimal.

Note 5: It is assumed that the rooftop terrace will only be occupied by office tenants and will not impact the overall occupancy in the building. Its occupancy is currently limited to 318 people by the width of the storey exits on Level 08.

4.2 Physical and Mental Attributes

All building occupants will be awake while office occupants are expected to be familiar with the layout of the building and members of the public in retail areas are not.

All occupants are representative of staff members or office tenants and able to recognise and respond to an alarm signal in a rational way.

There is not expected to be any sleeping risk on the premises.

There is not expected to be any dependent or highly dependent occupants at the premises who would require significant assistance in the event of an evacuation. Suitable provision will be made for the evacuation of disabled individuals where identified.

4.3 Risk Profile

In accordance with BS 9999, the risk profile for the building has been assessed. The risk profile consists of two components; the Occupancy Characteristic and the Fire Growth Rate. Whilst it is recognised that a range of risk profiles will be present in the building, most of the areas will be assessed as either office or retail.

For office: Occupants are awake and familiar with the building and the fire loading is representative of a medium fire growth rate. This would mean that these areas have an A2 risk profile.

For retail: Occupants are awake but not familiar with the building and the fire loading is representative of a fast fire growth rate. This would mean that these areas have an B3 risk profile.

Because the building will be fitted throughout with an automatic wet sprinkler system, the fire growth rate factor can be reduced by one in each case, which means that we will assess the building as an A1 and B2 risk profile for the purposes of assessing the appropriate fire protection measures to be provided.

An A3 risk profile will be used for the plant rooms and places of special fire hazard in the building.

5 B1 - MEANS OF WARNING AND ESCAPE

5.1 Evacuation Strategy

It is proposed that the evacuation strategy for the building is based on a simultaneous evacuation philosophy. Thus, the fire alarm system will be configured such that all occupants in the building are evacuated at the same time in the event of a fire emergency.

5.2 Fire Alarm and Fire Detection Systems

A Category L1 automatic fire detection and alarm system will be provided throughout all areas of the building. An L1 system will provide early warning of a fire to the building occupants.

A repeater fire indicator panel will be integrated within the wall behind the reception desk while the main fire indicator panel will be located within the building manager's office that will double up as the fire control room.

Alarm sounders will be installed throughout the building to sound an evacuation signal on activation of the system achieving the minimum required sound pressure levels in accordance with BS 5839-1.

Interface devices will be provided for each retail unit for future tenant fitout as well as temporary fire detection and alarm within these units as necessary.

Manual call points will be installed along the escape routes, at all storey exits and final exits from the building.

Visual alarm devices will be provided to supplement audible alarm signals in areas in which the latter are likely to be ineffective. These include toilets, the terrace, external plant areas and plant areas with high ambient sound levels or where occupants with hearing impairment may be alone in the building.

Where electronic locking devices and/or door holders are provided along common escape routes these will be interfaced with the fire alarm system to ensure they release on activation of the alarm.

Other fire alarm interfaces will be provided to initiate automatic fire mode control of building systems including:

- Mechanical air handling systems;
- Basement mechanical smoke ventilation;
- Grounding of lifts;
- Activation of fire curtains;
- Automatic release of fire door hold open devices;
- Release of security access control doors.

5.3 Means of Escape Provisions

5.3.1 General

Two main components of the evacuation strategy need to be considered:

- Horizontal Escape from the room or storey
- Vertical Escape via the stairs to a place of safety outside the building

It should be noted that where exit and stair widths are discussed within this section of the report these are considered to be the minimum required to provide satisfactory means of escape in the event of a fire in the building and that in order to meet the requirements of other guidance documents such as Approved Document M (ADM) the minimum widths may need to be increased.

Means of escape provisions have been assessed using BS 9999:2017.

5.3.2 Travel Distances

BS 9999 gives guidance on maximum travel distances for different risk profiles. Figure 5-1 sets out the travel distance limitations to the nearest exit within the building:

Maximum travel distance when minimum fire protection measures are provided[A)]

Risk profile	Travel distance, in metres (m)			
	Two-way travel [B)]		One-way travel	
	Direct	Actual	Direct	Actual
A1	44	65	17	26
A2	37	55	15	22
A3	30	45	12	18
A4 [C)]	Not applicable [C)]	Not applicable [C)]	Not applicable [C)]	Not applicable [C)]
B1	40	60	16	24
B2	33	50	13	20
B3	27	40	11	16
B4 [C)]	Not applicable [C)]	Not applicable [C)]	Not applicable [C)]	Not applicable [C)]

Figure 5-1 – Travel Distance Limitations

It is noted that overall travel distances for a route in open air can be considered as 60m (one-way travel) and 100m (two-way travel).

Where the internal partition layout is unknown, direct distances should be adopted.

There are currently extended, single direction travel distances that exceed the limits for an A1 or A3 risk profile present within the changing and plant areas at basement level. It is recommended that the door into the lobby of the protected stair is relocated and that additional means of escape are provided from the plant areas.

All other travel distances within the building will achieve the values presented in Figure 5-1.

5.4 Exit Widths

Generally, the largest exit should be discounted when assessing the maximum permitted exit capacity from each area. On a single escape route, the maximum population permitted is 60 persons and the exit discounting rule can be disregarded.

It is acceptable that exit doors be hung to swing against the direction of escape providing the numbers of people that might be expected to use the door at the time of a fire is not more than 60.

Exit widths should achieve a minimum of 3.3mm/person for an A1 risk profile and a minimum of 4.1mm/person for a B2 risk profile. The exit width can, however, be reduced by 15% to 2.81mm/person for an A1 risk profile and 3.49mm/person for a B2 risk profile as the building will be fitted with a Category L1 fire detection and alarm system which will provide occupants with an earlier warning of fire compared with the minimum fire protection measures necessary (a manual system).

It is noted, however, that door widths of less than 1050mm can only be considered to safely accommodate up to n=500/m people where:

n = the number of persons safely accommodated by the door width

m = the minimum door width per person for the relevant risk profile

This results in a maximum escape capacity of any door less than 1050mm of 177 for A1 risk profiles and 143 for B2 risk profiles. The required storey exit widths for the building are given in Table 5-2.

Table 5-2 – Storey Exit Capacity

Level	Max. Expected Occupancy	No. Available Storey Exits	Required Clear Width per Exit, mm
Basement:			
B1 Office	47	3	850 Note 6
Plant	24	1	800
Cycle Store & Changing Facilities	130	2	850 Note 6
Ground:			
B1 Office	62	2	850 Note 6
A1/A3 Retail	140	2	850 Note 6
A1/A3 Retail	90	2	850 Note 6
First: South-West B1 Office & North-East B1 Office	231	2	1050
Second – Sixth South-West B1 Office & North-East B1 Office	272	2	1050
Seventh: South-West B1 Office & North-East B1 Office	252	2	1050
Eighth:			
South-East B1 Office & Terrace	101	2	850 Note 6
External Plant	10 Note 7	3	800
Ninth: Roof Terrace	318 Note 8	2	1050

Note 6: 850mm is the minimum required width where unassisted wheelchair access is required.

Note 7: Figure includes expected occupancy within external plant enclosure on Level 07.

Note 8: It is assumed that the rooftop terrace will only be occupied by office tenants. Its occupancy is currently limited to 318 people by the width of the storey exits on Level 08.

Storey exit widths based upon current proposals achieve the values given in Table 5-2.

5.5 Vertical Escape Provisions

The above ground levels of Network Building will be served by two firefighting stairs. Both stairs will discharge at ground level, via protected exit passageways, to Cypress Place at the rear of the building.

The protected exit passageway from one firefighting stair will be separated from the adjoining accommodation by a protected lobby. Where this is not feasible for the LV switch room, a fire resisting curtain with a smoke rating will be used that will descend on localised detection.

Only one firefighting stair will continue down to basement level that is also served by another stair that forms part of the cycle entrance on Whitfield Street.

Staircase discounting rules do not need to be applied when assessing vertical escape provisions from the above ground levels as protected lobbies or corridors will be provided to both stairs at every level. The cycle entrance stair serving the basement from Whitfield Street has been discounted while assessing escape capacity below exit level.

As additional fire protection measures are provided (enhanced fire detection category), necessary stair widths may be decreased by 15%.

The maximum occupancies that the stairs can serve are given in Table 5-3 and Table 5-4.

Table 5-3 – Stair Escape Capacity Above Exit Level

Stair	Number of Floors Served (Above Exit Level)	Available Stair Width (mm)	Required Stair Capacity Decreased by 15% (mm / person)	Expected Occupancy (No. People)	Capacity of Stair (No. People)
Firefighting Stair	8	1450	1.45	977	1000
Protected Escape Stair	8	1450	1.45	977	1000

Table 5-4 – Stair Escape Capacity Below Exit Level

Stair	Number of Floors Served (Below Exit Level)	Available Stair Width (mm)	Required Stair Capacity Decreased by 15% (mm / person)	Expected Occupancy (No. People)	Capacity of Stair (No. People)
Cycle Entrance Stair	1	1400	3.32	178	421
Protected Escape Stair	1	1450	3.32	178	436

The stairs will provide an escape capacity in excess of the maximum expected occupancy from each area.

5.6 Merging Flow / Final Exit

If a storey exit and a stair share a final exit, then the final exit should be wide enough to evacuate people at a maximum flow rate equal to or greater than from the storey exit and stair combined.

