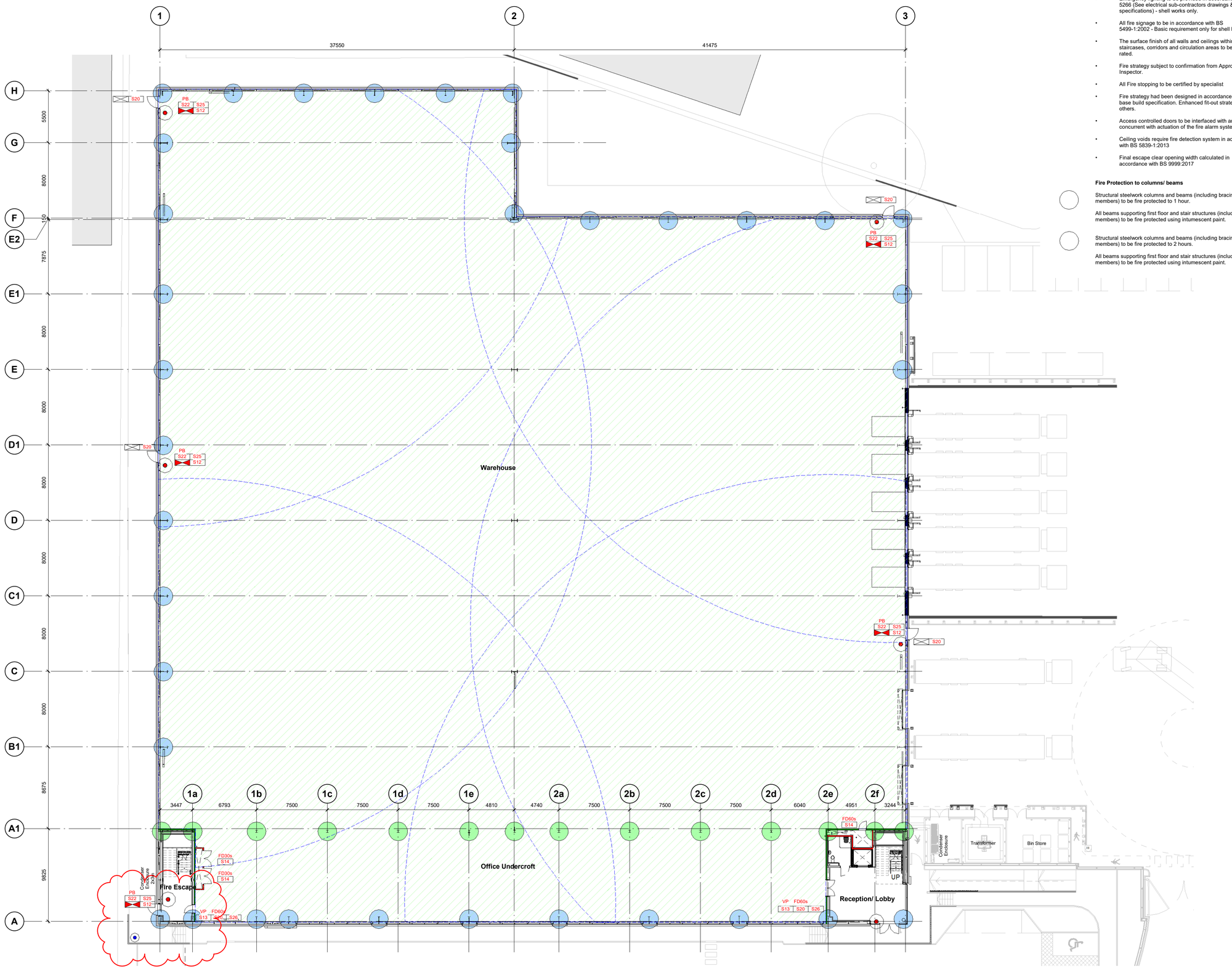
1.4 Fire Safety Strategy

1.4.1 Fire Safety Strategy

The fire strategy drawings were provided by **UMC Architects** and follow in this section.

Drawing No.	Drawing Title	Rev
P23025-UMC-BR-00-DR-A-1401	Overall Fire Strategy	AB CR1
P23025-UMC-BR-00-DR-A-1404	Fire Boundaries Plan	AB CR1
P23025-UMC-BR-00-DR-A-1406	Fire Tender Access	AB FI
P23025-UMC-BR-00-DR-A-1407	Fire Tender Access - Southern Elevation	AB FI
P23025-UMC-BR-00-DR-A-1408	Fire Tender Access - Eastern Elevation	AB FI
P23025-UMC-BR-RL-DR-A-1405	Roof Level Fire Strategy	AB CR1
P23025-UMC-BR-ZZ-DR-A-1111	Fire Escape Stairs	AB CR1
P23025-UMC-BR-ZZ-DR-A-1402	Office Fire Strategy	AB CR2
P23025-UMC-BR-ZZ-DR-A-1403	Fire Boundary Elevations	AB CR1

- Dimensions are all in millimeters, unless stated otherwise.
- It is the recipients responsibility to print this document to the correct scale.
- All the relevant drawings and specifications should be read in conjunction with this drawing.
- Scaling of this drawing is not recommended.



Overall Ground Floor Plan
1 : 200

1m SCALE 1:200

- Emergency lighting to be provided in accordance with BS 5266 (See electrical sub-contractors drawings & specifications) - shell works only.
- All fire signage to be in accordance with BS 5499-1:2002 - Basic requirement only for shell build.
- The surface finish of all walls and ceilings within staircases, corridors and circulation areas to be class 0 rated.
- Fire strategy subject to confirmation from Approved Inspector.
- All Fire stopping to be certified by specialist
- Fire strategy had been designed in accordance with the base build specification. Enhanced fit-out strategy by others.
- Access controlled doors to be interfaced with and unlock concurrent with actuation of the fire alarm system.
- Ceiling voids require fire detection system in accordance with BS 5839-1:2013
- Final escape clear opening width calculated in accordance with BS 9999:2017

Fire Protection to columns/ beams

Structural steelwork columns and beams (including bracing members) to be fire protected to 1 hour.

All beams supporting first floor and stair structures (including brace members) to be fire protected using intumescent paint.

Structural steelwork columns and beams (including bracing members) to be fire protected to 2 hours.

All beams supporting first floor and stair structures (including brace members) to be fire protected using intumescent paint.

Fire Safety Key:

FD30s	Resisting doorsets 30 mins fire and smoke.
FD60s	Resisting doorsets 60 mins fire and smoke.
SC	Self closing.
VP	Vision panel.
PB	Push Bar
	Illuminated external emergency bulkhead - 3 hour duration.
	Illuminated exit sign with directional arrow / running man 3 hour duration.
	Illuminated Intelligent Fire exit signage. Sign to indicate if exit is available or not, depending on location of fire. Details and integration with fire alarm as per M&E information.
	Non-Illuminated exit signage with directional arrow / running man.
FAP	Main fire alarm panel.
COM	2 way communication link for disabled refuge to main fire panel location.
S12	Sign - Fire action.
S13	Sign - Fire door keep shut (both sides of door).
S14	Sign - Fire door keep locked.
S20	Sign - Fire escape keep clear.
S22	Sign - Fire exit.
S25	Sign - Push bar to open.
S26	Sign - Direction Arrow/Running Man.
	30 Minutes Fire Integrety Required
	60 Minutes Fire Integrety Required
	120 Minutes Fire Integrety Required
	Cavity Barrier 30 Minutes Fire Integrety Required Note: Should be installed within Ceiling Void and Raised Access Floor Void
	Break Glass Unit (1400mm installation height)
	2-way communiction link for Accessible refuge point (1400 x 900 space) to reception fire alarm panel
	2-way communiction link for Accessible refuge point to reception fire alarm panel
	Extent of warehouse personnel escape distance 45m, unless otherwise stated.
	Denotes Minimum Extent of Floor slab to provide 60min. fire resistance between floor levels. To be confirmed by Buiding Control Continuous fire batt to be installed between slab edge and cladding liner sheet (within sheeting rail zone). All joints to be intumescently sealed

NOTE:

For door fire ratings and signage, see drawing 1501

- Steelwork protection strategy to be advised by contractor. CONSTRADO base solution to be utilised where possible/suitable.
- Compartment floors are to be fire rated to a minimum of 1 hour.
- General note for details and locations of fire alarm detection system & emergency lighting. See mechanical and electrical drawings.
- Manual fire alarm system to be provided in accordance with BS 5839 PART 1 : 2002 category M to ground floor office, system to have manual call points, sounders & control panel all in accordance with local fire officers requirements (see mechanical & electrical engineers drawings & specifications).

rev	amendments	by	ckd	date
CR1	Construction Record Issue	LK	SW	27.08.24
C04	Disabled refuge call point indicated externally of the fire escape stair.	SW	MB	08.07.24
C03	Whitewall indicated as 2 hours fire rated as per the specification. Door or window openings within the wall align to building regulations as per the specification and as confirmed by Winvic 05.06.24 . Steelwork supporting the whitewall requires 2 hours fire rating.	SW	LK	26.06.24
C02	Confirmation of whitewall fire rating as 120 mins	SW	LK	15.04.24
C01	Drawing updated following acceptance of layout reconfiguration and to align to Clark Banks fire advisory mark-ups recieved 13.02.24.	SW	LK	05.03.24
P03	Fire Strategy drawings issued for review and comment	SW	LK	02.02.24
P02	Issued for review and comment	SW	LK	14.12.23
P01	Preliminary Issue	SW	LK	24.11.23

Horton Road, Poyle

Overall Fire Strategy

FINAL ISSUE
THIS DRAWING IS TO BE USED FOR THE STATED PURPOSE ONLY AND SHOULD NOT BE USED FOR ANY OTHER

Information Container LOIN

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RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	08/03/23
Scale:	1 : 200 @ A1
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
P23025 _UMC _BR _00 _DR _A_	1401	CR1

