



Fire strategy review

Xxxxxxx (Xxxxxxx)



IMPORTANT INTRODUCTION

This fire strategy review has been carried out on behalf of Xxxxxxx; the document is provided for the purpose of demonstrating strategy with the appropriate performance levels required by a designated third party. It should not be divulged to any other parties without the approval of the client for whom it was produced. It should not be manipulated, abridged, or otherwise presented without the written consent of MGR fire and facilities consultants Ltd.



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1. EXECUTIVE SUMMARY

All recommendations contained within this report are based on current legislation and guidance along with the assessor's experience and expertise and information supplied by the client.

MGR fire and facilities consultants Ltd (MGR), were commissioned by Xxxxxxx to produce a fire strategy review of proposed plans for Xxxxxxx,

Xxxxxxx has been scheduled to be refurbished creating traditional and “touchdown” office facilities for both permanent and transient staff, the building forms part of a wider site, incorporating the Xxxxxxx Children, Young People, and Family Centre and is currently used as a permanent base for related teaching and support resources.

The site will provide accommodation for an approximate number of 100 staff (as a maximum), this will include those permanently based onsite and those using the building as a “touchdown” location for infrequent meetings & workspace use etc.

The refurbishment will be restricted to the original building (ground & 1st floors), and small additional area (entrance lobby, toilets & corridor space), as outlined on the image below:



The refurbishment to this building will be deemed as a “major” project and as such all-fire related safety elements will require improvement to current standards, including (but not limited to), the Building Regulations 2010 (2019 edition incorporating 2020 amendments), Approved Document B (ADB) Volume 2 (Buildings other than Dwellinghouses). The Regulatory Reform (Fire Safety) Order 2005, and various British Standards (as listed at the end of this report).



The proposed refurbishment will include the removal of glazed screens to the ground and first floor main stair lobbies along with the removal of doors and some walls to the areas indicated on the plan below:

The arrows noted on the plan above indicate the removal of doors to create flow throughout the space, the toilets and lobby (current main entrance), noted as rooms 001 & 002, will be combined to deliver a new set of toilets. The main entrance will be re-located to the area shaded in grey on the plan above.

Colour coded areas noted on the proposed plan are as follows:

- Blue – traditional office space (to include meeting rooms)
- Purple – touchdown areas (semi-formal)
- Green – break-out areas
- Mustard – kitchen space (basic provision of microwave, kettle, refrigerator etc.)
- Wine – toilets
- Pink – storage
- Grey – new main entrance lobby

Along the main corridor a series of seating modules will be installed which will be approximately half of the corridor width (1.25m).

To the first floor it is proposed to install a kitchen to the central portion of the space (as indicated in mustard on the plan), this proposal should be reconsidered, as the removal of the glazed screen in this area could leave the main stair vulnerable to the higher risk of a kitchen in this area.

MGR recommend that the kitchen is relocated into an area to the right or left-hand side of this central space (rooms 008 / 013), these areas are protected by fire resisting doors which will ensure that the main stair / escape route is protected to a higher degree.

As a secondary note the kitchen area could be installed to room 006, with the originally proposed kitchen location of room 012 and the smaller kitchen to room 005, used as either traditional or touchdown areas instead of the current proposals for their use.

The Building Regulations require measures to secure reasonable standards of health and safety for persons in or about the building but do not address additional measures such as property protection.

The Approved Documents (AD) offer recommendations of one way of meeting the requirements of the Building Regulations, however alternative solutions can be adopted to provide an equivalent level of protection to people in or around the vicinity of the building.

The active and passive fire safety systems recommended for the building as detailed in this report are designed to provide early warning of a fire event and to maintain tenable conditions during the evacuation stage. If implemented, the health and safety of people in and about the building can be readily assured.