Merging flow has been considered where one firefighting stair shares a final exit with a storey exit from the B1 office:

$W_{FE} = NX + (0.75 \times S_{UP})$

Where:

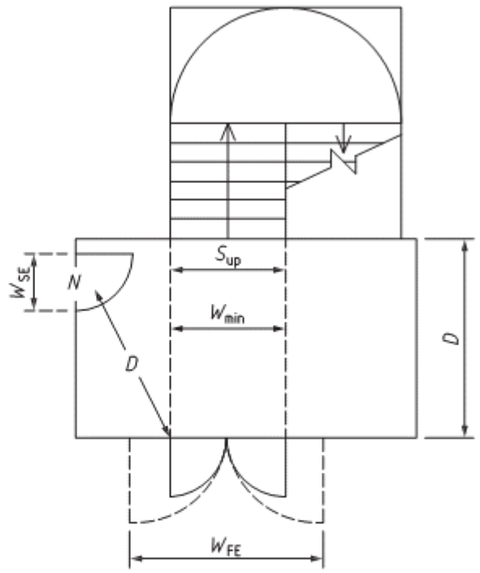
W_{FE} *is the necessary width of the final exit (mm)*

N is the number of people served by the final exit level storey exit – 86 in this instance.

X is the minimum door width per person – 2.81 mm/person for an A1 risk profile.

S_{UP} is the stair width for the upward portion of the stair (mm) – 1450mm in this instance.

The necessary width of the final exit is calculated as 1,330mm which is less than the width of the stair it serves (1,450mm). The width of the stair should, therefore, be taken as the minimum final exit width.



If $N > 60$ and $D < 2$ m

$W_{FE} = S_{up} + W_{SE}$

Otherwise

$W_{FE} = NX + 0.75S_{up}$

Figure 5-2 – Merging Flow at the Final Exit of one Firefighting Stair

5.7 Disabled Evacuation

Disabled refuges of at least 900mm x 1400mm will be located within the firefighting shafts at every level. Each refuge will be provided with an emergency voice communication outstation which will be networked to a master panel located within the building manager's room at ground.

Management procedures must be provided to ensure the safe evacuation of disabled people who are present within the refuges. The proposed evacuation strategy is to use the firefighting lifts and this is considered acceptable for the following reasons:

- The building will be served by two firefighting lifts. The additional lift should ensure that at least one is always available for evacuation even when the fire service are present on site;
- The building will employ a simultaneous evacuation philosophy so all occupants will start evacuating as soon as an issue is reported anywhere in the building and before the fire service arrive on site.

Policy D5 of The London Plan 2021 states that all building users should be able to evacuate from a building by as independent means as possible and emergency carry down mechanical devices or similar interventions that rely on manual handling are not considered to be appropriate.

The only area of the building where it will not be possible to achieve the above is evacuation from the roof terrace. Two external disabled refuges will be located at roof level to serve the terrace occupants. They will be positioned above the protected core/riser shaft and will each be provided with a weatherproof emergency voice communications outstation.

This is considered appropriate because:

- It is not possible to extend either firefighting lift to serve the roof terrace because of protected viewing corridors;
- The building and roof terrace will not be occupied by members of the public but by office tenants who are familiar with the layout of the building;
- A fire management plan will be in place for evacuation of disabled persons from the roof terrace. It will involve the use of evacuation aids but only to negotiate one storey of stairs to level 8 where access into the firefighting lifts is available;
- Firefighting lifts are more robust than evacuation only lifts as they are enclosed in 120 minutes fire resisting construction, are provided with life safety back-up power and are fitted with water ingress protection. It is noted that platform lifts would not be suitable for evacuation due to their speed of operation etc.

Figure 5-3 – Disabled Egress from the Roof Terrace

5.8 Signage

Exit signage will be provided throughout the building in accordance with BS 9999 and ISO 7010.

Directional, action and identification signage will be provided throughout the building as follows:

- Illuminated exit signage to show the location of storey exits

- Outline the action to be taken in a fire alarm situation, or if a fire is discovered
- Show the location of fire safety measures
- Fire doors will be marked “FIRE DOOR KEEP SHUT” or “FIRE DOOR – DO NOT OBSTRUCT” where hold open devices are provided

5.9 Escape Lighting

Emergency lighting will be installed throughout the building in accordance with the requirements of BS 9999 and BS 5266. The provision of emergency lighting will cover the following areas:

- Ancillary accommodation normally accessible to the occupants
- All plant rooms
- Common escape routes
- Windowless accommodation
- Open plan areas of more than 60m^2
- All toilet accommodation with a floor area over 8m^2

The emergency lighting must also be provided on sub-circuits to illuminate fire exits, exit routes (internal and external), exit signage, fire equipment, electrical panels and fire alarm panels.

5.10 Refuse Storage

The refuse room should be constructed in accordance with BS 5906 and be separated from other parts of the building by at least 60 minutes fire resisting construction. It will be separated from the exit passageway of one of the firefighting stairs by a protected lobby.

The refuse room will be naturally ventilated using louvres in the façade that will provide a permanent clear aerodynamic free area of at least 0.2m^2.

6 B2 - INTERNAL FIRE SPREAD (LININGS)

Materials used for the surface linings of walls and ceilings will be selected to meet the classification requirements described in Table 33, BS 9999 with respect to the material’s surface spread of flame characteristic and combustibility.

In general, wall and ceiling linings will have the minimum classifications identified in Table 6-1.

It is noted that additional circulation space may be created on the floors during a tenant fit out and so it is recommended that all linings on the office floors are treated to achieve a minimum Class B-s3,d2 (Class 0).

Table 6-1 – Classification of Linings

Use	National Class of Lining	European Class of Lining
Small rooms (< 30m^2)	3	D-s3,d2
Other rooms	1	C-s3.d2
Circulation space	0	B-s3,d2

The new superstructure of Network Building will be constructed with cross laminate timber (CLT) slabs supported on a steel frame, tied back to reinforced concrete cores. To delay the involvement of CLT slabs in a fire, it is proposed that the top sides of the slabs be treated to achieve a minimum Class B-s3,d2 (Class 0).

7 B3 - INTERNAL FIRE SPREAD (STRUCTURE)

7.1 Elements of Structure and Compartmentation

Network Building will be 27.5m high as measured from fire service access level to the finished floor level (FFL) of the uppermost storey and it will contain a basement level 5.3m below ground. An automatic wet sprinkler system will be installed throughout all areas of the building. As such, the building will be constructed to achieve a minimum structural fire performance of 60 minutes.

Table 28 in BS 9999 dictates that there is no limit on the size of the A1 office compartments but that the B2 risk profile, retail areas should have a floor area no greater than 8,000m^2.

The new superstructure will be constructed with cross laminate timber (CLT) floor panels supported on a steel frame, tied back to reinforced concrete cores. The steel frame and CLT floor panels will be designed to act as diaphragms to transfer lateral loads back to the reinforced concrete cores. The super structure will be supported on a reinforced concrete box, which forms the substructure, and the steel frame and the reinforced concrete cores will transfer the vertical loads from the superstructure down into the substructure. A reinforced concrete slab, designed to achieve 120 minutes fire resistance, will separate ground and basement levels.

Early engagement has been sought with MLM Building Control Limited, the London Fire Brigade and perspective building insurers to address the involvement of CLT within the scheme. An initial Qualitative Design Review (QDR) was held in August 2020. The minutes from that meeting are presented in Appendix B.

The following actions will be completed as part of RIBA Stage 3 to address the presence of CLT within the scheme:

- A comparison between the activation time for a sprinkler head and the time taken for the combustible soffit to become involved in a fire;
- Calculations for self-extinguishment based on ventilation conditions. It is expected that exposed CLT must be limited to open plan areas while CLT in small rooms or ones close to the core with limited ventilation will be encapsulated;
- Review of test data for high temperature melamine or modified polyurethane glues that prevent delamination;
- Assess the implications of any proposed open connections between floors. It is noted that Eurocode 5 is only valid for room heights up to 4m tall;
- An assessment for external fire spread and projected flame extension.

All new compartmenting elements will be provided to meet the requirements of Tables 22 & 23 in BS 9999:

- 240 minutes enclosing the substation
- 120 minutes enclosing the firefighting shafts
- 120 minutes enclosing rooms and risers that contain life safety equipment
- 120 minutes enclosing rooms that will not be served by the sprinkler system or alternative suppression
- 60 minutes elements of structure and compartment floors on every level
- 60 minutes enclosing stair, lift & riser shafts that breach compartment floors
- 60 minutes enclosing refuse stores
- 30 minutes enclosing high fire risk areas i.e. plant rooms & cleaner's cupboards
- 30 minutes cavity barriers [Note 9]

Note 9: Cavity barriers to meet 30 minutes integrity and 15 minutes insulation.

Compartment walls and fire-resistant partitions will be constructed to provide a physical barrier to the passage of fire and the products of combustion. As such, these will remain imperforate throughout their height, form a seal with the structural slab or element of structure above and achieve the same or a greater level of fire resistance.

Please refer to the fire strategy drawings for further details of the proposed compartmentation in the building.

7.2 Fire Doors

Doors enclosing a protected shaft forming a lift or service shaft will be FD60.

Doors enclosing the firefighting shaft will be FD60S.

Doors enclosing a protected stair will be FD30S.

Doors forming part of the escape passageway, dead end escape corridor, or lobby enclosures will be FD30S.

Note, a suffix (S) is added for doors where restricted smoke leakage at ambient temperature is needed.