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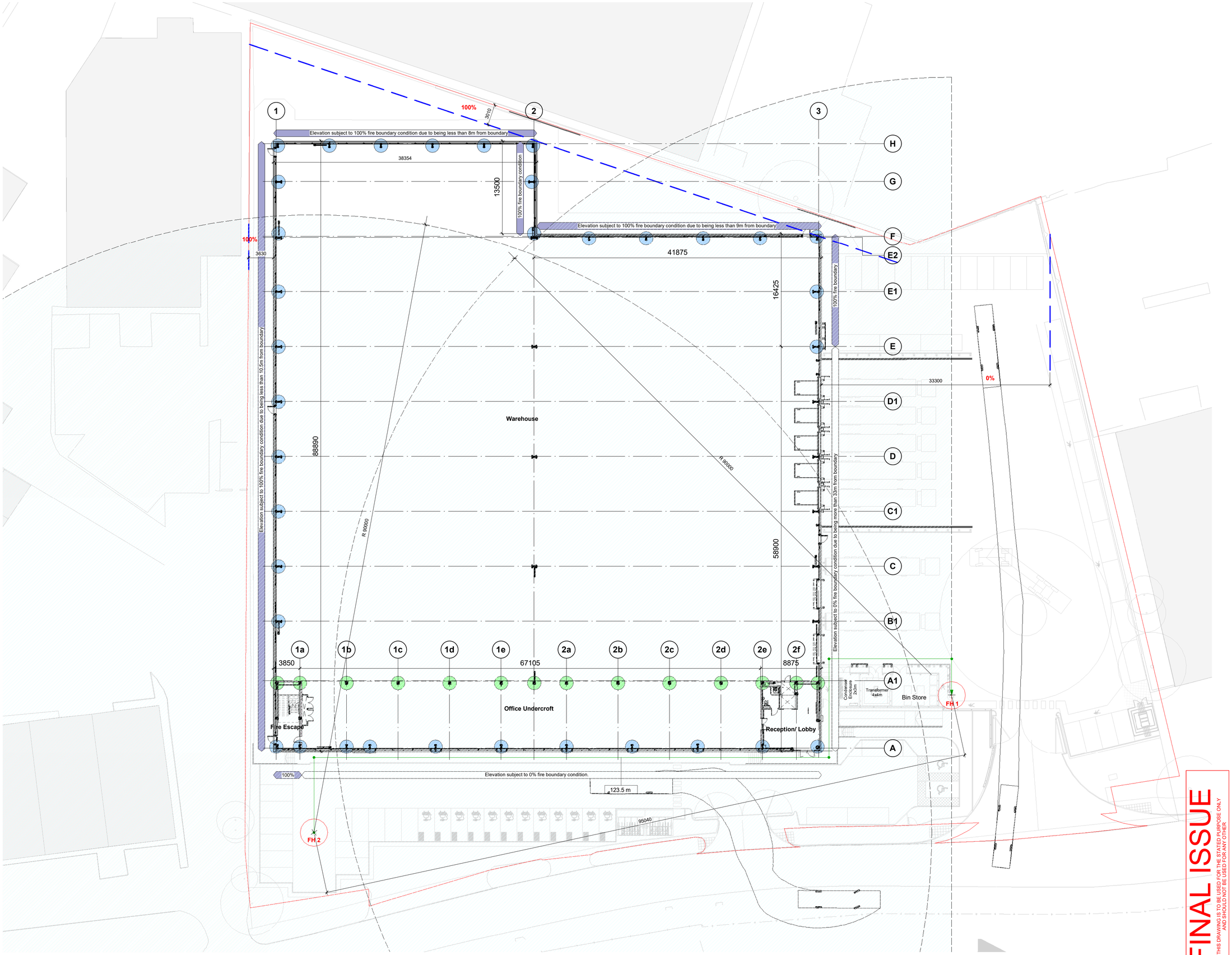

Overall Ground Floor Plan
1 : 250

Fire Boundries Key:

- Red line boundary
- Distance from red line boundary (mm)
- Elevation width (mm)
- FH — Proposed fire hydrant postion
- 90m fire hydrant radius

Fire Protection to columns/ beams

Structural steelwork columns and beams (including bracing members) to be fire protected to 1 hour.

All beams supporting first floor and stair structures (including brace members) to be fire protected using intumescent paint.

Structural steelwork columns and beams (including bracing members) to be fire protected to 2 hours.

All beams supporting first floor and stair structures (including brace members) to be fire protected using intumescent paint.

NOTE:

Percentage of protected elevations has been calculated inline with BRE_187_2014, page 52. This should be checked and where neccessary updated to suit Fire Consultants Fire Engineering Report.

Fire strategy drawings to be read in conjunction with Fire Engineering report.

Fire Engineering report takes precidence over drawings.

Fire strategy drawings align to Clark Banks fire safety advisory mark-ups.

Doors and Glazing are not included within protected areas.

rev	amendments	by	ckd	date
CR1	Construction Record Issue	LK	SW	27.08.24
C04	Fire hydrant positions added to drawing as per the WMB DWG. Direct and actual travel distances between both fire hydrants shown as per the Winvic request 08.07.24	SW	MB	08.07.24
C03	Second fire hydrant position indicated as per Winvics proposed location 18.06.24. Steelwork supporting the whitewall requires 2 hours fire rating.	SW	LK	26.06.24
C02	Fire hydrant relocated as per Winvic request 11.04.24	LK	SW	12.04.24
C01	Updated to align to Clark Banks fire advisory mark-ups received 13.02.24	SW	LK	26.02.24
P01	Fire Strategy drawings issued for review and comment	SW	LK	02.02.24

Horton Road, Poyle

Fire Boundaries Plan

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RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	05/12/23
Scale:	As indicated @ A1
UMC Project Number:	22400
Document Reference:	P23025 _UMC _BR _00 _DR _A_
Drawing no:	1404
Revision:	CR1

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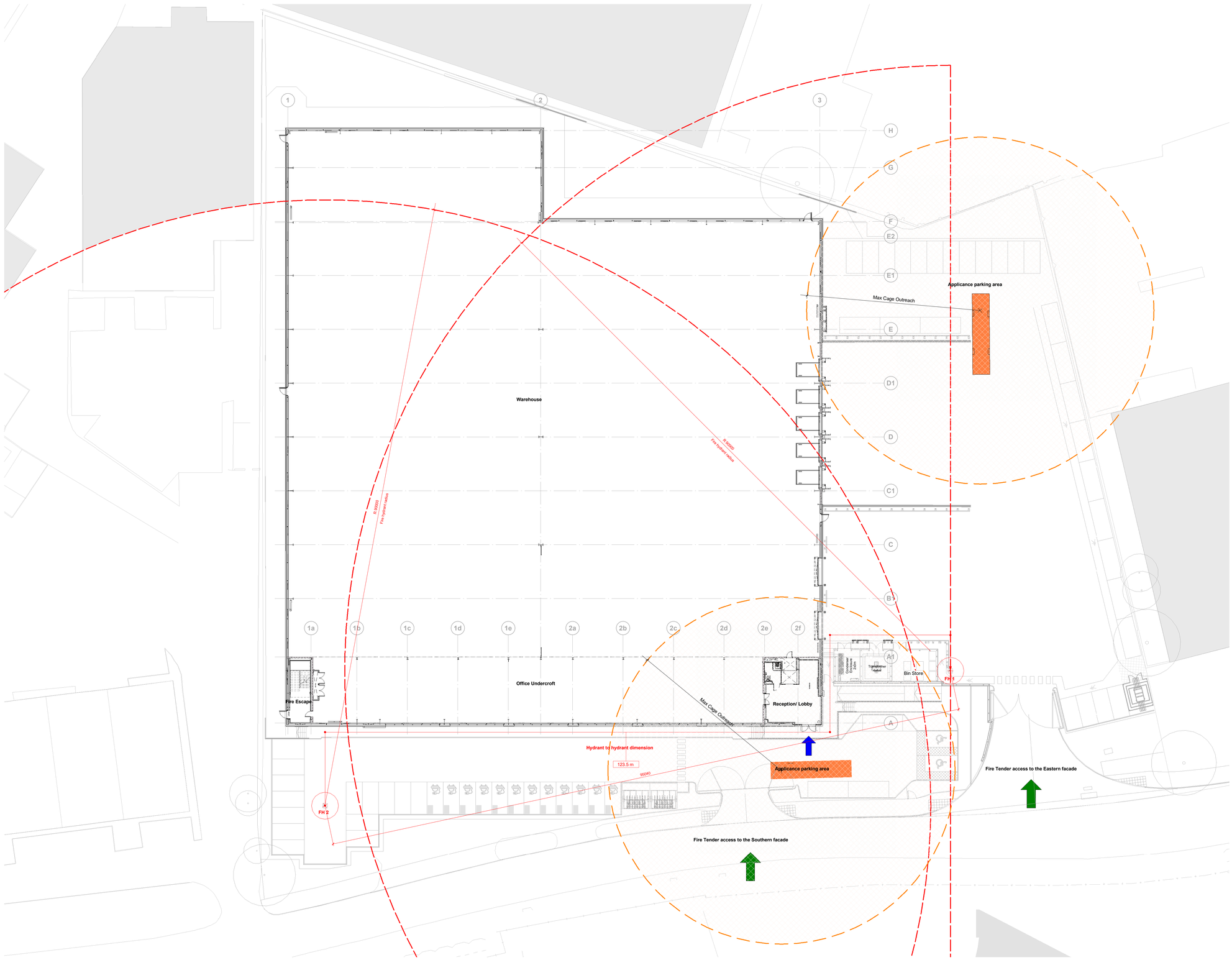
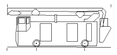


Fire Tender Access Key:

- Hose distances
- FH — Proposed fire hydrant postion
- 90m fire hydrant hose radius
- Vehicle entrance points
- Appliance parking areas
- Maximum cage outreach
- Requested Dimensions
- Premises entrance points



ALP: Bronto Skylift 45XR

Length: 10,175mm
Width: 2,300mm
Height: 3,700mm
Max working height: 45,000mm
Max cage outreach: 25,800mm
Kerb to kerb turning radius 13,750mm

Note:

Drawing to be read in conjunction with drawings:

P23025-UMC-BR-00-DR-A-1407-Fire Tender Access - Southern Elevation
P23025-UMC-BR-00-DR-A-1407-Fire Tender Access - Eastern Elevation

Fire Tender Access
1 : 200

1m SCALE 1:200

rev	amendments	by	ckd	date
C02	Revised following comments from Clark Banks	SW	LK	23.08.24
C01	Initial Issue	SW	GM	16.08.24
CR1	Construction Record Issue	LK	SW	27.08.24

Horton Road, Poyle

Fire Tender Access

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RIBA PoW Stage:	Stage 4 - Detailed Design
Document Suitability:	CR
Drawn / Checked:	SW/LK
Date:	16/08/24
Scale:	As indicated @ A0
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
P23025_UMC _BR _00 _DR _A_ 1406		CR1