2. SCOPE:

(All room and door references noted within the report are based on floorplans supplied)

- MGR fire and facilities consultants Ltd have been commissioned by Xxxxxxx to produce a fire strategy review of proposed plans for Xxxxxxx,
- After refurbishment details are confirmed, it will be demonstrated that the building satisfies the substantive requirements for fire safety of the Building Regulations
- The Building Regulations require measures to secure reasonable standards of health and safety for persons in or about the building but do not address additional issues, such as property protection
- Within the overall engineering framework adopted, fire precautions are generally designed in accordance with Approved Document B “Fire Safety” in support of the Building Regulations 2010, and supplemented by British Standard Codes of Practice as appropriate, including BS 9999

The use of comparative analysis is an accepted methodology and provides many advantages, with PD 7974-0 stating:

“Where there are limited departures from the prescriptive code, the acceptability of a particular design may be evaluated by comparing the level of performance achieved in a notional code compliant building with that of the non-compliant building under consideration. Often this comparison can be made without recourse to calculation.”

“Because the aim of the comparative approach is to show equivalency between the compliant and the noncompliant building, the assessment is not usually sensitive to the initial assumptions (e.g., the expected rate of fire growth or pre- movement time). Any errors in the assumptions will equally affect the code compliant and non-compliant design and should not affect the relative ranking of the two designs.”

- In accordance with the fire safety engineering principles detailed in British Standards Institute BS 7974, all fire precautions are determined based on there being one seat of fire within the building
- This report does not specifically address fire related issues that may be required by the insurers or fund managers, such as property protection, stock and/or asset protection or business continuation.
- Any discussion topics within this report are only pertinent when considered in context with the issues outlined in the scope
- This report is based on information provided to MGR by Xxxxxxx, additional information, or variations to that supplied may invalidate the conclusions and recommendations within this report.
- Where not specifically stated, fire safety provisions should be specified and installed according to the current edition of relevant published guidance

This report is based on a site visit and review of documentation received from Xxxxxxx as detailed in the table below:

Documents Used:

DESCRIPTION (EXISTING PLANS)	REF NO.	REV.
Xxxxxxx Special Needs Unit – Building 1 (Main building), Ground Floor	270601-G	N/A
Xxxxxxx Special Needs Unit – Building 1 (Main building), First Floor	270601-01	N/A
Xxxxxxx Special Needs Unit – Building 1 (Main building), Second Floor	270601-02	N/A
DESCRIPTION (PROPOSED PLANS)	REF NO.	REV.
Floor plans – Feasibility layouts	L2020 - 001	A

3. LEGISLATION / REGULATORY GUIDANCE

Building Regulations 2010 (2019 edition):

The building will be subject to the operation of The Building Regulations, 2010. It, therefore, must comply with the requirements of Schedule 1 of the Regulations including:

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

Regulatory Reform (Fire Safety) Order 2005:

The Fire Safety Order came into effect in October 2006 and replaced over 70 pieces of fire safety law. The Order applies to all non-domestic premises in England and Wales, including the common parts of blocks of flats or houses in multiple occupation.

The Order removed the legal status of fire certificates, which are no longer enforceable by the Fire Authorities. The 'responsible person' has a duty to make the workplace safe and must undertake regular fire risk assessments. It is the responsible person who will be held accountable under the new legislation for any breaches in fire safety.

There may be more than one responsible person for one building – anyone who has control over the building, or the workplace is classed as a responsible person. Some examples include the building owner, the employer, the facilities management company and the headteacher of a school.

The Regulatory Reform (Fire Safety) Order 2005 applies to you if you are:

- responsible for business premises
- an employer or self-employed with business premises
- responsible for a part of a dwelling where that part is solely used for business purposes
- a charity or voluntary organisation
- a contractor with a degree of control over any premises



Under the Order, the 'responsible person' must carry out a fire safety risk assessment and implement and maintain a fire management plan. The assessment should be kept under regular review and reassessed if the use of the building has been varied or a material alteration has been made. The significant findings must then be recorded along with the measures taken to address the risks identified. A competent person should carry out the fire risk assessment.

The Construction (Design and Management) Regulations:

The Construction (Design and Management) Regulations (CDM) were originally introduced to the UK in 1994 and radically overhauled in 2007 and again in 2015. The regulations are designed to implement the European Temporary or Mobile Construction Site Directive (TMCS) (Directive 1992/57/EEC).