7.3 Concealed Spaces and Cavity Barriers

Concealed cavities are to be provided with cavity barriers in accordance with the recommendations given in BS 9999.

Where single rooms are not more than 40m in either direction, cavity barriers will only be installed at the line of the enclosing walls of the rooms, provided the exposed surfaces in the cavities have ratings of either Class 0 or Class 1.

As the floor voids will be used as air plenums, multipoint aspirating smoke detection systems (MASDS) will be installed within the following offices, that are greater than 40m in either direction, in place of additional cavity barriers:

- South-East B1 Office on Level 08;
- South-West B1 Office on Levels 01 to 07 inclusive.

7.4 Protection of Openings and Fire Stopping

All service penetrations through fire rated elements should be appropriately sealed in accordance with the recommendations given in BS 9999.

Typical fire stopping materials include:

- Cement mortar
- Gypsum-based plaster
- Cement-based or gypsum-based vermiculite / perlite mixes
- Glass fibre, crushed rock, blast furnace slag or ceramic-based products (with or without resin binders)
- Intumescent mastics

Systems used will be designed, installed, tested and maintained in full accordance with the relevant BS 476 standard.

Any ventilation ductwork will also need to be fire protected where it penetrates a compartmenting element. As ventilation ducts provide a potential route for fire spread, consideration of how this will be fire stopped must also be made. Three basic methods should be considered:

- Protection using fire dampers
- Protection using fire resisting enclosures
- Protection using fire resisting ductwork

Where a ventilation duct serves more than one part of a compartmented or fire separated protected escape route, smoke detector operated fire dampers will be provided where ductwork enters each fire separated or smoke separated section of the escape route.

Fire dampers should not be used to protect kitchen extract ductwork because of the likely build-up of grease. Kitchen extract ductwork to be enclosed in fire resisting construction where necessary.

8 B4 - EXTERNAL FIRE SPREAD

For the purposes of external fire spread, the relevant boundaries around Network Building constitute the centre line of Howland street, Tottenham Court Road and Whitfield Street.

An assessment using BRE publication 'External fire spread: building separation and boundary distances' was completed for the above elevations of Network Building.

Assuming each floor in the building is a compartment floor and that there are no open connections between levels, the assessment used a worst-case enclosing rectangle overlooking Whitfield Street that was 46.2m wide and 2.7m tall. The relevant boundary was taken as the centreline of the road approximately 6m from the façade. In this instance, 100% unprotected areas are permissible.

It is noted that 100% unprotected areas are still permissible using an enclosing rectangle 6.11m tall that represents a single compartment spanning two floors via an open connection. The impact of any open connections on the behaviour of CLT in a fire scenario still needs to be assessed.

A lightwell, that opens into the end of Cypress Place, separates 90 Whitfield Street from the rear of Network Building. Although the site boundary is located flush against the façade in this location, it is considered appropriate to amend the relevant boundary to a notional boundary halfway between Network Building and 90 Whitfield Street because:

- Further development is unlikely to take place within this enclosed area;
- Derwent London own both the Network Building and 90 Whitfield Street;
- 90 Whitfield Street was completed in 2007 (relatively recently).

The assessment confirmed that no special previsions are required for the glazing at the rear of Network Building.

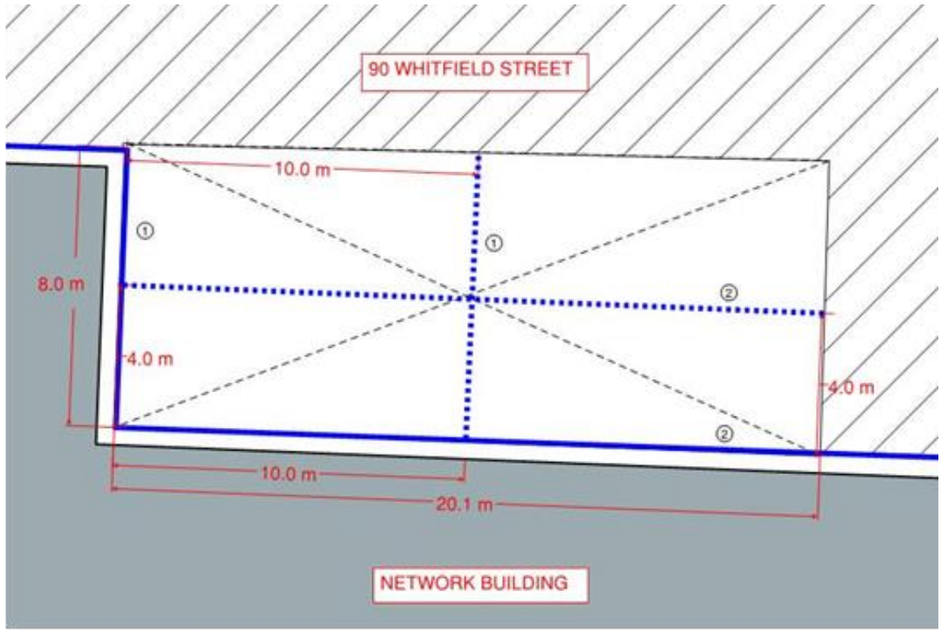


Figure 8-1 – Relevant boundary at the rear of Network Building

9 B5 - ACCESS AND FACILITIES FOR FIRE SERVICE

9.1 Fire Hydrants

The development has access to an existing fire hydrant located on the corner of Howland and Whitfield Street. It is not the intention of the development to provide the site with an additional, private hydrant.

9.2 Access to the Building for Firefighting Purposes

In accordance with BS 9999, any building which is greater than 18m in height and contains a storey in excess of 900m² should be provided with a minimum of two firefighting shafts and as many firefighting shafts or protected stairways as are required to achieve the maximum permissible hose laying distance.

As the largest storey at Network Building has a GIA of 1,939m², the building should strictly speaking be designed with two firefighting shafts. At Stage 2, however, it was proposed to reduce the firefighting requirement to a single firefighting shaft and separate escape stair as has been accepted on previous schemes.

After consultation with LFB, it was deemed prudent, however, to update the separate escape stair core into a firefighting one. Upgrading the separate escape stair core into a firefighting core can be achieved by upgrading the goods lift to a firefighting lift and installing an additional dry rising main and mechanical ventilation shaft serving the new firefighting lobbies at each level including basement.

The proposal for two firefighting shafts within the building will also address LFB's concerns detailed below:

- Firefighters usually travel along the floor plate extinguishing the fire as they advance. With extensive exposed CLT floors, there is an increased likelihood that there will be re-ignition of the fire behind them with no other suitably protected route to retreat to.
- A larger number of jets might be required to fight a fire as the exposed CLT will increase the fire load within the compartment compared with a typical office fire.

The south west firefighting lift may be dual entry as more than one firefighting lift will be provided within the building. The lift landing doors to the main lift lobbies will be separated from the accommodation by 60-minute fire rated curtains with smoke ratings and the fire resistance of the lift doors themselves will be increased to 60 minutes. Additional facilities will also be provided by the lift control system.

The firefighting lobby on Level 08 will have a clear floor area of 23.5m^2 which exceeds the limit of 20m^2 for a lobby serving only one lift. This is considered feasible as the space will be monitored by CCTV and suitable management procedures will be in place to ensure nothing is stored within the lobby.

Fire service access to the firefighting shafts will be achieved via the protected reception space that will:

- Be enclosed in 120 minutes fire resisting construction including a fire rated suspended ceiling;
- Be separated from office accommodation on level 01 where the reception is double height. The separation will achieve 60 minutes fire resistance (integrity but not insulation);
- Be separated from office accommodation at ground level by a fire door and fire/smoke rated curtain;
- Be sprinklered throughout;
- Have a controlled/minimised fire load.

9.3 Firefighting Mains / Vehicle Access

Vehicle access to the Network Building is available via Whitfield Street, Howland Street and Tottenham Court Road.

Dry rising mains will be provided with inlet breeching valves integrated into the building's façade next to the reception entrance on Howland Street. Fire service vehicle access is available on the surrounding roads to within 18 metres line of sight of the dry riser inlets.

Dry riser pipework will leave the inlet breeching valves and drop down to high level within the basement where it will be routed to the central risers. The dry risers will provide landing valves within the firefighting lobbies on every level and test points on the roof.

9.4 Basement Ventilation

The proposed basement is 5.3m below fire service access on Howland Street. As such, all internal compartments that do not have access to an external vent will be provided with mechanical smoke exhaust.

The system will be designed to provide 10 air changes per hour from the largest single compartment with motorised fire smoke dampers (MSFD) to provide separation between different smoke exhaust zones. Smoke exhaust will be started automatically upon activation of the fire detection and alarm system from the compartment on fire only. All MSFDs should be provided in accordance with:

- BS EN 13501-4;
- BS EN 12101-8; &
- BS EN 1366-2 & 10

The ductwork, exhaust fans and associated equipment will be designed to be capable of handling gas temperatures of 300 deg C for not less than 60 minutes or as appropriate to the fire rating of any compartmenting element through which it passes.

10 AUTOMATIC SUPPRESSION SYSTEMS

Sprinkler protection will be installed throughout the Network Building to compensate for the introduction of exposed CLT within its superstructure. Sprinkler protection is not strictly required to meet the life safety objective of the Building Regulations as the Network Building will be less than 30m tall.