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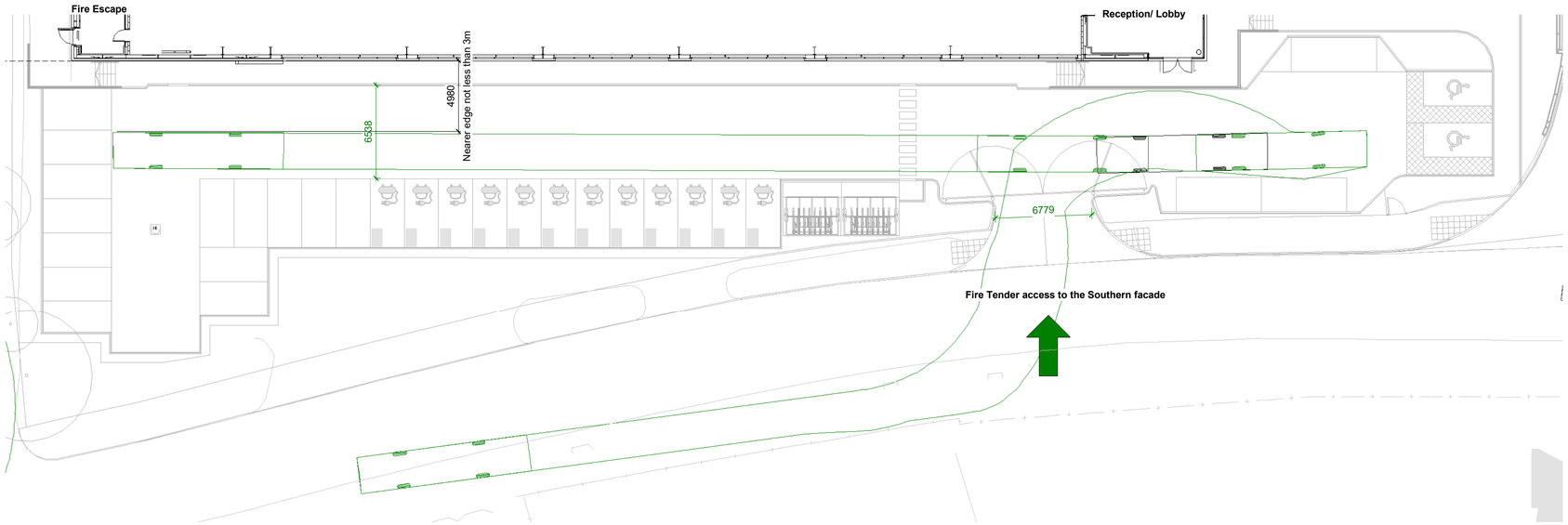
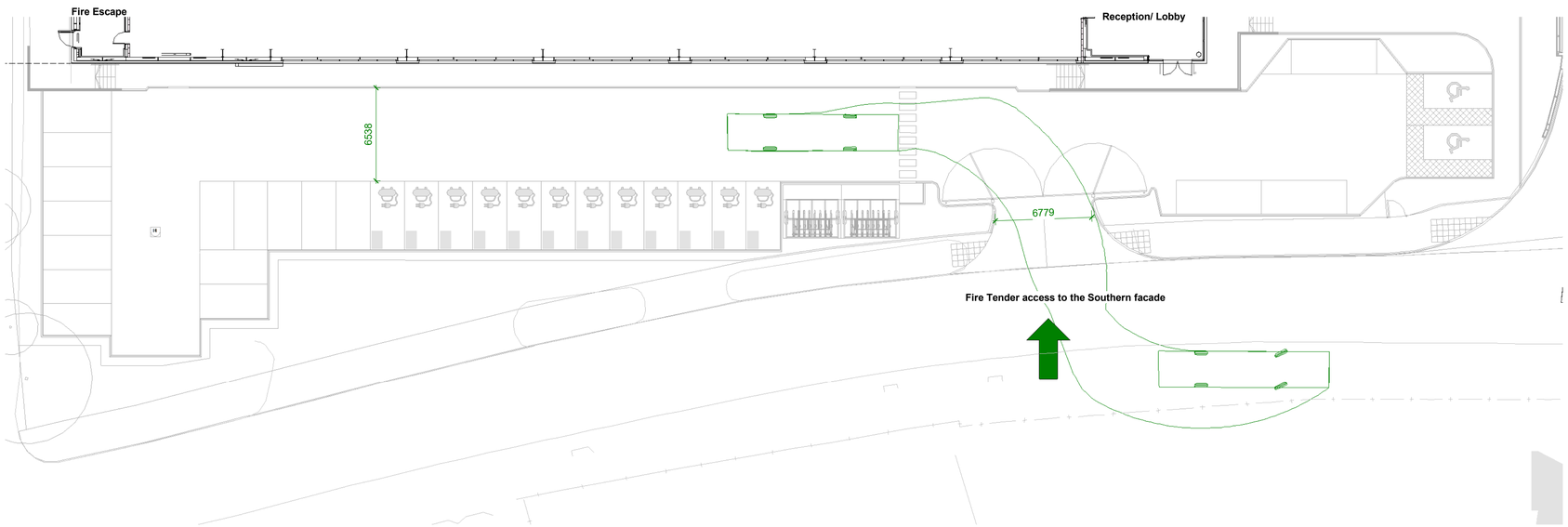


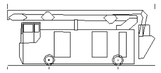
Fire Tender Access - Southern Elevation
1 : 200



Fire Tender Egress- Southern Elevation
1 : 200

Fire Tender Access, Elevation Key:

- Fire tender turning movements
- Fire Tender Access Widths
- Vehicle entrance points
- Requested Dimensions



ALP: Bronto Skylift 45XR

Length: 10,175mm
Width: 2,300mm
Height: 3,700mm
Max working height: 45,000mm
Max cage outreach: 25,800mm
Kerb to kerb turning radius 13,750mm

Note:

Drawing to be read in conjunction with drawing:

P23025-UMC-BR-00-DR-A-1406-Fire Tender Access

rev	amendments	by	ckd	date
C02	Revised following comments from Clark Banks	SW	LK	23.08.24
C01	Initial Issue	SW	GM	16.08.24

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Fire Tender Access - Southern Elevation

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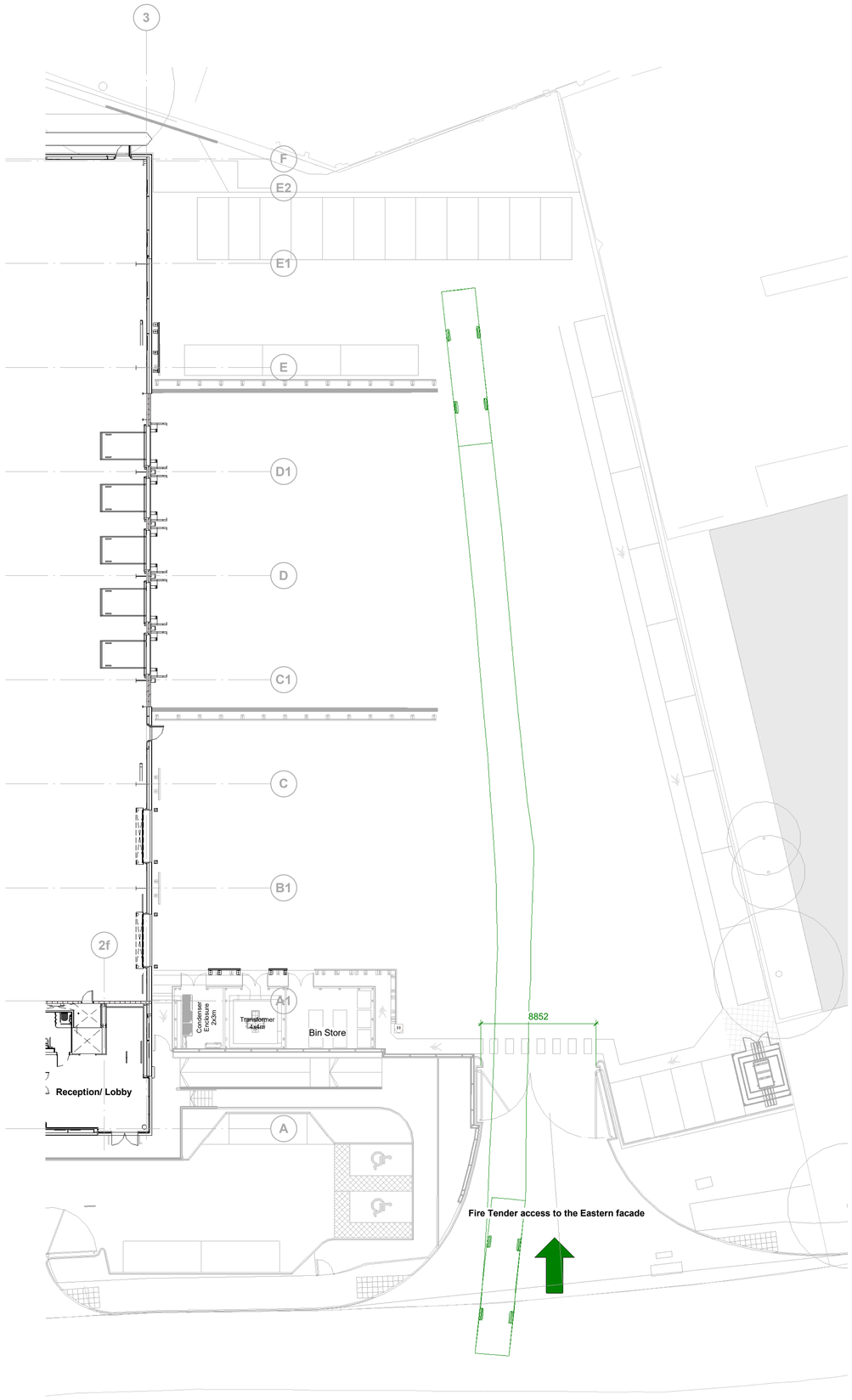
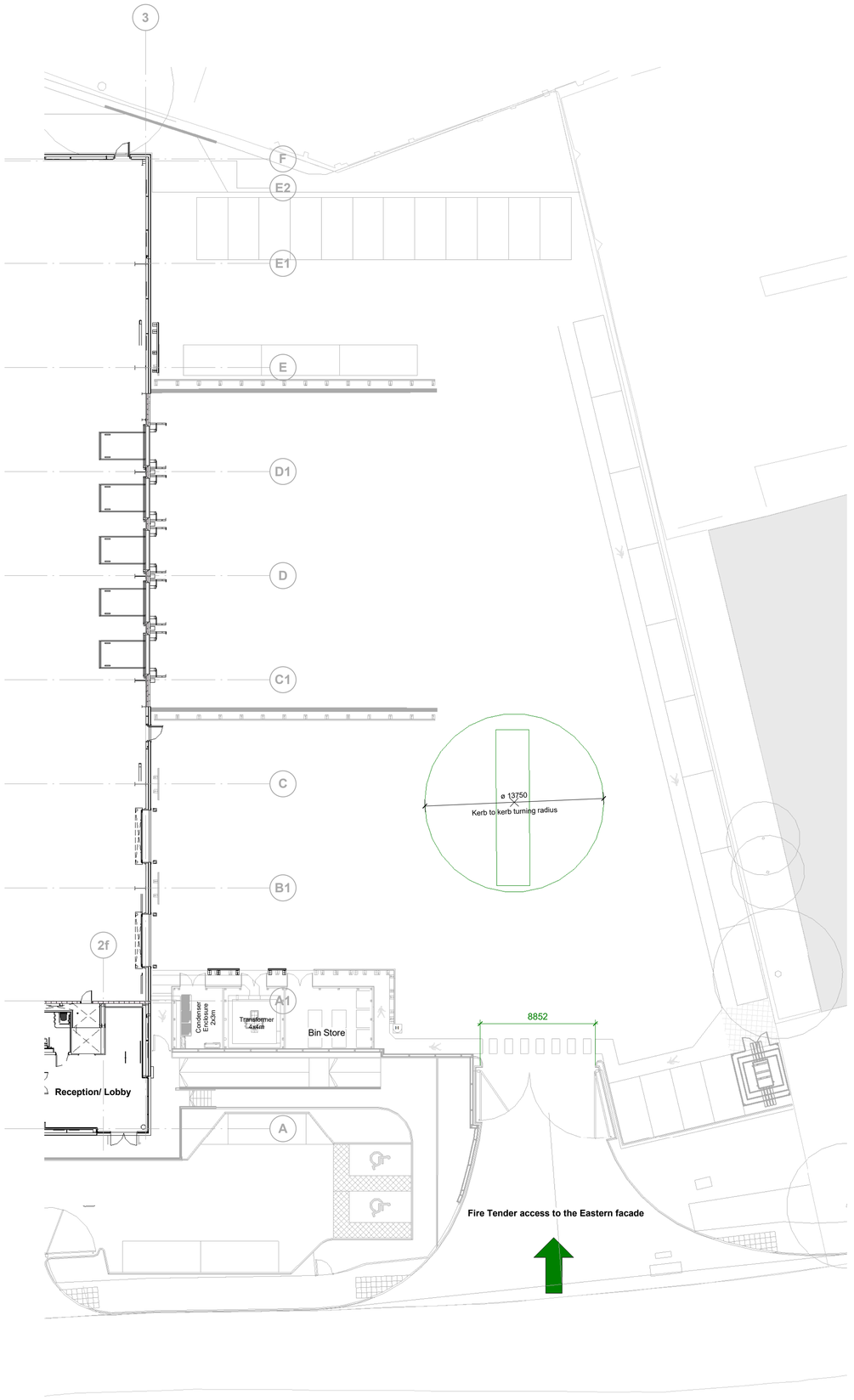
1m SCALE 1:200

RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	16/08/24
Scale:	As indicated @ A1
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
P23025 _UMC _BR _00 _DR _A_	1407	C02



Fire Tender Access - Eastern Elevation
1 : 200



Fire Tender Egress - Eastern Elevation
1 : 200

1m SCALE 1:200

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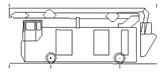
Fire Tender Access, Elevation Key:

Fire tender turning movements

Fire Tender Access Widths

Vehicle entrance points

Requested Dimensions



ALP: Bronto Skylift 45XR

Length: 10,175mm
Width: 2,300mm
Height: 3,700mm
Max working height: 45,000mm
Max cage outreach: 25,800mm
Kerb to kerb turning radius 13,750mm

Note:

Drawing to be read in conjunction with drawing:

P23025-UMC-BR-00-DR-A-1406-Fire Tender Access

rev	amendments	by	ckd	date
C02	Revised following comments from Clark Banks	SW	LK	23.08.24
C01	Initial Issue	SW	GM	16.08.24

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Fire Tender Access - Eastern Elevation

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RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	16/08/24
Scale:	As indicated @ A1
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
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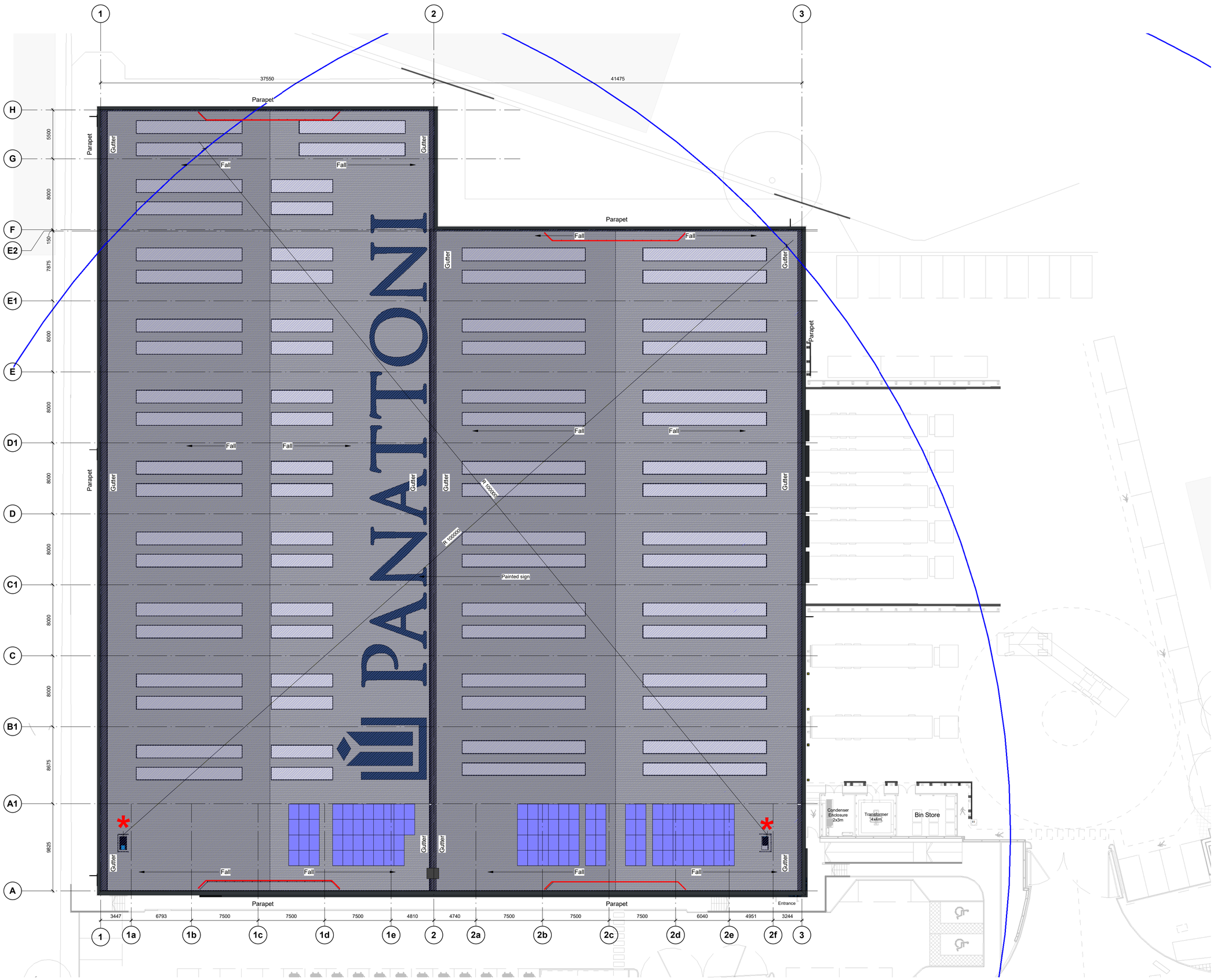

Roof Level Fire Strategy
1 : 200

1m SCALE 1:200

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Roof Level Fire Strategy Key:

- Representative of 250m² of roof mounted Solar PV installation. And 5m² of roof mounted Solar Thermal panels.
- Bilco Companionway Access Roof Hatch CS-50TB with BilGuard 2.0 Hatch Railing system. Accessed via a ships ladder.
- Triple skinned GRP rooflight, with a 2.44kg/lm (CE24) inner and a 1.83kg/lm (CE18E) 'Quick Releasse' outer skin.
- Extent of escape distance 100m, unless otherwise stated.
- Proposed locations for roof egress
- Proposed locations for handrail system attached to roof sheet.

NOTE:

- General note for details and locations of fire alarm detection system & emergency lighting. See mechanical and electrical drawings.
- Manual fire alarm system to be provided in accordance with BS 5839 PART 1 : 2002 category M to ground floor office, system to have manual call points, sounders & control panel all in accordance with local fire officers requirements (see mechanical & electrical engineers drawings & specifications).
- Emergency lighting to be provided in accordance with BS 5266 (See electrical sub-contractors drawings & specifications) - shell works only.
- All fire signage to be in accordance with BS 5499-1:2002 - Basic requirement only for shell build.
- Fire strategy subject to confirmation from Approved Inspector.
- Fire strategy had been designed in accordance with the base build specification. Enhanced fit-out strategy by others.
- Final escape clear opening width calculated in accordance with BS 9999:2017

rev	amendments	by	ckd	date
CR1	Construction Record Issue	LK	SW	27.08.24
C02	PV layout updates to suit latest information received on 04.07.24, step over gutter plate included as per Clarke Bank comments 03.07.24	LK	SW	04.07.24
C01	Office grids added to drawing. Roof hatch is now Bilco Companionway Access Roof Hatch CS-50TB with BilGuard 2.0 Hatch Railing system.	SW	LK	05.03.24
P01	Fire Strategy drawings issued for review and comment	SW	LK	02.02.24

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Roof Level Fire Strategy

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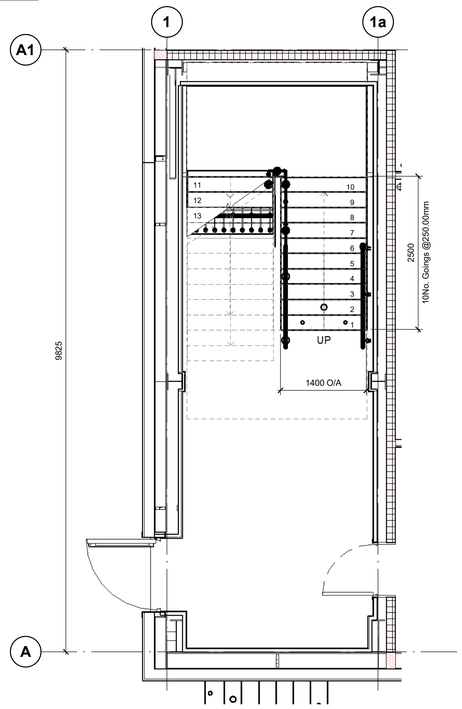
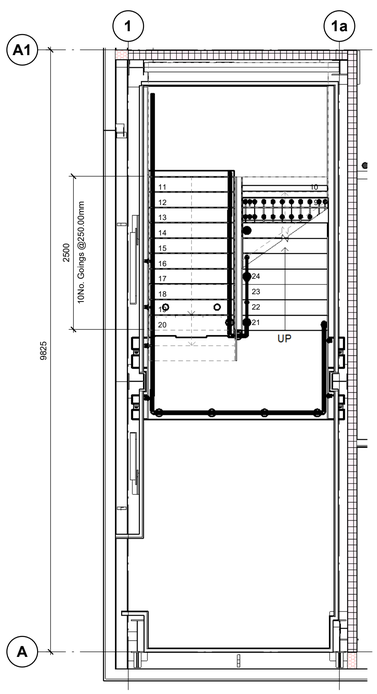
RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	05/12/23
Scale:	As indicated @ A1
UMC Project Number:	22400