The change to the Regulations places more responsibility upon the Client to follow the Regulations, introduces a definition as to who are Contractors, further identifies the designers' roles and duties and has also incorporated the "Construction (Health, Safety and Welfare) Regulations" into the CDM Regulations.

As part of the new regulations, the onus is now on the designer to ensure suitable reference is made to accessing the various building elements. As such, inspection and maintenance should always be considered when looking at the detailed design of the elements identified in this report.

Further Legislation:

The primary legislation is discussed above. However, there are various other requirements that will apply relating to the use of the buildings such as Health and Safety and Equality, which will have a possible impact on the fire safety systems and design.

4. BUILDING DESCRIPTION (AREA FOR REFURBISHMENT):

Xxxxxxx proposed scheme covers the redevelopment of the original part of the site which is a double bay fronted building set over 3 floors. There is a central and smaller second stair providing access from ground to the first floor, a further stair provides access to the second floor. From the area noted as room 008 on the floorplans there is an external escape (spiral) stair providing access to ground level. There are no passenger lifts installed to the site.

Throughout the proposed area for refurbishment there appeared to be reasonable levels of emergency escape lighting and a combined manual and automatic fire detection system to, what appeared to be, **M/L2** standards (as defined in **BS 5839-1:2017**), with detection to all escape routes, rooms exiting into to those routes and other high-risk rooms and areas.

(This observation is based solely on the areas inspected during our site visit conducted Friday 8th January 2021).



Ground Floor:

The ground floor currently consists of 2no. large offices separated by a central lounge area, which has a final exit to the external side of the building. There is a large, glazed screen separating these areas from the main central stair.

The central stair is provided with large lobby spaces (noted as rooms 009 & 011 respectively on the floorplans provided), to the ground and first floors, these separate the office spaces from the stair lobbies.

To each side of the main stair lobby there are 2no. office spaces separated by fire resisting door sets to, what appear to be, FD30s standards (065 & 067).

The office to the left is open plan leading to a second space (rooms 004 & 003), which are separated by an FD30s door set (063), beyond the main stair lobby and into a small additional area separated by double cross-corridor doors (059), and single doors to the main stair and secondary stair lobbies (066 & 070). Room 003 has a sliding glass window to the corridor beyond door 059.

Beyond room 003, there are a set of toilets (002) and an entrance lobby 001 (currently the main entrance to this part of the site), there is also a long corridor which has a small platform lift (left hand side) and a set of stairs to the right due to a change in levels. The corridor has a further set of cross corridor doors (FD30s) which provides access to the Nursery part of the site (this is not included in the proposed refurbishment).

To the right-hand side (of the main stair lobby), there is an office (008), foyer (015), corridor (012), a second office (013), and a third office (014), with storage areas beyond that do not form part of the proposals. Currently all doors in this area appear to be fire rated (doors 068, 069, 079 & 080).

First Floor:

The first floor consists of a similar layout to the ground floor, with access to an alternative escape route via an external escape spiral stair to room 008. Room 013 extends into a smaller office space (014), via what was a door that has been removed at some point, with 014 exiting into the central stair lobby via door 002 (FD30s).

To the half landing of the main stair on the first floor there is a door (013) into the 3rd stair lobby (017), which provides access to the second floor, this lobby also has another door (001), into reprographics (016), also to DF30s standards.

From the lobby (017), there is a corridor (021), which has a further door leading into the 2nd stair lobby (019), housing a small toilet and access to the ground floor. Beyond the lobby there is a storage area (020), an office (004), small kitchen (005), and a meeting room (006). All these rooms are protected by what appear to be fire rated doors.



Second Floor:

The second-floor area consists of 3no. offices, rooms 001, 002 & 003 there is a door to the stair which is rated to FD30s (020), this area does not form part of the proposed refurbishment of the site.

5. BUILDING REGULATION GUIDANCE

The Building Regulations 2010 (2019 edition), state that the following functional requirements should be met in respect of Regulation B1, Means of warning and escape:

“The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape, in case of fire, from the building to a place of safety outside the building, capable of being safely and effectively used at all material times.”

B1 – Section 1 (fire detection and alarm systems):

It is considered that the site will be occupied by people who are always awake & alert within all areas of the building and there will be limited numbers of staff onsite (100 maximum).