The sprinkler system will consist of a new full capacity water storage tank (135m^3 effective water capacity), duty electric pump, standby diesel pump, control valve assemblies and a sprinkler riser with tap-off(s) on each floor.

Each sprinkler tap-off will be provided with a monitored isolation valve, flow switch and zone check assembly located at an accessible height within the riser.

The standby diesel pump, located within the sprinkler plant room at basement level, will incorporate its own fuel supply and a flue that extends throughout the building and discharges to outside at the Level 08 external plant area.

In line with LPC Rules, fast response sprinklers will be installed throughout the building. Sprinkler heads are typically available in black, white or chrome colours.

Sprinklers will be omitted from switch rooms and so these areas will be enclosed in 120 minutes fire resisting construction.

11 FIRE SAFETY MANAGEMENT

11.1 General

An ongoing fire safety management system will be implemented in the building in accordance with the guidance of BS 9999 i.e. Management system Level 2 in order to put the fire strategy into practice.

A fire safety manual should always be provided and held on site. This document should contain design information and operational records including records for the testing and maintenance of all fire safety appliances and system installed within the building. These records must always be kept up-to-date and held on site so that they are available for inspection. All appliances such as emergency lighting and fire alarm and detection devices are to be tested on a regular basis in accordance with installation requirements.

Policies and procedures should be in place that account for, as a minimum, the following principal factors:

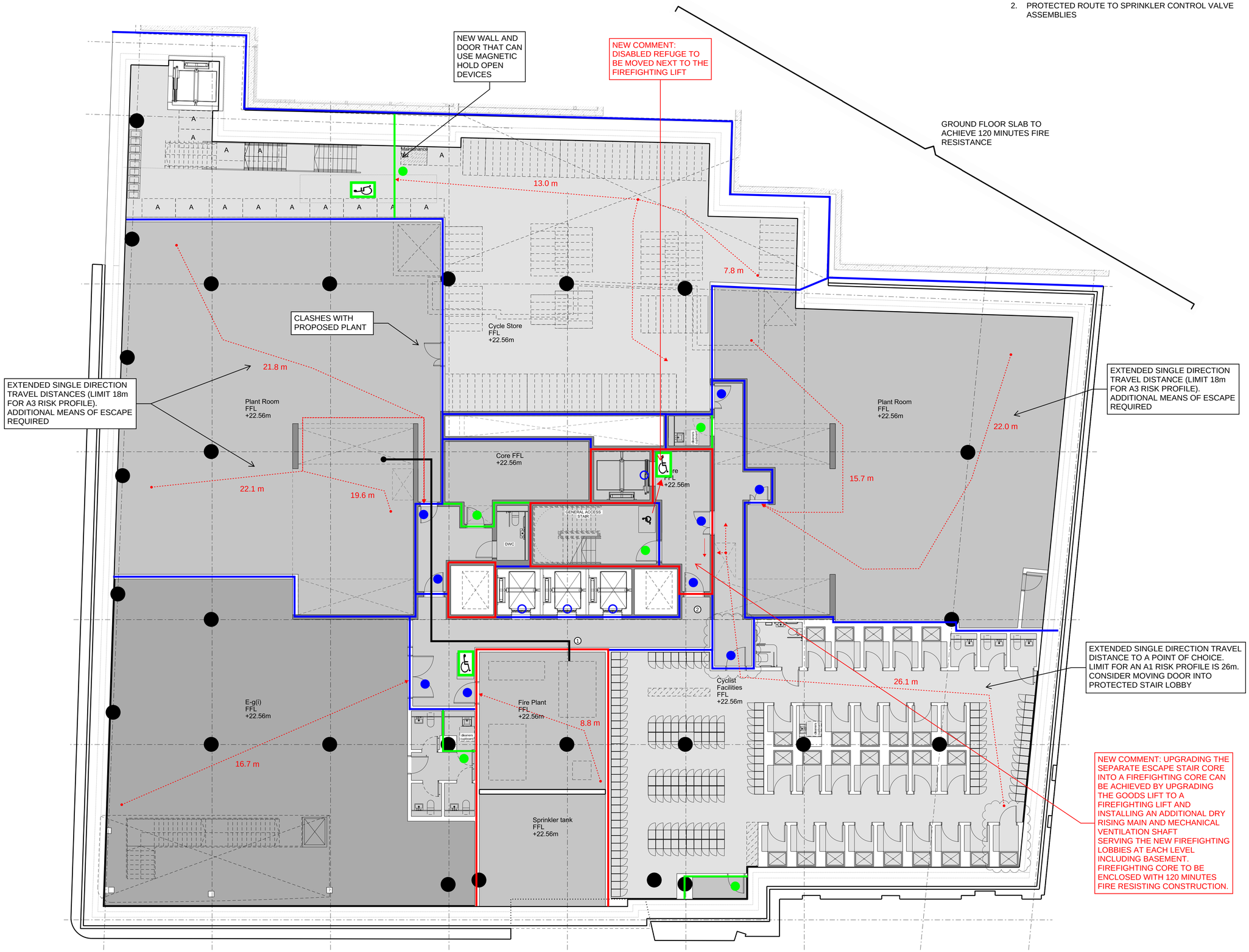
- Fire Risk Assessment
- Resources and Authority
- Fire Safety Training
- Control of Work Onsite
- Maintenance and Testing
- Communications
- Emergency Planning

To facilitate firefighting operations and reduce risks to fire fighters, a premises information box should be provided adjacent to the main entrance. The facility should contain information such as site profile, access and security arrangement, hydrant / water supply, evacuation strategy, communications, hazards and risks, building layouts etc.

APPENDIX A – FIRE STRATEGY DRAWINGS

1. DIESEL SPRINKLER PUMP EXHAUST FLUE TO ACHIEVE 120 MINUTES FIRE RESISTANCE OR BE ENCLOSED IN 120 MINUTES FIRE RESISTING CONSTRUCTION

2. PROTECTED ROUTE TO SPRINKLER CONTROL VALVE ASSEMBLIES



Rev	Description	Date
1.0	STAGE 2 DRAFT	28/10/20
2.0	STAGE 2 ISSUE	11/12/20
3.0	RESPONSE TO GLA & LFB	06/08/21

KEY: COMPARTMENTATION

- 240min Fire Rated Walls (Integrity and Insulation)
- 120min Fire Rated Walls (Integrity and Insulation)
- 60min Fire Rated Walls (Integrity and Insulation)
- 60min Fire Rated Curtain (Integrity but not Insulation) with a smoke rating
- 30min Fire Rated Walls (Integrity and Insulation)
- Fire Rated Cavity Barrier (30min Integrity and 15min Insulation)

KEY: FIRE DOORS, DRY RISER AND MEANS OF ESCAPE

- FD60 / FD60S - Fire Resisting Doorset
- FD30 / FD30S - Fire Resisting Doorset
- Dry Riser Inlet Breeching Valve
- Dry Riser Landing Valve
- XX — Escape Routes (Distance in m)
- Disabled Refuge (1400x900mm)

Norman Disney & Young
A TETRA TECH COMPANY
CONSULTING ENGINEERS
4 CHISWELL STREET
LONDON EC1Y 4UP
UNITED KINGDOM
T +44 207 553 9494
F +44 207 553 9499
www.ndy.com
NDY Consulting Ltd
A registered company in England & Wales
Company Registration No. 3890617