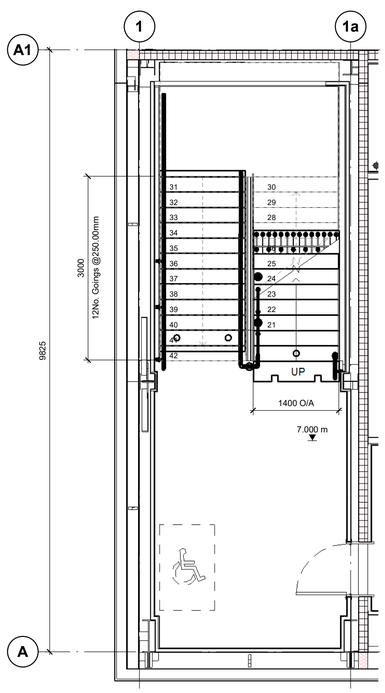
Document Reference:	Drawing no:	Revision:
P23025 _UMC _BR _RL _DR _A_	1405	CR1



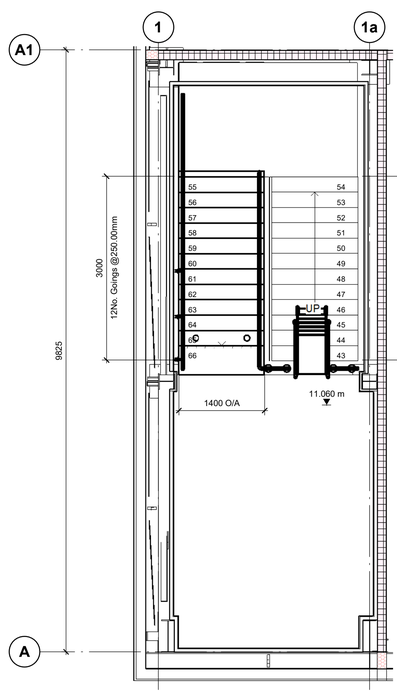
Fire Escape Stair GF Plan
1 : 50



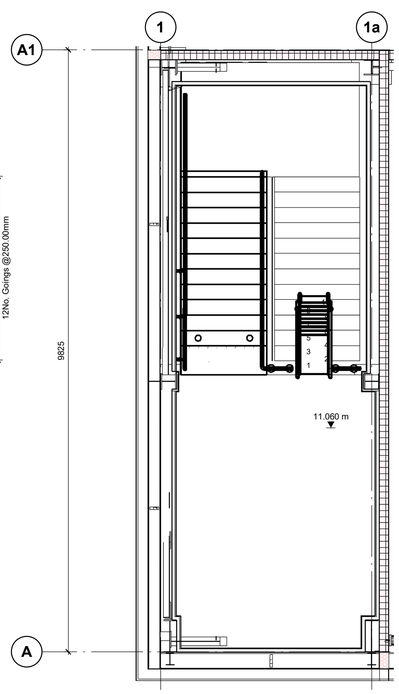
Fire Escape Stair Mid Landing
1 : 50



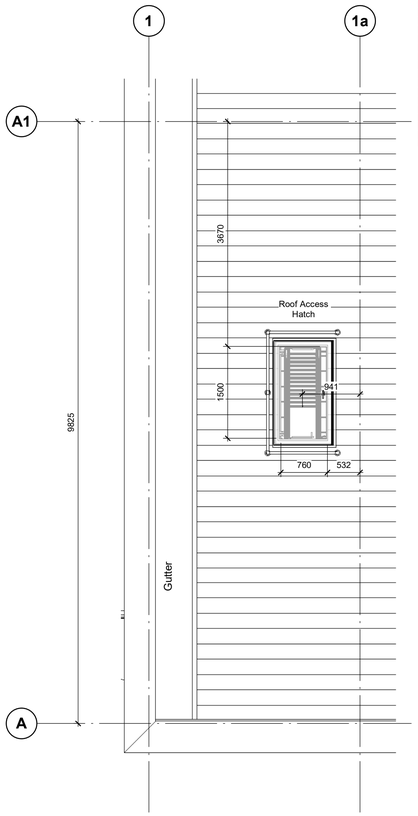
Fire Escape First Floor Stair Plan
1 : 50



Fire Escape Plant Deck Stair Plan
1 : 50



Fire Escape Roof Stair Plan
1 : 50



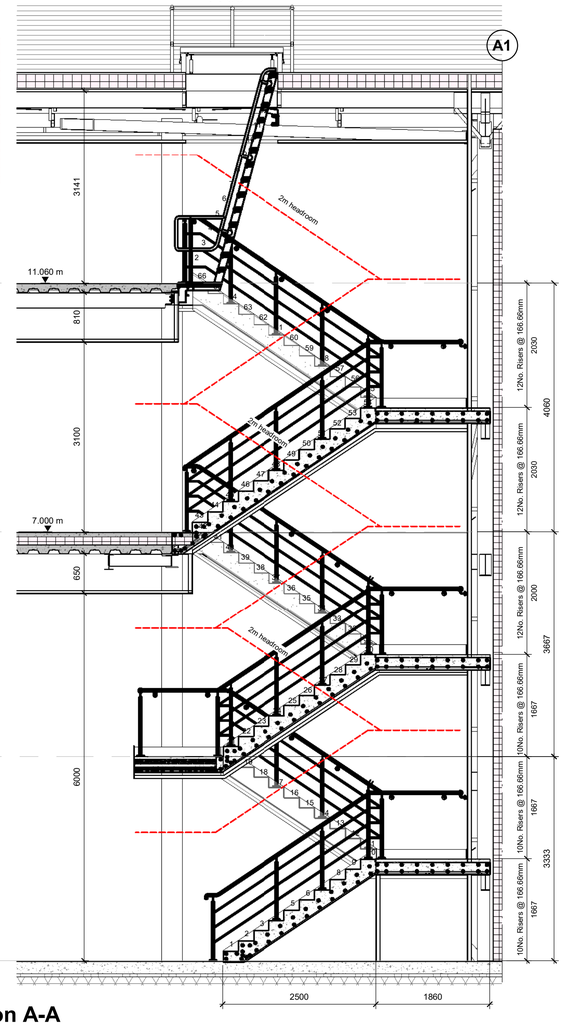
Roof Level Fire Escape
1 : 50

1m SCALE 1:50

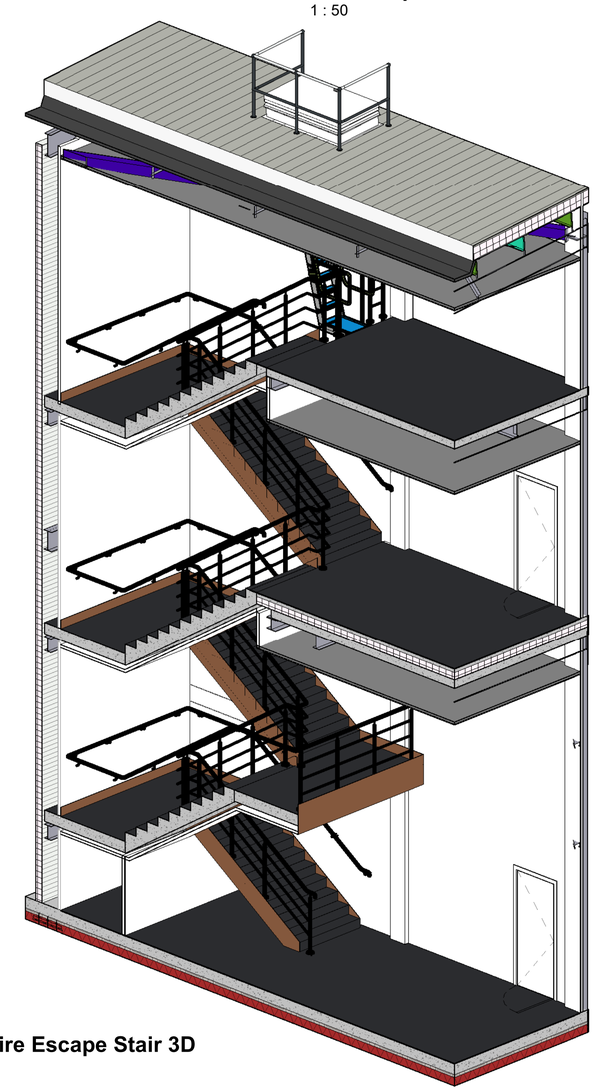
10m SCALE 1:1000

FOR STAIR DETAILS REFER TO FP MCANN LATEST CONSTRUCTION RECORD/ AS-BUILT DRAWINGS

FOR HAND RAIL DETAILS REFER TO MQM LATEST CONSTRUCTION RECORD/ AS-BUILT DRAWINGS



Fire Escape Section A-A
1 : 50



Fire Escape Stair 3D

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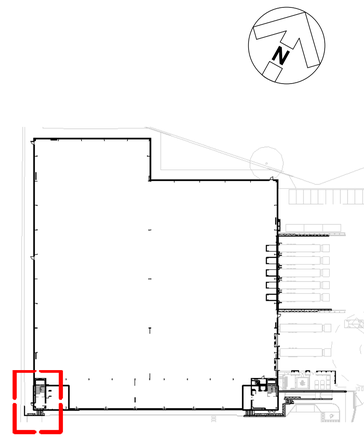

Key Plan
1 : 1000

General Notes:

Stair to confrom to guidelines in Building Regulations Part K and M.

Staircases and landings to upper floor offices will be designed and constructed in precast concrete to the Structural Engineer's details.

Staircase walls are to be dry lined and fixed independently to the floor slab to prevent deterioration due to thermal movement.

Nosing's to be slip resistant and contrasting in colour to main tread in accordance with BS 8300-2:2018

All balustrades and handrails are to be designed by a specialist fabricator with drawings provided for comment prior to any manufacture.

All stair drawings to be submitted to Architect and aproved inspector for comments prior to manufacture. Dimensions to be checked on site prior to manfacture.