It is recommended that the building be fitted with an automatic fire alarm system designed and installed in accordance with **BS 5839-1:2017**, throughout the site to a Category **M/L2** standard (as a minimum), this will permit early warning of fire in any infrequently used areas of the building along with those relating to higher risk areas such as boiler houses, kitchens etc.

Activation of a manual call point or single detector head should result in the simultaneous evacuation of all areas of the building noted on this report. A single system should therefore be provided, with the control panel located at the proposed main entrance at ground floor level, door 076 / room 006.

Visual beacons should be provided in rooms where the background sound level could be louder than the fire alarm e.g., in any plant rooms. Visual beacons are also recommended for toilet areas. All sounders should be tested to ensure that they can be heard above the background noise level; typically, a volume of 5db above is recommended.

In areas where manual call points are likely to be subject to accidental or malicious operation, it may be acceptable, subject to the agreement of the relevant enforcing authority, for a transparent, hinged cover to be fitted to the manual call points. Operation of this two-action manual call point then involves lifting the cover and operating the manual call point in the normal manner*.

In accordance with the recommendations of BS 5839-1: 2017, the fire alarm and detection engineer will be required to submit the design certificate for the scheme to the Approving Authority prior to commencement of the installation on site.

*** Provision of a manual call point with a hinged cover should be recorded as a variation in the subsequent fire risk assessment.**



Escape:

The general accepted philosophy for means of escape is that the occupants of a building should be able to turn their back on a fire and escape via the nearest exit without additional assistance from other occupants or firefighters.

This is achieved by providing alternative escape routes where necessary, limiting travel distances, providing sufficient exit width and escape routes that, depending upon the use of the building, will have specified periods of fire resistance

The means of escape from the site should be considered from the following perspectives:

- Escape adjacent to void edges
- Horizontal escape
- Vertical escape

Void edges:

To maintain suitably tenable conditions for occupants, Approved Document B recommends escape routes should not be within 4.5m of the edge unless the direction of travel is away from the opening, or there is an alternative exit route which does not pass within 4.5m of the open connection.

Horizontal escape:

ADB recommends that travel distances to a final exit are kept as short as possible, 18m where a single direction of travel is available and up to 45 metres travel distance from any point of the floor plate to the nearest escape exit where an alternative is available.

In areas of higher risk, e.g., boiler rooms or fuel storage, recommended travel distances to the nearest exit are 9m and 18m for single direction and multi direction travel, respectively.

Vertical escape:

Within the proposed redevelopment of the site there is a requirement to remove the glazed screens separating the main stair from the office space to the ground and first floor areas.

The following considerations should be given during the design stages of the redevelopment (as per ADB, Table B4 – minimum periods of fire resistance for buildings of a height to the top floor of up to 18m):

- All stair cores should have compartmentation to **60 minutes** fire resistance
- Door sets to protected lobbies and stair cores should be to an **FD30s*** standard (ADB, Table C1)
- Refuge areas to each protected lobby should be considered in the design

**All fire rated doors should be to BS 476-22:1987, BS EN 1634-1:2014 or BS 8214:2019*



Provision of refuges:

Refuges (where required):

- Should be a minimum of 900mm x 1400mm in size (as per diagram 3.2 – ADB), and accessible by someone in a wheelchair. Where sited in a protected stairway, lobby, or corridor, they should not reduce the width of the escape route or obstruct the flow of people escaping
- Be provided with an emergency voice communication (EVC) system complying with BS 5839-9. It should consist of Type B outstations communicating with a master station in the building control room (if one exists) or next to the fire detection and alarm panel. In some buildings, wireless technology may be more appropriate

Refuges and evacuation lifts should be clearly identified. In protected lobbies and protected stairways there should be a blue mandatory sign worded 'Refuge – keep clear' in addition to fire safety signs.

As the site is not provided with access to the first or second floors for disabled persons there are no requirements to provide refuge spaces, as the ground floor escape routes are suitable for those not able to safely evacuate themselves in a fire.