NDY QA SYSTEM
Reason For issue

Authorisation — By GS: 11.12.2020

Verification Of Latest Amendment — By RS: 11.12.2020

Project

The Network Building

95-100 Tottenham Court Road
W1T 4TP

Title

FIRE STRATEGY DRAWING BASEMENT LEVEL

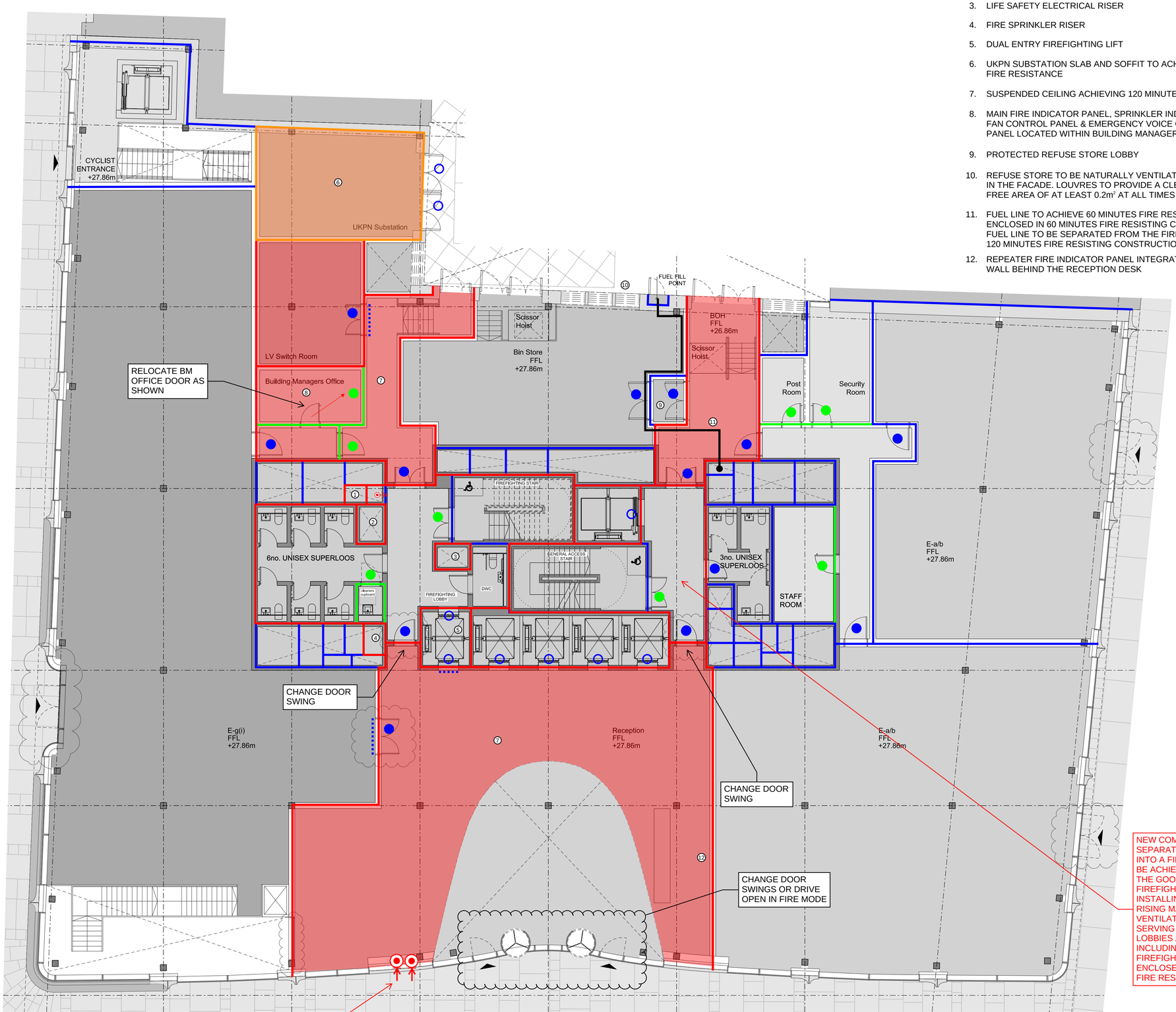
Project No. U14024.001
Revit Version 2017
Design AG
Drawn AG
Scale 1:100 @ A1
Project Commencement FEB 2020
Drawing No. FS-0B-001
Revision 3.0

A1V

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

When reproduced at correct scale this line measures 150mm

1. DIESEL SPRINKLER PUMP EXHAUST FLUE
2. FIREFIGHTING LOBBY MECHANICAL SMOKE EXHAUST SHAFT
3. LIFE SAFETY ELECTRICAL RISER
4. FIRE SPRINKLER RISER
5. DUAL ENTRY FIREFIGHTING LIFT
6. UKPN SUBSTATION SLAB AND SOFFIT TO ACHIEVE 240 MINUTES FIRE RESISTANCE
7. SUSPENDED CEILING ACHIEVING 120 MINUTES FIRE RESISTANCE
8. MAIN FIRE INDICATOR PANEL, SPRINKLER INDICATOR PANEL, FIRE FAN CONTROL PANEL & EMERGENCY VOICE COMMUNICATIONS PANEL LOCATED WITHIN BUILDING MANAGER'S OFFICE
9. PROTECTED REFUSE STORE LOBBY
10. REFUSE STORE TO BE NATURALLY VENTILATED USING LOUVRES IN THE FACADE. LOUVRES TO PROVIDE A CLEAR AERODYNAMIC FREE AREA OF AT LEAST 0.2m² AT ALL TIMES
11. FUEL LINE TO ACHIEVE 60 MINUTES FIRE RESISTANCE OR BE ENCLOSED IN 60 MINUTES FIRE RESISTING CONSTRUCTION. FUEL LINE TO BE SEPARATED FROM THE FIREFIGHTING CORE BY 120 MINUTES FIRE RESISTING CONSTRUCTION
12. REPEATER FIRE INDICATOR PANEL INTEGRATED WITHIN THE WALL BEHIND THE RECEPTION DESK



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Norman Disney & Young
A TETRA TECH COMPANY
CONSULTING ENGINEERS
4 CHISWELL STREET
LONDON EC1Y 4UP
UNITED KINGDOM
T +44 207 553 9494
F +44 207 553 9499
www.ndy.com
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A registered company in England & Wales
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Reason For issue
Authorisation By GS: 11.12.2020
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Project
The Network Building
95-100 Tottenham Court Road
W1T 4TP

Title
FIRE STRATEGY DRAWING GROUND LEVEL

Project No. U14024.001
Revit Version 2017
Design AG
Drawn AG
Scale 1:100 @ A1
Project Commencement FEB 2020
Drawing No. FS-0G-001
Revision 3.0

A1V
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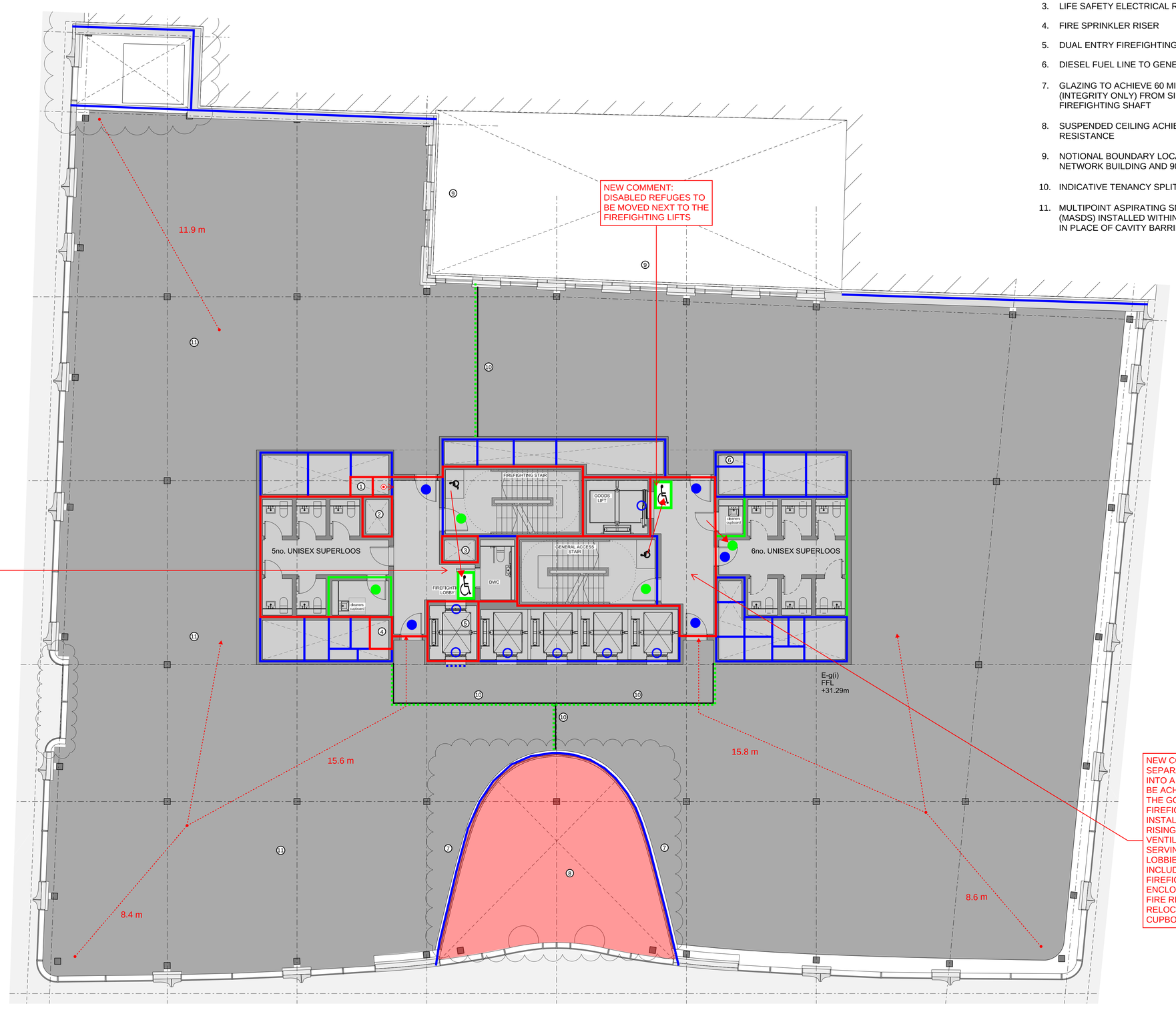
1. DIESEL SPRINKLER PUMP EXHAUST FLUE
2. FIREFIGHTING LOBBY MECHANICAL SMOKE EXHAUST SHAFT
3. LIFE SAFETY ELECTRICAL RISER
4. FIRE SPRINKLER RISER
5. DUAL ENTRY FIREFIGHTING LIFT
6. DIESEL FUEL LINE TO GENERATORS ON THE ROOF
7. GLAZING TO ACHIEVE 60 MINUTES FIRE RESISTANCE (INTEGRITY ONLY) FROM SIDE REMOTE FROM THE FIREFIGHTING SHAFT
8. SUSPENDED CEILING ACHIEVING 120 MINUTES FIRE RESISTANCE
9. NOTIONAL BOUNDARY LOCATED HALF WAY BETWEEN NETWORK BUILDING AND 90 WHITFIELD STREET
10. INDICATIVE TENANCY SPLIT LINE
11. MULTIPOINT ASPIRATING SMOKE DETECTION SYSTEM (MASDS) INSTALLED WITHIN RAISED ACCESS FLOOR IN PLACE OF CAVITY BARRIERS SERVING THIS OFFICE