Handrail:
900mm (min) on stair
1100mm (min) on landings
300mm (min) projection off last tread
1000mm (min) Clear between handrails

For stair design please refer to FP McCann:
P23025-FPM-ZZ-00-DR-X-0202

For balustrade design please refer to MQM:
P23025-MQM-ZZ-ZZ-DR-X-0021
P23025-MQM-ZZ-ZZ-DR-X-0022

CR1	Construction Record Issue	LK	SW	27.08.24
C05	Drawing revised to include CAT ladder as per Winvic email 22/07/24, carpet finishes updated to stairs and main office to be Fern as agreed with Panattoni, splash back included to cleaners store	LK	SW	23.07.24
C04	Ceiling grid added to the fire escape core. Oak stringers added to the stair as per specification and Winvic request 11.07.24.	SW	MB	11.07.24
C03	Balustrade and handrail to be circular hollow section in PPC black as confirmed by Winvic 28.06.24	SW	LK	01.07.24
C02	Stair and landing finish confirmed as F06 carpet tile and handrail confirmed as key clamp finished in PPC black 25.06.24. Winvic request to underdraw stairs and landings 27.06.24.	SW	LK	28.06.24
C01	Stair flight at plant deck level and roof hatch reinstated for escape as per Winvic request	SW	LK	20.02.24
P02	Issued following Winvic comments 19.12.23	SW	LK	21.12.23
P01	Preliminary Issue	SW	LK	24.11.23
rev	**amendments**	**by**	**ckd**	**date**

Horton Road, Poyle

Fire Escape Stairs

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Information Container LOIN

LOD 4	LOI 2

PANATTONI

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RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	SW/LK
Date:	14/03/23
Scale:	As indicated @ A1
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
P23025 _UMC _BR _ZZ _DR _A_	1111	CR1

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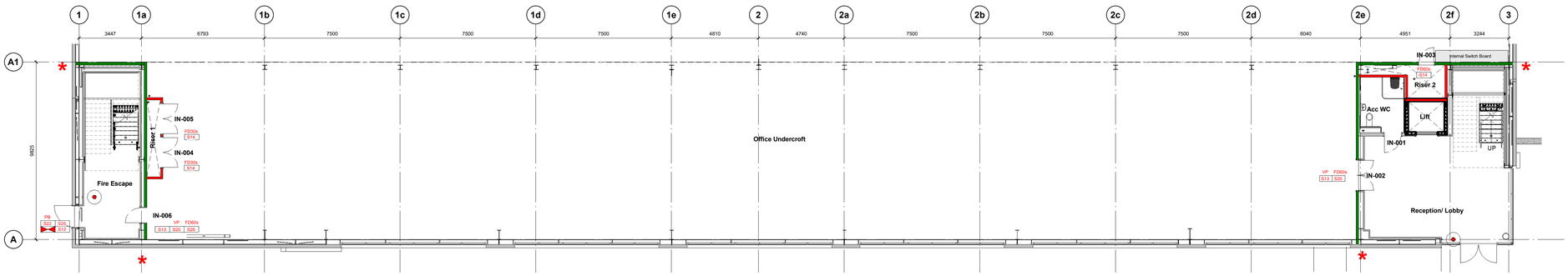
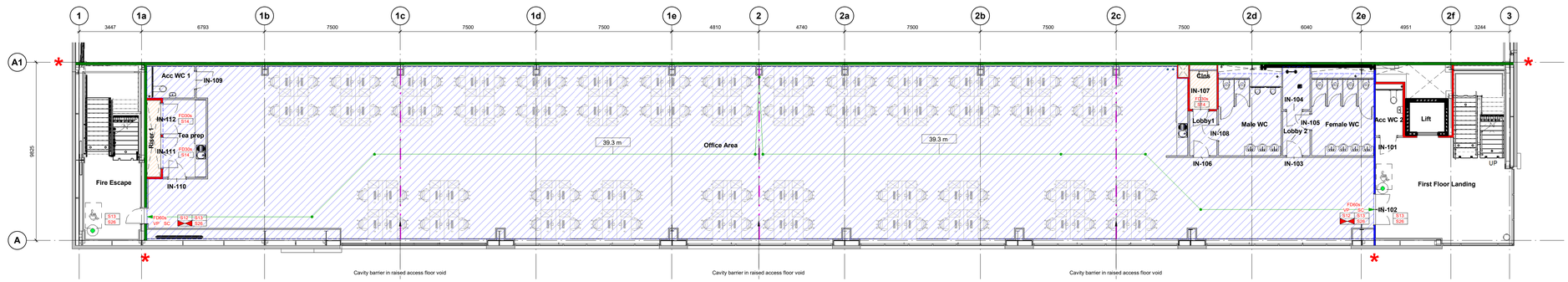
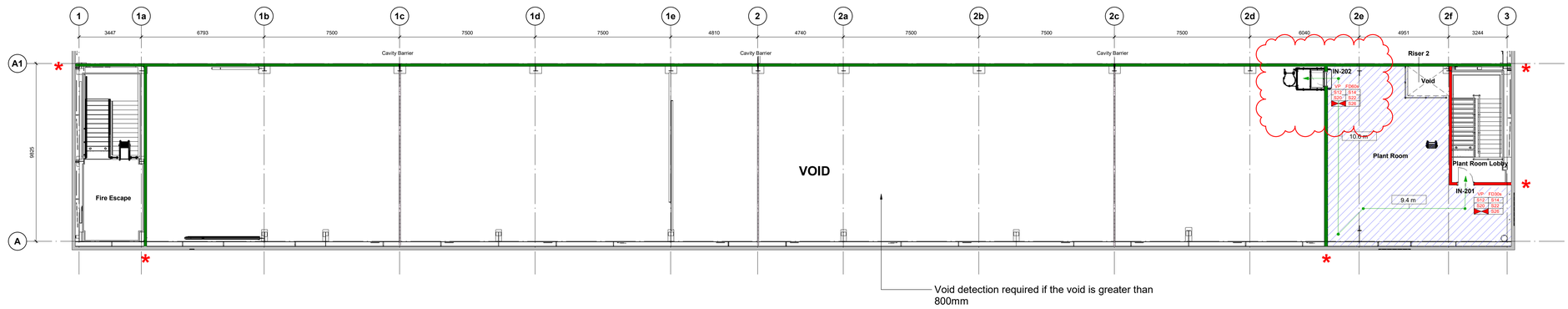


Ground Floor Office Plan
1 : 100



First Floor Office Plan
1 : 100



Plant Deck Plan
1 : 100

Fire Safety Key:

- FD30s — Resisting doorsets 30 mins fire and smoke.
- FD60s — Resisting doorsets 60 mins fire and smoke.
- SC — Self closing.
- VP — Vision panel.
- PB — Push Bar
- Illuminated external emergency bulkhead - 3 hour duration.
- Illuminated exit sign with directional arrow / running man 3 hour duration.
- Illuminated Intelligent Fire exit signage. Sign to indicate if exit is available or not, depending on location of fire. Details and integration with fire alarm as per M&E information.
- Non-Illuminated exit signage with directional arrow / running man.
- FAP — Main fire alarm panel.
- COM — 2 way communication link for disabled refuge to main fire panel location.
- S12 — Sign - Fire action.
- S13 — Sign - Fire door keep shut (both sides of door).
- S14 — Sign - Fire door keep locked.
- S20 — Sign - Fire escape keep clear.
- S22 — Sign - Fire exit.
- S25 — Sign - Push bar to open.
- S26 — Sign - Direction Arrow/Running Man.
- 30 Minutes Fire Integrety Required
- 60 Minutes Fire Integrety Required
- 120 Minutes Fire Integrety Required
- Cavity Barrier 30 Minutes Fire Integrety Required
  Note: Should be installed within Ceiling Void and Raised Access Floor Void
- Break Glass Unit (1400mm installation height)
- 2-way communiction link for Accessible refuge point (1400 x 900 space) to reception fire alarm panel
- 2-way communiction link for Accessible refuge point to reception fire alarm panel
- Continuous vertical fire Batt to be installed between Firemaster wall and liner sheet of cladding, fully sealed with intumescent mastic. Partition abutments to Firemaster wall to be intumescently sealed with proprietary system
- Denotes Minimum Extent of Floor slab to provide 60min. fire resistance between floor levels.
  To be confirmed by Building Control
  Continuous fire batt to be installed between slab edge and cladding liner sheet (within sheeting rail zone). All joints to be intumescently sealed

NOTE:

For door fire ratings and signage, see drawing 1501

- All steelwork sizes are shown indicative only & are subject to confirmation by the steelwork sub-contractor.
- Steelwork protection strategy to be advised by contractor. CONSTRADO base solution to be utilied where possible/suitable.
- Compartment floors are to be fire rated to a minimum of 1 hour
- General note for details and locations of fire alarm detection system & emergency lighting. See mechanical and electrical drawings.
- Manual fire alarm system to be provided in accordance with BS 5839 PART 1 : 2002 category M to ground floor office, system to have manual call points, sounders & control panel all in accordance with local fire officers requirements (see mechanical & electrical engineers drawings & specifications).
- Emergency lighting to be provided in accordance with BS 5266-1:2005 (see mechanical engineers drawings & specifications) - shell works only
- All fire signage to be in accordance with BS 5499-1:2002 - Basic requirement only for shell build.
- The surface finish of all walls and ceilings within staircases, corridors and circulation areas to be class 0 rated.
- Fire strategy subject to confirmation from Approved Inspector.
- All Fire stopping to be certified by specialist
- Fire strategy had been designed in accordance with the base build specification. Enhanced fit-out strategy by others.
- Access controlled doors to be interfaced with and unlock concurrent with actuation of the fire alarm system.
- Ceiling voids require fire detection system in accordance with BS 5839-1:2013
- Final escape clear opening width calculated in accordance with BS 9999:2017

Fire rated lids

30 minute fire rated lid.

rev	amendments	by	ckd	date
CR2	Fire escape door to plant room updated to suit comments from CB	LK	SW	09.09.24
CR1	Construction Record Issue	LK	SW	27.08.24
C06	Drawing revised to include CAT ladder as per Winvic email 22/07/24, carpet finishes updated to stairs and main office to be Fern as agreed with Panattoni, splash back included to cleaners store	LK	SW	23.07.24
C05	Furniture layout and travel distances updated to suit Clarke Bank comments 03.07.24, void lid removed from plant room area	LK	SW	04.07.24
C04	Whitewall indicated as 2 hours fire rated as per the specification. Door or window openings within the wall align to building regulations as per the specification and as confirmed by Winvic 05.06.24.	SW	LK	26.06.24
C03	Fire strategy updated in line with comments from Q&A and Winvic, internal doors to whitewall still in abeyance awaiting comments	LK	SW	05.06.24
C02	Confirmation of whitewall fire rating as 120 mins	SW	LK	15.04.24
C01	Drawing updated following acceptance of layout reconfiguration and to align to Clark Banks fire advisory mark-ups recieved 13.02.24.	SW	LK	05.03.24
P03	Fire Strategy drawings issued for review and comment	SW	LK	02.02.24
P02	Issued for review and comment	SW	LK	14.12.23
P01	Preliminary Issue	SW	LK	24.11.23

Horton Road, Poyle

Office Fire Strategy

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LOD 4	LOI 2

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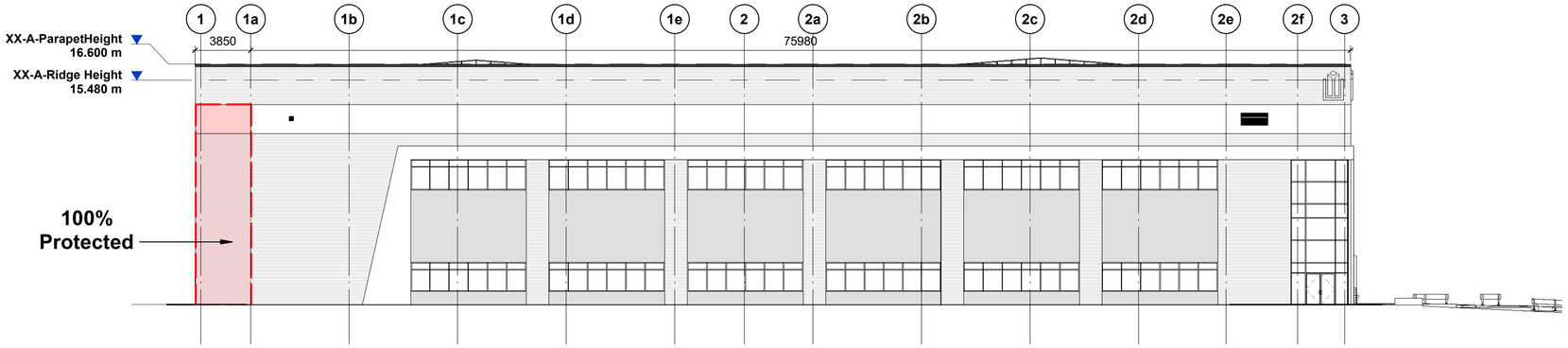
RIBA PoW Stage:	Stage 4 - Detailed Design
Document Suitability:	CR
Drawn / Checked:	SW/LK
Date:	08/03/23
Scale:	As indicated @ A0
UMC Project Number:	22400