Escape Beyond the Final Exits:

Travel beyond the building final exits must be away from the building, towards a place of safety, and not be jeopardised by unprotected openings of the building. It is proposed that this is achieved through a combination of the following:

- Fire-rated construction provided to a minimum height of 1100mm above ground level where people pass within 1800mm of an external wall
- Where final exits discharge within 1.8m of an external wall at 90° or less to the plane of the final exit, fire-rated construction will be provided to external walls within 1.8m of the final exit
- Exit paths provided, that lead away from the building

Disabled Escape:

Consideration should be given to providing full access to all areas of the site is required under the **Disability Discrimination Act 1995 / Equality Act 2010**, for mobility impaired occupants / visitors. With lifts provided across the site and consideration should be given to denoting at least one lift as an evacuation lift.

In all other stair cores provision should be considered to supply EVAC chairs or similar to assist in the evacuation of non-ambulant persons in a fire / emergency.

It is envisaged that most disabled people will be able to escape to a place away from danger without assistance from trained fire wardens. However, there will be a certain proportion of building occupants, such as those who are non- ambulant disabled (e.g., wheelchair users), who will not be able to negotiate stairs unaided.



In these instances, an environment should be provided in which their safety can be assured for a given period (e.g., refuge areas) prior to being assisted to ultimate safety outside the building.

Even if a lift is provided for use in the event of fire, the location of the fire could block access to the lift on one floor therefore assistance may be required to descend to a place of safety using the stairs.

As noted above due to the access provisions within the building it was understood that disabled occupants will be limited to the ground floor areas of the proposed refurbishment.

It should be noted that under the Regulatory Reform (Fire Safety) Order 2005, it is the duty of the “Responsible Person” or those appointed to assist with fire safety, to assist all occupants to a place of “ultimate safety” (outside of the building), in the event of an emergency.

Fire and Escape Doors:

All doors on escape routes will either:

- not be provided with a securing device
- be provided with a securing device that is easily openable without the use of a key and without having to manipulate more than one mechanism.

In addition, they will be hung to open in the direction of exit (unless they serve less than 60 people), open not less than 90° and have a swing which is clear of any change in level, other than a threshold or single step on the line of a doorway.

Doors opening onto stairways or corridors will be sited not to encroach on the effective width of any stairway, landing or corridor.

Any fire doors fitted with hold open devices, including cross-corridor doors, should release on:

- Actuation of the fire alarm system
- Manual operation or operation of a hand-operated switch fitted in a suitable position, if necessary
- Failure of electricity supply

- Internal doors on specific rooms that are fitted with an electronic latch operated by a swipe card reader to the un-secure side, will also have latches operated by a handle on the secure side (so people inside the room will always be able to get out)
- It is recommended that all held-open doors should be released overnight to reduce the risk of the doors distorting. They should also be checked regularly to ensure they close correctly on activation of the fire alarm

Emergency Escape Lighting:

Emergency escape lighting should be installed to provide temporary illumination in the event of failure of the primary power supplies to the normal lighting system. As part of the emergency



lighting system, escape lighting should be provided to ensure the escape routes are illuminated at all material times. Adequate artificial lighting should be provided in all common escape routes and be of a sufficient standard to enable persons to see during an escape.

Emergency lighting should be installed in accordance with the recommendations defined in BS 5266: Parts 1-7, and BS EN 60598-2-22. Emergency lighting will illuminate all occupied areas, common evacuation routes (internal and external as necessary) and essential areas including plant areas.

It will also illuminate a safe exit route including fire exits, fire alarm call points, changes in level or direction and firefighting equipment. Lighting to escape stairs should be on a separate circuit from that supplying any other part of the escape route.

Where used, it must be ensured that the emergency lighting will provide at least the minimum level of illumination to photoluminescent escape signage **BS 5499-4**.

Primary and emergency lighting will be required for any external escape routes that will not be lit by surrounding street lighting.

Any areas requiring a licence should be provided with maintained emergency lighting, the emergency lighting will be always lit during a licensed event.