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2.0	STAGE 2 ISSUE	11/12/20
3.0	RESPONSE TO GLA & LFB	06/08/21

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Authorisation	Verification Of Latest Amendment
By GS: 11.12.2020	By RS: 11.12.2020

Project

The Network Building

95-100 Tottenham Court Road
W1T 4TP

Title

FIRE STRATEGY DRAWING LEVEL 01

Project No. U14024.001	Revit Version 2017
Design AG	Drawn AG
Scale 1:100 @ A1	Project Commencement FEB 2020
Drawing No. FS-01-001	Revision 3.0

A1V

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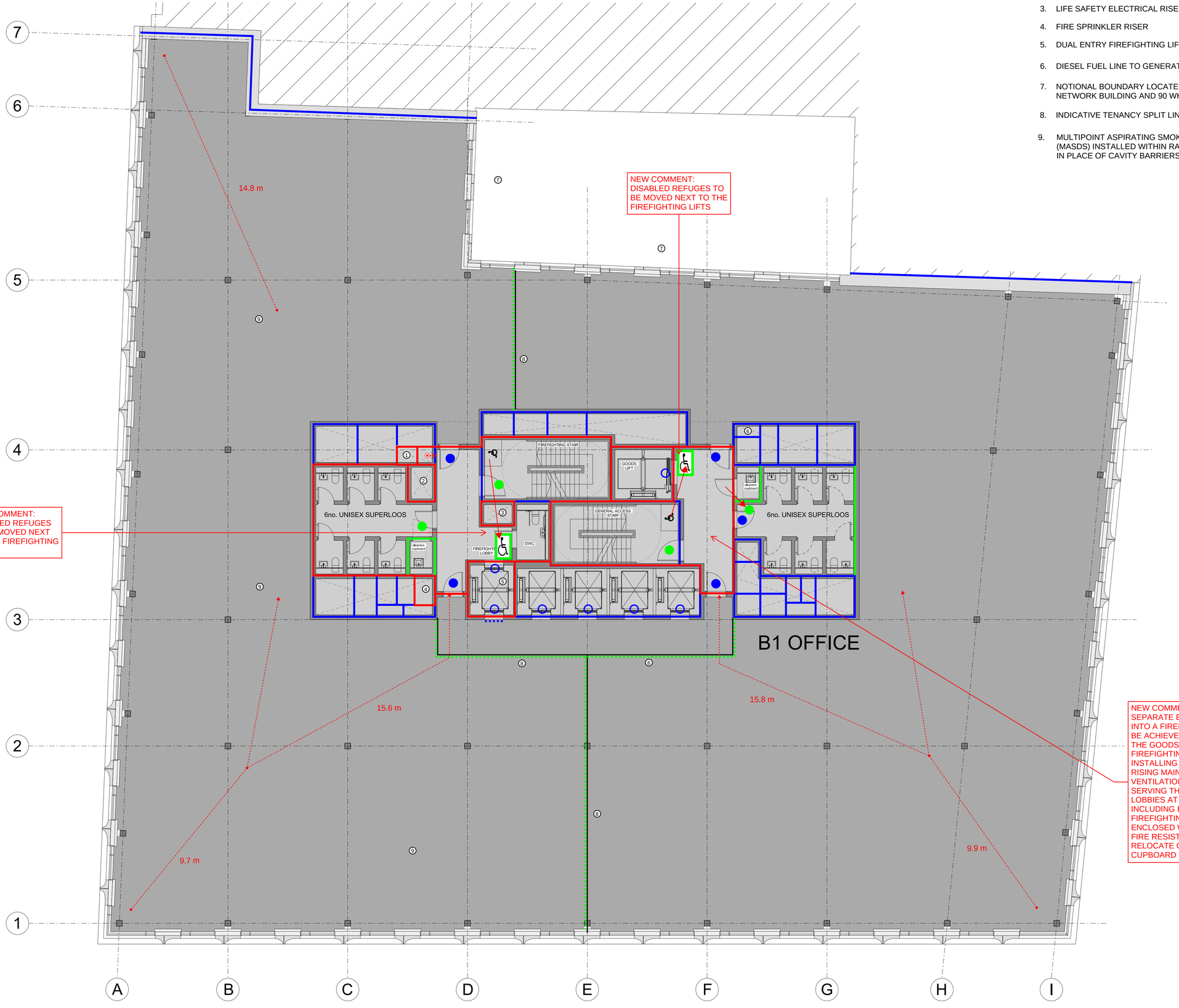
1. DIESEL SPRINKLER PUMP EXHAUST FLUE
2. FIREFIGHTING LOBBY MECHANICAL SMOKE EXHAUST SHAFT
3. LIFE SAFETY ELECTRICAL RISER
4. FIRE SPRINKLER RISER
5. DUAL ENTRY FIREFIGHTING LIFT
6. DIESEL FUEL LINE TO GENERATORS ON THE ROOF
7. NOTIONAL BOUNDARY LOCATED HALF WAY BETWEEN NETWORK BUILDING AND 90 WHITFIELD STREET
8. INDICATIVE TENANCY SPLIT LINE
9. MULTIPOINT ASPIRATING SMOKE DETECTION SYSTEM (MASDS) INSTALLED WITHIN RAISED ACCESS FLOOR IN PLACE OF CAVITY BARRIERS SERVING THIS OFFICE



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Verification Of Latest Amendment: By RS: 11.12.2020

Project
The Network Building
95-100 Tottenham Court Road
W1T 4TP

Title
FIRE STRATEGY DRAWING TYPICAL LEVELS 02 TO 06

Project No.	U14024.001
Revit Version	2017
Design	AG
Drawn	AG
Scale	1:100 @ A1
Project Commencement	FEB 2020
Drawing No.	FS-02-06-001
Revision	3.0

A1V
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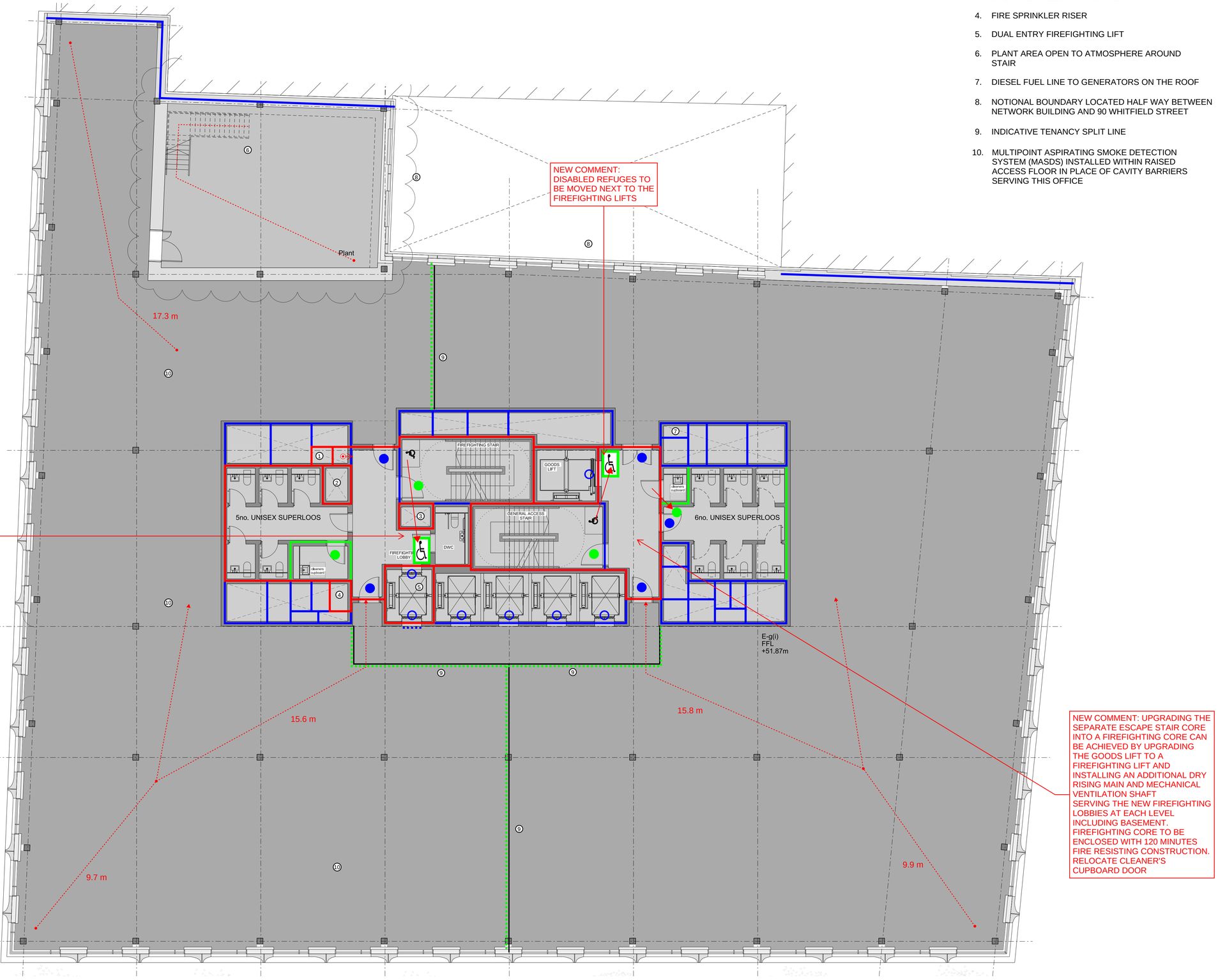
When reproduced at correct scale this line measures 150mm