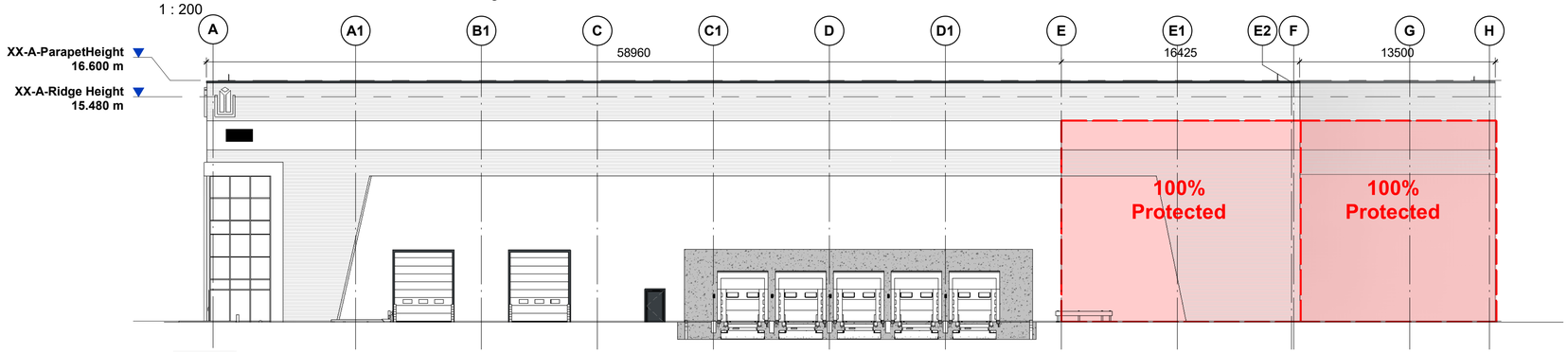
Document Reference:	Drawing no:	Revision:
P23025_UMC _BR _ZZ _DR _A_ 1402		CR2

1m SCALE 1:100



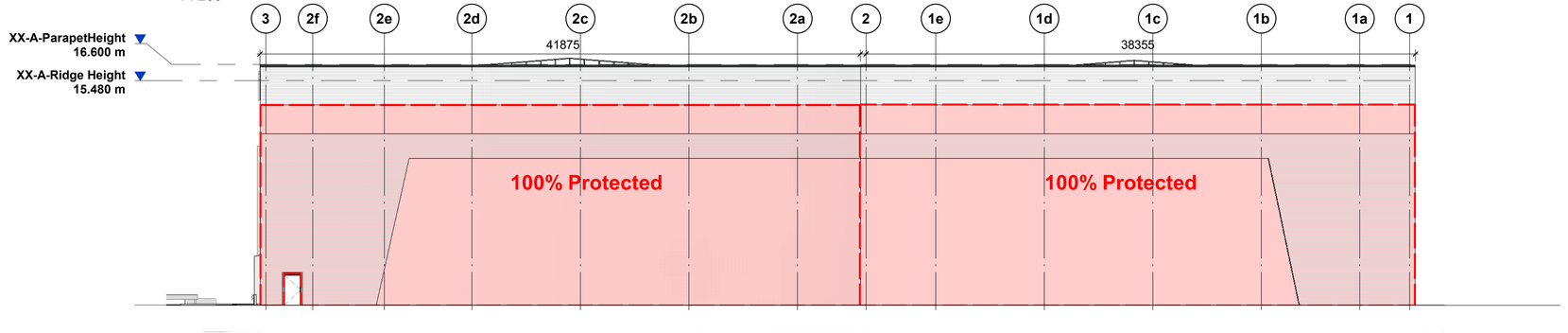
South East Elevation Fire Boundary

1 : 200



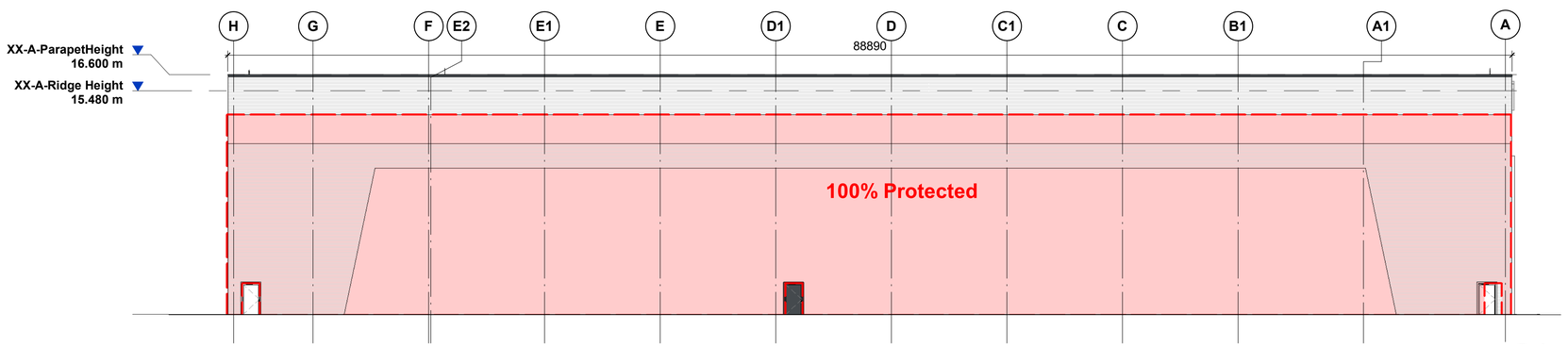
North East Elevation Fire Boundary

1 : 200



North West Elevation Fire Boundary

1 : 200



South West Elevation Fire Boundary

1 : 200

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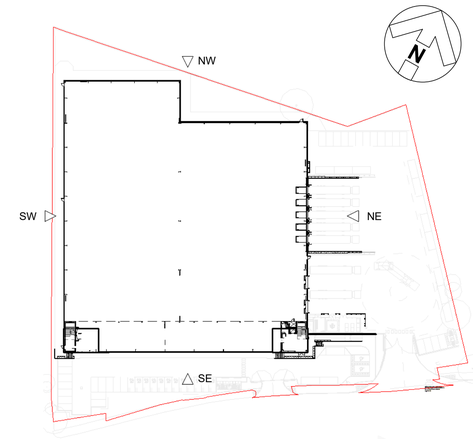

Key Plan

1 : 1000

Fire Boundary Key:

Denotes extents of fire rated boundary condition (To be confirmed by Fire Consultant)

Elevation width (mm)

NOTE:

Percentage of protected elevations has been calculated inline with BRE_187_ 2014, page 52. This should be checked and where neccessary updated to suit Fire Consultants Fire Engineering Report.

Fire strategy drawings to be read in conjunction with Fire Engineering report.

Fire Engineering report takes precidence over drawings.

Fire strategy drawings align to Clark Banks fire safety advisory mark-ups.

Doors and Glazing are not included within protected areas.

rev	amendments	by	ckd	date
CR1	Construction Record Issue	LK	SW	27.08.24
C01	Updated to align to Clark Banks fire advisory mark-ups received 13.02.24	SW	LK	26.02.24
P01	Fire Strategy drawings issued for review and comment	SW	LK	02.02.24

Horton Road, Poyle

Fire Boundary Elevations

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1m SCALE 1:200

10m SCALE 1:1000

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RIBA PoW Stage:	Stage 4 - Detailed Design
Suitability / Status:	CR
Drawn / Checked:	MS / LK
Date:	31/08/23
Scale:	As indicated @ A1
UMC Project Number:	22400

Document Reference:	Drawing no:	Revision:
P23025 _UMC _BR _ZZ _DR _A_	1403	CR1

1.4.2 Description of Fire Detection System Employed and Fire Detection Criteria

Information provided by Walter Miles Electrical Engineers Ltd, the Electrical Services

Fire Alarm

A category P1 fire alarm system has been installed to the office areas with differing types of detection and indication used dependant on the location.

The fire alarm is controlled and monitored by a panel located at the office entrance with lockable doors to prevent unauthorised access.

Fire alarm to the office and core areas has been provided by point detection either mounted in the voids created by room segregation when greater than 800mm and/or on ceiling tiles or open ceilings as necessary to comply with the level of Category. To open office and corridor areas standard detectors or detectors with integral sounders have been fitted as necessary to comply with the level of Category and to provide the necessary sound indication in the event of a fire. Within cleaner's cupboards heat detectors have been used to try and reduce the possibility of false alarms generated by heat. Within W.C's ceiling mounted sounder/strobes have been provided to give both a visual and audible alarm in the event of a fire.

Call points.
Manual activation of the fire alarm is provided to call points at designated emergency exits from the office and also at change of levels.

Fire alarm interfaces.
Single channel interfaces have been provided to give a signal when the fire alarm is operated to shut down mechanical plant and lower the lift to the ground floor unless a fire is detected in the ground floor reception, in which case, the lift shall return to the first floor. An output interface is provided to send fire alarm signal to the PV system

Cabling.
The fire alarm has been wired in a 120-minute fire rated cable installed on dedicated tray with metal ties where the cable rises vertically.

1.4.3 Occupier's Responsibilities

The Regulatory Reform (Fire Safety) Order 2005 replaces most fire safety legislation with one simple order. It means that any person who has some level of control in premises must take reasonable steps to reduce the risk from fire and make sure people can safely escape if there is a fire.

Regulatory Reform (Fire Safety) Order 2005

What are the main rules under the order?

You must:

- carry out a fire-risk assessment identifying any possible dangers and risks
- consider who may be especially at risk
- get rid of or reduce the risk from fire as far as is reasonably possible and provide general fire precautions to deal with any possible risk left
- take other measures to make sure there is protection if flammable or explosive materials are used or stored
- create a plan to deal with any emergency and, in most cases, keep a record of your findings
- tell staff or their representatives about the risks you've identified, provide staff information, fire safety instruction and training
- review your findings when necessary

Due to the nature of the completed facility, it is strongly recommended that a competent fire risk assessor is appointed to assist with the fire risk assessment process.

The register of fire risk assessors and auditors maintained by the Institution of Fire Engineers may be a good starting point for locating one, visit http://www.ife.org.uk/Fire-Risk-Assessors-Register for further details.