Discharge lighting installations may operate at voltages that are a hazard to firemen. An exterior discharge lighting installation, or an interior discharge lighting installation operating unattended, operating at a voltage exceeding low voltage (as defined in Statutory Instrument number 1018, part of the Building Regulations), should be controlled by a firemen's emergency switch installed and situated in accordance with the IEE Wiring Regulations and the requirements of the fire authority.

Fire Safety Signage:

Fire safety signs should be installed where necessary to provide clear identification of fire precautions, fire equipment and means of escape in the event of fire. All parts of the development should be fitted with appropriate fire safety signage, signage to be specified in accordance with **BS 5499-4 and BS 5499-10: 2014**.

Fire notices should be permanently displayed in conspicuous positions throughout the building and should be specific to it.

All fire doors should be marked with the appropriate fire safety sign conforming to BS 5499-1 (white on blue) according to whether the door is:

- to be kept closed when not in use ('FIRE DOOR - KEEP SHUT')
- to be kept locked when not in use ('FIRE DOOR - KEEP LOCKED')
- held open by an automatic release mechanism ('AUTOMATIC FIRE DOOR - KEEP CLEAR')

Fire doors to cupboards and to service ducts should be marked on the outside at about eye level. All other fire doors should be marked on both sides at about eye level.



Any emergency securing device fitted to doors on escape routes are to be provided with instruction notices, adjacent to the device, indicating the method of operation.

B2 – Internal fire spread (linings):

ADB determines linings to limit the internal spread of fire within the building, as linings* that shall:

- adequately resist the spread of flame over their surfaces
- have, if ignited, either a rate of heat release or a rate of fire growth, which is reasonable in the circumstances.
- In this paragraph “internal linings” means the materials or products used in lining any partition, wall, ceiling, or other internal structure

It does not however, cover Generation of smoke and fumes, the upper surfaces of floors and stairs & furniture and fittings.

**The surface linings of walls and ceilings should meet the classifications in ADB, Table 6.1*

Table 6.1 (ADB) - Surface Spread of Flame Classification

Location	Class	Euro Class
Circulation spaces	Class 0	B-s3, d2
Small non-residential rooms <30m ²	Class 3	D-s3, d2
Other areas	Class 1	C-s3, d2

B3 – Internal fire spread (structure):

Compartmentation:

The primary objective of compartmentation within buildings is twofold:

- to prevent rapid fire spread which could trap occupants of the building
- to reduce the chance of fires becoming large on the basis that large fires are more dangerous, not only to building occupants and fire service personnel, but to people in the vicinity of the building

The floor between the basement and ground levels should be a compartment floor to **60 minutes** protection. All shafts (e.g., risers, lift shafts and stair cores) penetrating this floor are to be formed as protected shafts.

While other floors do not need to be formed as compartment floors, the protection to floors listed in Table 5 is still required to provide for safe means of escape and fire-fighter access. Sealing of penetrations is not required.

Table 5 - Periods of Fire Resistance

Building Element	Period of Fire Resistance
Structural frame and load-bearing walls	60 minutes LB
External walls (where necessary)	60 minutes LB/Int -15 ⁺ mins Ins
Compartment walls and compartment floors	60 minutes LB/Int/Ins
Floors	60 minutes LB/Int/Ins
Protected Shafts	60 minutes LB/Int/Ins
Places of special fire hazard	30 minutes LB/Int/Ins
Protected escape routes	30 minutes LB/Int/Ins

LB - Loadbearing / Int - Integrity / Ins - Insulation

6. RECOMMENDATIONS

Following the description of the areas proposed for refurbishment and their current use, and after examination of proposed plans, a site visit and conversations with the project team and Architects.

MGR recommend the following changes relating to the overall fire safety measures which are required to fulfil the Statutory and Regulatory requirements within the proposed refurbishment project.

All door and room numbers noted are those indicated on the supplied floor plans (as per the, documents used, table earlier in this report).

Fire safety Legislation and Regulation is not retrospective, and as such there is no requirement to improve the fire safety measures originally specified and installed within a site under general improvements / alterations, we are only required to “not make the original measures worse”.

This does not apply however, where the changes are significant and constitute a major refurbishment project. As the proposed refurbishment is noted as a “major” project, fire safety law requires us to ensure that all passive and active fire safety measures within the area of refurbishment are brought to the standards current at the time of refurbishment.