1. DIESEL SPRINKLER PUMP EXHAUST FLUE
2. FIREFIGHTING LOBBY MECHANICAL SMOKE EXHAUST SHAFT
3. LIFE SAFETY ELECTRICAL RISER
4. FIRE SPRINKLER RISER
5. DUAL ENTRY FIREFIGHTING LIFT
6. PLANT AREA OPEN TO ATMOSPHERE AROUND STAIR
7. DIESEL FUEL LINE TO GENERATORS ON THE ROOF
8. NOTIONAL BOUNDARY LOCATED HALF WAY BETWEEN NETWORK BUILDING AND 90 WHITFIELD STREET
9. INDICATIVE TENANCY SPLIT LINE
10. MULTIPOINT ASPIRATING SMOKE DETECTION SYSTEM (MASDS) INSTALLED WITHIN RAISED ACCESS FLOOR IN PLACE OF CAVITY BARRIERS SERVING THIS OFFICE



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Project

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Title

FIRE STRATEGY DRAWING LEVEL 07

Project No.	U14024.001
Revit Version	2017
Design	AG
Drawn	AG
Scale	1:100 @ A1
Project Commencement	FEB 2020
Drawing No.	FS-07-001
Revision	3.0

A1V

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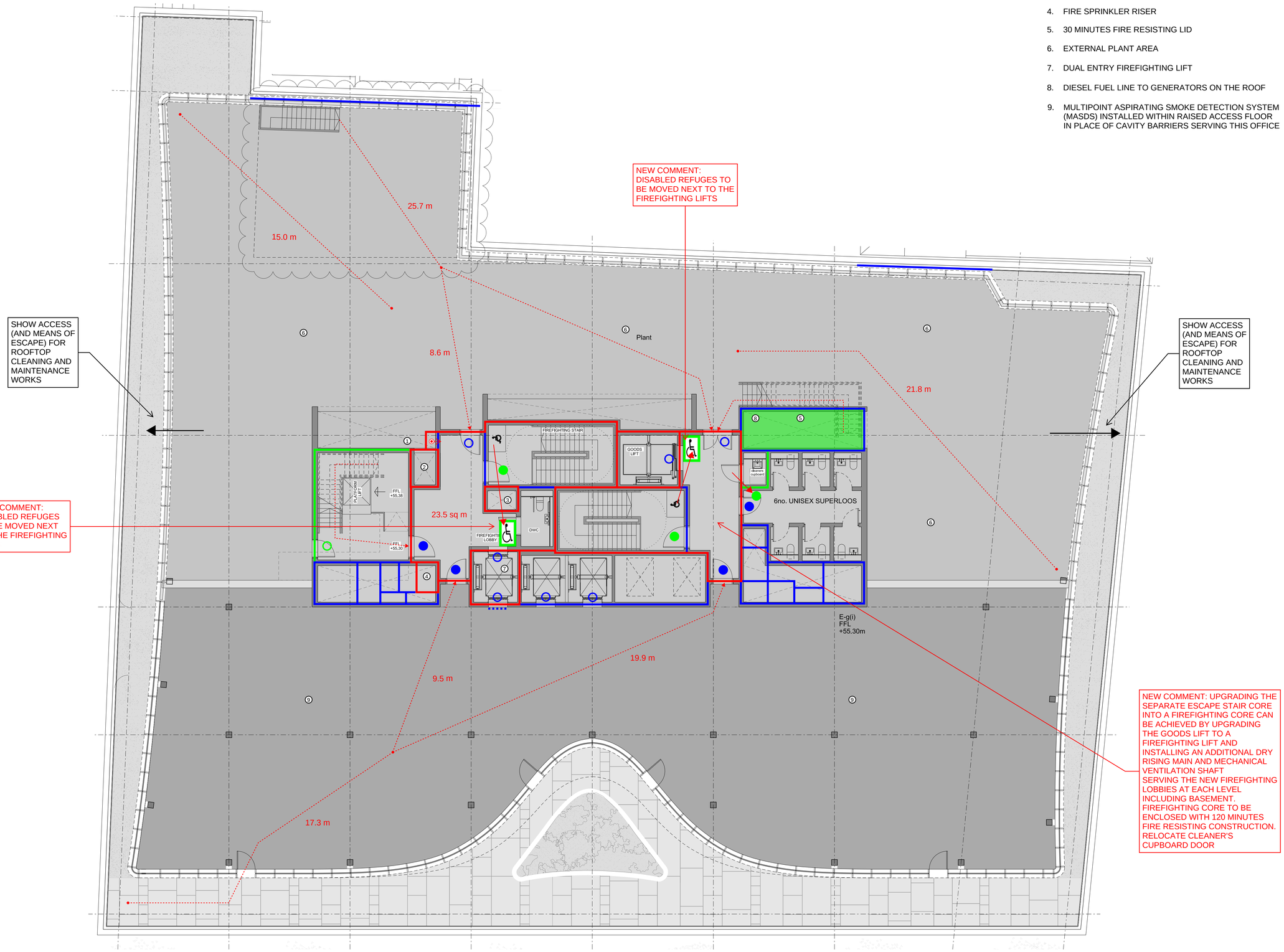
1. DIESEL SPRINKLER PUMP EXHAUST FLUE
2. FIREFIGHTING LOBBY MECHANICAL SMOKE EXHAUST SHAFT
3. LIFE SAFETY ELECTRICAL RISER
4. FIRE SPRINKLER RISER
5. 30 MINUTES FIRE RESISTING LID
6. EXTERNAL PLANT AREA
7. DUAL ENTRY FIREFIGHTING LIFT
8. DIESEL FUEL LINE TO GENERATORS ON THE ROOF
9. MULTIPOINT ASPIRATING SMOKE DETECTION SYSTEM (MASDS) INSTALLED WITHIN RAISED ACCESS FLOOR IN PLACE OF CAVITY BARRIERS SERVING THIS OFFICE



Rev	Description	Date
1.0	STAGE 2 DRAFT	28/10/20
2.0	STAGE 2 ISSUE	11/12/20
3.0	RESPONSE TO GLA & LFB	06/08/21

KEY: COMPARTMENTATION

- 240min Fire Rated Walls (Integrity and Insulation)
- 120min Fire Rated Walls (Integrity and Insulation)
- 60min Fire Rated Walls (Integrity and Insulation)
- 60min Fire Rated Curtain (Integrity but not Insulation) with a smoke rating
- 30min Fire Rated Walls (Integrity and Insulation)
- Fire Rated Cavity Barrier (30min Integrity and 15min Insulation)

KEY: FIRE DOORS, DRY RISER AND MEANS OF ESCAPE

- FD60 / FD60S - Fire Resisting Doorset
- FD30 / FD30S - Fire Resisting Doorset
- Dry Riser Inlet Breeching Valve
- Dry Riser Landing Valve
- XX — Escape Routes (Distance in m)
- Disabled Refuge (1400x900mm)

Norman Disney & Young
A TETRA TECH COMPANY
CONSULTING ENGINEERS
4 CHISWELL STREET
LONDON EC1Y 4UP
UNITED KINGDOM
T +44 207 553 9494
F +44 207 553 9499
www.ndy.com
NDY Consulting Ltd
A registered company in England & Wales
Company Registration No. 3890617

NDY QA SYSTEM
Reason For issue
Authorisation
By GS: 11.12.2020
Verification Of Latest Amendment
By RS: 11.12.2020