MGR recommend the following improvements to site following consideration of the proposed refurbishment plans:

Fire alarm system:

It is recommended that the building be fitted with an automatic fire alarm system designed and installed in accordance with **BS 5839-1:2017**, throughout the site to a Category **M/L2** standard (as a minimum), this will permit early warning of fire in any infrequently used areas of the building along with those relating to higher risk areas such as boiler houses, kitchens etc.



The following types of detection should be installed in the following locations:

- Manual call points (MCP's) – adjacent to each final exit from the building and to each level exit (1st, & 2nd floors)

Smoke detection (ground):

- Escape routes - room 006, room 009 (main stair lobby), room 010 (lobby), room 093 (corridor)
- Office / meeting spaces – 005, 007, 004, 014, 008 & 013

Smoke detection (first):

- Escape routes – 009, 010, 011, 012, 015, 017, & 021
- Office / meeting space – 007, 008, 006, 004, 013, 014, 016 & 020

Heat detection:

- Proposed kitchen spaces – 003 (ground), 005 (first) + other kitchen location currently proposed as room 012

Visual devices (Beacons):

- Toilets – should be installed to all existing and proposed toilets within the project

Activation of a manual call point or single detector head (heat or smoke) should result in the simultaneous evacuation of all areas of the building noted within this report. As this area will be separated from the rest of the site and used as a standalone building a single system should be provided, with the control panel located at the proposed main entrance at ground floor level, door 076 / room 006.

Doors:

The following door sets should all be replaced with certified units to FD30s standard (as defined in **BS476-22:1987**):

Ground:

- 002, 001, 013, 003 & 017

First:

- 065, 066, 067, 063, 059 (double) & 070

Second:

- 002 (door into room 003 – proposed kitchen space)



All final exit doors within the area of refurbishment should be to a suitable standard, and readily available always, with a single mechanism to operate them installed and indicated (push bar / pad etc.) This should include the exit doors 078, 072, 076 (new main entrance), 064 & 050

Site separation:

To the end of corridor 93, it is proposed to seal off the portion of the building being refurbished from the nursery beyond, this separation will constitute a party wall and as such will require a minimum separation resistance of **60 minutes fire protection**.

This separation should:

- follow the line of the raised floor area within room 023 to the external line of the building
- “run the full height of the building in a continuous vertical plane”
- “be continued through any roof space to the underside of the roof” (ADB 2019, B3 – 8.18)

Escape routes:

Escape routes should be kept clear of all material build-up, always and in a “sterile” condition, this means that no electrical equipment should be placed within them (photocopiers etc.). In the corridor area (093), it is proposed to locate break out seating modules which are to be approximately half of the corridor width (1.25m), this width should be no more than half of the corridor width to ensure that escape routes are not overly compromised.

To room 008 (first floor), there is an external spiral escape stair accessed via door 011, it was noted at the time of site attendance that the windows to the first-floor platform and at the ground floor levels did not appear to be fire rated.

All glazing within 1.8m of the escape stair should be fire rated to at least 30 minutes protection (RE30), as noted within diagram 3.4 ADB volume 2. The glazing around this escape stair should be replaced with appropriately rated products.

Within room 003 (ground floor), there is a glazed sliding opening into the corridor space (093), this does not appear to be to a fire rated standard and should be replaced with appropriately rated glazing or filled with appropriately rated materials to provide 30 minutes protection to the escape corridor (093).

Emergency Escape Lighting:

Emergency escape lighting should be installed to provide temporary illumination in the event of failure of the primary power supplies to the normal lighting system. As part of the emergency lighting system, escape lighting should be provided to ensure the escape routes are illuminated at all material times. Adequate artificial lighting should be provided in all common escape routes and be of a sufficient standard to enable persons to see during an escape.

Emergency lighting should be installed in accordance with the recommendations defined in **BS 5266: Parts 1-7, and BS EN 60598-2-22**. Emergency lighting will illuminate all occupied



areas, common evacuation routes (internal and external as necessary) and essential areas including plant areas.