Project
The Network Building
95-100 Tottenham Court Road
W1T 4TP

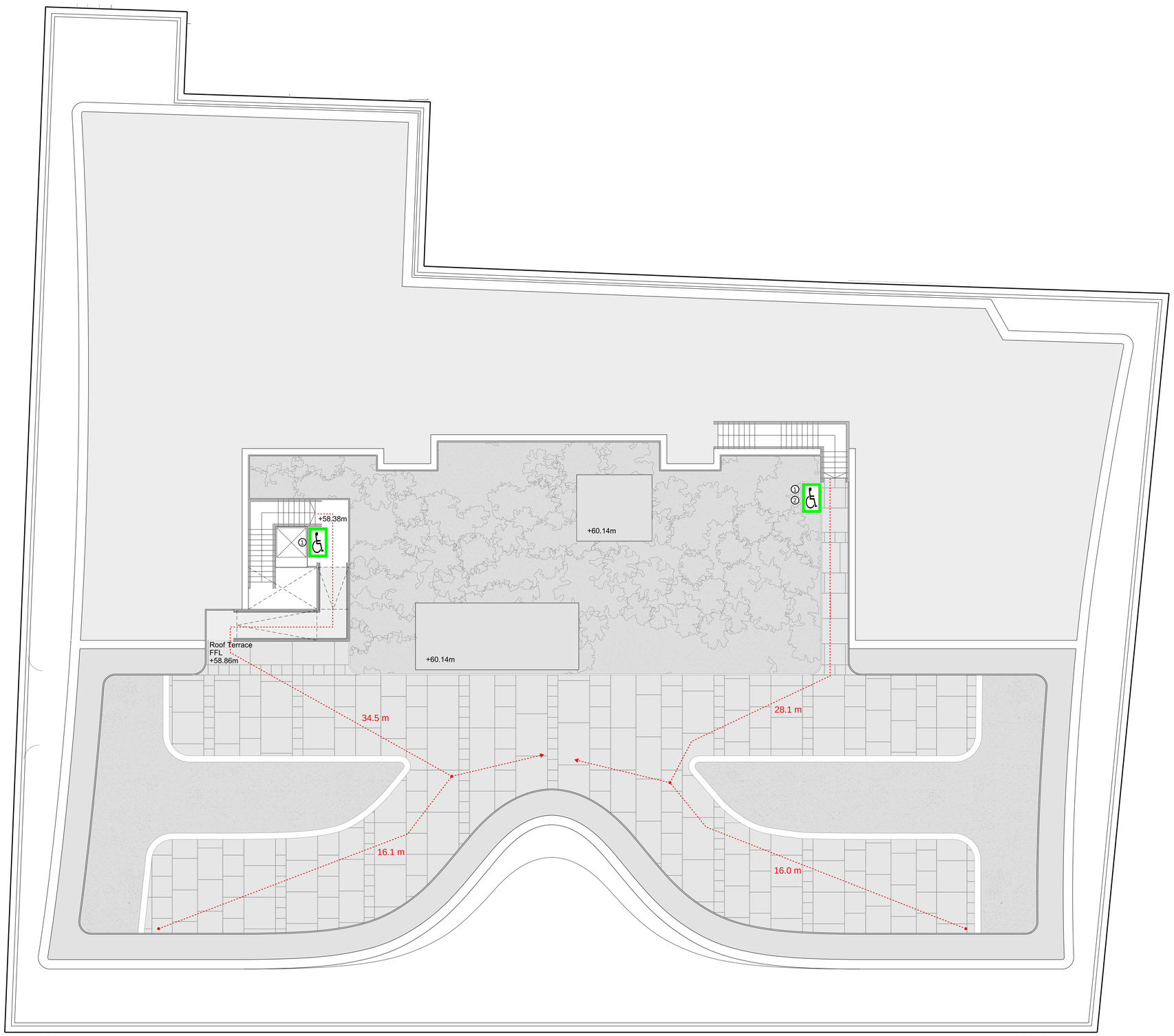
Title
FIRE STRATEGY DRAWING LEVEL 08

Project No. U14024.001
Revit Version 2017
Design AG
Drawn AG
Scale 1:100 @ A1
Project Commencement FEB 2020
Drawing No. FS-08-001
Revision 3.0

A1V
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
When reproduced at correct scale this line measures 150mm

1. EXTERNAL DISABLED REFUGE

2. DISABLED REFUGE LOCATED ABOVE PROTECTED CORE AND RISER SHAFT



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Reason For issue

Authorisation — By GS: 11.12.2020

Verification Of Latest Amendment — By RS: 11.12.2020

Project

The Network Building

95-100 Tottenham Court Road
W1T 4TP

Title

FIRE STRATEGY DRAWING LEVEL 09

Project No. U14024.001

Revit Version 2017

Design AG

Drawn AG

Scale 1:100 @ A1

Project Commencement FEB 2020

Drawing No. FS-09-001

Revision 3.0

A1V

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

When reproduced at correct scale this line measures 150mm

APPENDIX B – QUALITATIVE DESIGN REVIEW: AUGUST 2020: MEETING MINUTES

MINUTES

Project:	Network Building		
Meeting:	Qualitative Design Review (QDR) – First Meeting	Date/Time:	13 August 2020 – 10:30am
Held At:	Zoom Meeting	Revision:	1.0

Name		Company
Present:	Archer Goodall (AG)	NDY Consulting Limited – Fire Engineer
	Richard Sherwood (RS)	NDY Consulting Limited – Fire Engineer
	George Sundac (GS)	NDY Consulting Limited – Mechanical Engineer
	Michael Wadood (MW)	MLM – Approved Inspector
	Donald Findlater (DF)	Blackburn & Co – Project Manager
	George Georgiou (GG)	Elliott Wood – Structural Engineer
	James Hinks (JH)	Elliott Wood – Structural Engineer
	Andre Nave (AN)	Piercy & Co – Architect

Item	Minute	Action	Target Date
1.0	MW noted that the London Fire Brigade (LFB) are asking to see a documented QDR report at consultation.	Note	
2.0	AN noted the following changes to the scheme: ▸ The reception has been enlarged; ▸ The ground floor office will include a void to basement; ▸ Basement plant areas are 5.5m below ground floor level. Other areas of the basement are higher up; ▸ The firefighting shaft does not extend down to basement, only the protected stair does. The protected stair incorporates separation at ground level; ▸ Level 1 to incorporate a void above reception. Void will be enclosed; ▸ Fire brigade to enter the building at reception.	Note	
3.0	RS noted that the building will employ a simultaneous evacuation philosophy. The impact of the slab is unlikely to affect means of escape which are aligned to risk profiles. The proposed structure will not affect how occupancy profiles are assessed.	Note	

	MW noted that if the above is true and it is possible to demonstrate that cross laminate timber (CLT) will not affect the fire growth rate, BS 9999 Fire safety in the design, management and use of buildings may be used to determine travel distances and size the cores. This is deemed suitable as it is an office building. Building Control are not seeking a full fire engineered solution with egress modelling etc.		
4.0	MW noted that a Level 1 management strategy should be employed, and that the building occupier should confirm acceptance of this. It is especially important to avoid rubbish being stored next to the platform lift and stair to Cypress Place at ground level.	Note	
5.0	JH noted that the building will be served by a steel frame with 10m by 6m grids. 200mm thick CLT slabs will be supported on the secondary beams. All cores will be concrete. RS noted that the steel frame (primary and secondary) will be fire rated to achieve the necessary period of 60 minutes. RS noted that the risk of structural failure is limited to the CLT slab component only.	Note	
6.0	RS noted that sprinklers will be installed throughout the building even though it is less than 30m tall and they are not strictly required to meet the life safety objectives of the Building Regulations. Gas suppression will be considered within rooms were water discharge may be hazardous. RS noted that the building will be provided with a Category L1 automatic fire detection and alarm system as defined in BS 5839. RS noted that the basement level will be mechanically ventilated. RS noted that the single firefighting shaft will be served by a dual entry firefighting lift (fire curtains will be installed to protect the openings into reception and at each upper level), colt shaft and dry rising main. MW noted that pipework running between the inlet breeching valve on the façade to where the dry rising main extends throughout the building should be coordinated and reviewed. GS noted that the building will be served by a diesel life safety generator located on the roof. It will include a day tank holding enough fuel for 3 hours of operation. A top up fuel line will also serve the generator from a double bunded belly tank in the basement. RS noted that 120 minutes fire resistance is required for the floor of the generator because it is a life safety item.	Note	
7.0	RS noted that office floors will be assessed using a floor space factor of 1 person/6m^2 while retail areas will be assessed differently. RS noted that A3 units may contain kitchens and gas connections but that no high-risk manufacturing or light industrial processes are expected within the building.	Note	

	RS noted that the principal departures from fire safety design guidance for Network Building include the use of CLT slabs and a single firefighting shaft and separate escape stair. The latter is subject to achieving the required hose laying distances from a single core and demonstrating the robustness of firefighting provisions.		
8.0	MW noted that MLM are not aware of and do not predict any proposed changes to the Building Regulations that would influence or prohibit the use of CLT within the internal structure of Network Building. MW noted changes to the Building Regulations that strive for clear documenting of fire safety information.	Note	
9.0	RS noted that large compartments (open plan office floors) and the sprinkler installation will help slow the involvement of the soffit in a fire. RS noted that floor voids will be used as air plenums and questioned whether the involvement of the top side of the soffit should be investigated.	Action - NDY	Stage 2 deadline (15th September)
10.0	NDY to assess the contribution of the structure to the fire load and determine how it will affect the fire growth rate curve. This will conclude whether BS 9999 can be used. RS noted that project specific testing (joinery, dimensions, finishes etc) will be required to investigate the stability/structural fire performance of the CLT. AG noted that the test rig will not involve the use of sprinklers which will provide an additional element of safety. MW noted that Building Control do not assume failure of any life safety system and that the building will also be protected by a red care line, automatic fire detection and the presence of building staff. NDY to produce a draft proposal alongside the concept design fire strategy report. RS noted that work to undertake the necessary assessments will continue into Stage 3.	Action - NDY	Stage 2 deadline (15th September)
11.0	MW noted that all testing must take place at a UKAS accredited test house and that there are not many of these. BRE, Warrington Fire and TRADA are examples. MW noted that MLM would accept European test reports incorporating EC designation. MW noted that MLM and the LFB would like to witness the tests if possible.	Note	

NORMAN DISNEY & YOUNG

CONSULTING ENGINEERS

NDY CONSULTING LIMITED
A Registered Company in England and Wales. Company Registration No. 3890617
4 Chiswell Street
London EC1Y 4UP

Telephone: +44 20 7553 9494
Facsimile: +44 20 7553 9499

OFFICES

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NDY QA SYSTEM

Revision No:	3.0
Revision Date:	6 August 2021
Reason Description:	RESPONSE TO GLA & LFB COMMENTS
File Location:	\\tt.local\ndy\lon\w\U140xx\U14024\001\FE\24_Reports
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Client Name:	Derwent London
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Project Leader:	George Sundac
Editor:	Archer Goodall

Authorisation by: GS

Verification by: RS

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