Fire Safety Signage:

Fire safety signs should be installed where necessary to provide clear identification of fire precautions, fire equipment and means of escape in the event of fire. All parts of the development should be fitted with appropriate fire safety signage, signage to be specified in accordance with **BS 5499-4 and BS 5499-10: 2014**.

Fire notices should be permanently displayed in conspicuous positions throughout the building and should be specific to it.

All fire doors should be marked with the appropriate fire safety sign conforming to BS 5499-1 (white on blue) according to whether the door is:

- to be kept closed when not in use ('FIRE DOOR - KEEP SHUT')
- to be kept locked when not in use ('FIRE DOOR - KEEP LOCKED')
- held open by an automatic release mechanism ('AUTOMATIC FIRE DOOR - KEEP CLEAR')

Fire doors to cupboards and to service ducts should be marked on the outside at about eye level. All other fire doors should be marked on both sides at about eye level.

Any emergency securing device fitted to doors on escape routes are to be provided with instruction notices, adjacent to the device, indicating the method of operation.

7. CONCLUSION

In conclusion, and based on the plans provided, site visit and conversation with Architects and project team, MGR have made several observations within the body of this report relating to the proposed redevelopment of Xxxxxxx,

The key element to the refurbishment was the possibility (from a fire safety perspective), of opening the space to create a better flow, this was to include the removal 2no. fire separation glazed screens and to provide space for both traditional and infrequent use of the building.

It is the opinion of MGR that, based on all information provided, that the removal of the original glazed screens to both the ground and first floor main stair lobbies does not constitute a significantly heightened risk to this part of the site.

This is due to relatively limited numbers of people noted in the area (100 maximum), their status (awake & alert) and the availability of alternative directions of travel and protected escape routes.

Travel distances are to minimal levels and there are no significantly high-risk activities noted within the proposals, it is the opinion of MGR that, pursuant to all recommendations of this report being met, the substantive changes noted do not constitute any significant additional risk to relevant persons in and around this building



The full report should be read to clarify all observations; however, the following are the key points to consider:

- Fire detection to be to a category of at least **M/L2** as per **BS5839-1: 2017**
- Fire resisting doors (where noted), to be to **FD30s** standard as per **BS476-22: 1987**
- Glazing improvements around external spiral escape stair as per **ADB diagram 3.4**
- Relocation of proposed kitchen (first floor), to an alternative location
- Separation of refurbished area from nursery as per **ADB table B3**

- Suitable & sufficient emergency escape lighting to be installed as per **BS5266-1: 2016**
- Fire signage to be installed to appropriate levels to **BS5499-10: 2014** standards

Any doors not noted within this report as requiring replacement are not considered to be intended as fire resisting doors and can be replaced (or left unchanged), with doors matching improvements in the area.

8. AUTHORISATION

Signature:

A handwritten signature in black ink, appearing to read 'M. Ryan', is written over a light grey rectangular background.

Martin Ryan **BA(Hons); MIFireE; CIWFM; Tech IOSH; DipFD**
Managing Director – Fire Consultant



9. REFERENCES

Building regulations 2010 (2019 edition, as amended 2020) - Approved Document B “Fire Safety” (Volume 2), Buildings other than dwellinghouses

BS 9999:2017 - Fire Safety in the design, management and use of buildings, code of practice

BS 5266-1:2016 - Code of practice for the emergency lighting of premises

BS 5499-10:2014 Guidance for the selection and use of safety signs and fire safety notices

BS 5839-1:2017 - Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning, and maintenance of systems in non-domestic premises

BS 476-22:1987 – fire tests on building materials and structures (method for determination of the fire resistance of non-loadbearing elements of construction)

BS EN 1634-1:2014 – fire resistance and smoke control tests for door and shutter assemblies, openable windows, and elements of building hardware

BS 8214:2019 – fire door code of practice (revised)

BS 8300-2:2018 Design of an accessible and inclusive built environment. Buildings - code of practice

BS 7974: 2019 – Application of fire safety engineering principles to the design of buildings (code of practice)

PD 7974-1 to 7 (published documents) – guidance and information on how to undertake detailed analysis of specific aspects of fire safety engineering in buildings