Who is responsible for meeting the order?

In England and Wales, if you're an employer, owner, landlord or occupier of business or other non-domestic premises, you're responsible for fire safety and are known as the 'responsible person'.

Further Information

The following websites contain further detailed information and guides:

https://www.gov.uk/workplace-fire-safety-your-responsibilities

https://www.gov.uk/government/publications/making-your-premises-safe-from-fire

http://www.legislation.gov.uk/uksi/2005/1541/contents/made

www.communities.gov.uk/firesafety

http://www.ife.org.uk/Fire-Risk-Assessors-

FIRE ENGINEERING

DETAILED FIRE STRATEGY REPORT

PANATTONI, 80 HORTON ROAD, POYLE

Ref – F13154

Version – 04

Status – FOR REVIEW

Date: 19 08 24

REPORT DETAIL

Project type: Industrial

Address: Panattoni, 80 Horton Road, Poyle, Slough SL3 0BB

Document: DETAILED FIRE STRATEGY REPORT

Version: 04

Report Version History

Version	Status	Date Issued	Stage	Comment	Prepared By	Reviewed By
01	FOR REVIEW	14 06 24	DETAILED	First Issue	ZF	ME
02	FOR REVIEW	17 07 24	DETAILED	Update following DT comments	ZF/AM	ME
03	FOR REVIEW	30 07 24	DETAILED	Updated following DT comments	ZF	ME
04	FOR REVIEW	19 08 24	DETAILED	Updated EFS calculations	ZF	ME

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Clarke Banks (Fire Engineering) Limited | Registration No. 10473725 | Registered in England & Wales

CONTENTS

1 EXECUTIVE SUMMARY

The project involves the erection of a new building to provide a warehouse with ancillary office space on an existing industrial site.

Fire Safety Design Parameter	Description	Ref.
Building Characteristics		
Use	Warehouse with ancillary office space	Section 3.2
Topmost Habitable Storey Height	Warehouse is single storey; office less than 11m	Section 3.2
Basement Depth	N/A	N/A
Higher Risk Building?	No	N/A
Design Approach		
Design Standard	ADB Vol. 2	Section 2.1
Purposed Group(s) / Risk Profile(s) for non-residential	Purpose Group 7a for the warehouse; Purpose Group 3 for the office	Section 4.2
Means of Escape		
Evacuation Philosophy	Simultaneous	Section 6.1
No. of Stairs	Stair 1: Escape stair Stair 2: Escape stair	Section 6.3
No. of Evacuation Lifts	None	N/A
Travel Distances	Extended travel distances (direct travel distances) within the warehouse and the office	Section 6.2
Internal Fire Spread		
Fire Resistance of Structural Elements	60 min	Section 7.2
Fire Compartment Floors	Floor separating the warehouse from the office	Section 7.3
External Walls		
External Wall Materials Fire Performance	Regulation 7 does not apply. No minimum surface spread of flame requirements.	Section 8.2
Surface Spread of Flame	No minimum requirement	Section 8.2
Active Fire Safety Systems		
Fire Detection and Alarm	Category M to warehouse Category L2 to office	Section 10.1
Fire Suppression	No suppression system proposed	N/A
Smoke Ventilation	No smoke ventilation requirements	N/A
Firefighting Provisions		
FRS Access	Both stair cores accessed directly from outside; 4 perimeter exits	Section 9.3
Fire Mains	None	N/A

Table 1: Key Building Characteristics & Fire Strategy Provisions

2 INTRODUCTION

2.1 SCOPE

Clarke Banks (Fire Engineering) has been appointed to produce a Detailed Fire Strategy report for the project known as PANATTONI, 80 HORTON ROAD, POYLE.

The proposals are for a warehouse unit on an existing industrial site. The building will include the warehouse at Ground Floor, with ancillary office space at First Floor; and a Plant Room at Second Floor. The proposals are for the shell and core design only; any fit-out proposals will be subject to separate application and Fire Strategy report.

This Detailed Fire Strategy report is intended for coordination with the Design Team for review and design development. Additionally, this Fire Strategy report can be used for review from the Building Control Body, including their statutory consultation with the Local Fire and Rescue Service.

This Detailed Fire Strategy report is based on best practice guidance contained in the Approved Document B (ADB) Volume 2: 2019 (incorporating 2020 and 2022 amendments); and engineering judgement with the intention of satisfying the functional fire safety requirements of Part B under The Building Regulations 2010 (as amended to date). Where not specifically stated, fire safety provisions should be in accordance with the aforementioned guidance document. Property protection and business continuity has not been considered as part of this report.

The project and site are considered to be located outside of London and therefore it has been assumed that the London Plan does not apply. However, some councils which border the Greater London Area request the London Plan to be incorporated into the design. Therefore, the Design Team should confirm whether the London Plan is applicable to this project.

The Design Team should ensure the contents of this report are incorporated in the building design and this report or any later updates of it should form part of the information handed over to the end user under Regulation 38 of The Building Regulations 2010.

2.2 VERSION UPDATES

For ease of the review, a summary of the report changes in Version 04 is presented in Table 2 of this report.

Brief Description of Update	Report Section
Version information updated	Title Page
Clarified wording describing the external fire spread calculation methodology	Section 8.1

Table 2: Summary of updates included in current version of the report

2.3 PRIMARY LEGISLATION

The primary building fire safety legislation applicable to this development are:

- The functional requirements B1-B5 of Schedule 1, Part B, of the Building Regulations 2010 (as amended) (pre-occupation);
- Construction (Design and Management) Regulations 2015; and
- Regulatory Reform (Fire Safety) Order 2005.

Responsibility for deciding if the requirements of the relevant applicable building fire safety regulations have been satisfied rests with the Registered Building Control Approvers (Register Building Inspector). Responsibility to ensure the requirements are implemented in the design lies with the "Principal Designer ", the "Designer" for the "Building Work" they perform, and the "Principal Contractor". The "client" is the "PD" and PC" where these roles are not assigned elsewhere.

The Regulatory Reform (Fire Safety) Order 2005 (FSO) is a primary piece of legislation relating to fire safety in existing, non-domestic premises and the common areas of residential buildings and is enforced by the local Fire Authority.

The duty of ensuring that the requirements of The Order are met rests with the 'Responsible Person', who must undertake (or cause to undertake) a risk assessment for the purpose of identifying the fire precautions they need to take.

UK projects are subject to the requirements of the Construction (Design and Management) Regulations 2015 (CDM).

Where any conclusions or recommendations contained within this report specify materials, products or forms of construction these will have been assessed, in accordance with CDM Regulations 11 and 18 (duties for designers).

If these involve significant residual risks or health and safety critical assumptions, this information will be made available to the Principal Designer. Where the architect or other consultants use all or part of this report to specify works, they are understood to be competent in alerting the Client, Principal Designer, Designers, Contractors and Building Occupier of issues arising under the CDM Regulations.

During the Building Regulations application process, the Building Control Body is required by law to consult with the Fire Authority. The purpose of this consultation is to give the Fire Authority an opportunity to make observations with respect to The Building Regulations 2010 and to provide an opportunity to make the applicant aware of action that may have to be taken to meet the requirements of the FSO.

If the Fire Authority require physical changes to be made to the building to meet the requirements of the FSO, the Building Control Body has a legal responsibility to pass on all comments and recommendations to the applicant / responsible person. The applicant should take note of all comments and where necessary implement these into the building's design.

2.4 FIRE SAFETY OBJECTIVES

This report aims to satisfy the following statutory fire safety objectives:

- Occupant life safety: The occupants must be able to escape the building without being exposed to hazardous or untenable conditions. This shall be satisfied by meeting the Requirements B1 to B3 of The Building Regulations 2010;
- Protection of adjoining buildings: Structures must not collapse onto adjacent property and fire spread by radiation shall not occur. This shall be satisfied by meeting Requirements B3 and B4 of The Building Regulations 2010; and
- Access and facilities for Firefighting: Firefighters must be given a reasonable time to rescue any remaining occupants before hazardous conditions develop or structure collapse occurs. This shall be satisfied by meeting Requirements B3 and B5 of The Building Regulations 2010.

2.5 SOURCES OF INFORMATION

This report is based on the drawings referenced in Appendix A.

2.6 LIMITATIONS AND ASSUMPTIONS

This report is based on the following assumptions and limitations:

- The basis of the report is upon the information provided by the architect and the drawings listed in Appendix A;
- The description of the works which have been covered by the report are listed in Section 2.1 (Scope);
- It has been assumed that all other parts of the building or associated elements of design are in accordance with The Building Regulations 2010, including provisions that impact or support the Fire Strategy;
- It is required as part of this Strategy that the completed building will be used as defined under the specific risk profiles presented. Any change to the use or associated level of fire risk within the building and its surroundings will require a further assessment and potentially a new Fire Strategy to achieve compliance; and
- The building is to be managed, operated and maintained in accordance with the guidance provided in each relevant section of this report.

2.7 FIRE SAFETY SYSTEMS

It is recommended that the design, installation, commissioning, and maintenance of any active and passive fire protection systems is carried out by a specialist company registered with a third-party accreditation scheme accredited by the United Kingdom Accreditation Service (UKAS).

2.8 MATERIALS

In our capacity as Fire Engineers, our primary responsibility is to define and verify the performance specifications for materials and products related to fire safety. It's important to note that while we play a crucial role in this process, we do not make the actual choices regarding these materials and products. Consequently, we do not have the authority to diminish or alleviate health and safety risks during the design and construction phases. The responsibility for such risk management entirely rests with the Principal Designers and Consultants who are accountable for the selection of materials and products. Within the framework of the Construction (Design and Management) Regulations (CDM), the design responsibility of Clarke Banks Fire Engineering is strictly limited to the performance specification of the Principal Designers and Consultants chosen materials and products.

3 PRINCIPAL BUILDING CHARACTERISTICS

3.1 SITE LOCATION

The site is located on PANATTONI, 80 HORTON ROAD, POYLE. The indicative site plan layout is presented in Figure 1 of this report. Access to the building is available from Horton Road to the south of the site.

Figure 1: Site location plan

3.2 BUILDING DESCRIPTION

The proposals are for a warehouse building on an existing industrial site. The building will include a warehouse at Ground Floor, with ancillary office space at First Floor; and a Plant Room at Second Floor. The proposals are for the shell and core design only; any fit-out proposals will be subject to separate application and Fire Strategy report.

The warehouse will be a single storey space, and therefore will have a top storey height not exceeding 5m. The total building height is 16m, measured from the ground level to the top of the parapet. The total compartment area of the warehouse is approximately 6,350m^2.

The office spaces will be located at First Floor and will be accessed via two protected stair cores, located in either corner of the southwest elevation of the building. The top storey height of the office space will not exceed 11m.

The Plant Room will be primarily accessed from Stair 2, with a secondary route of escape available via a fixed ladder leading into the office on the floor below.

The proposed indicative general arrangement layouts are shown Figure 2 and Figure 3 of this report.

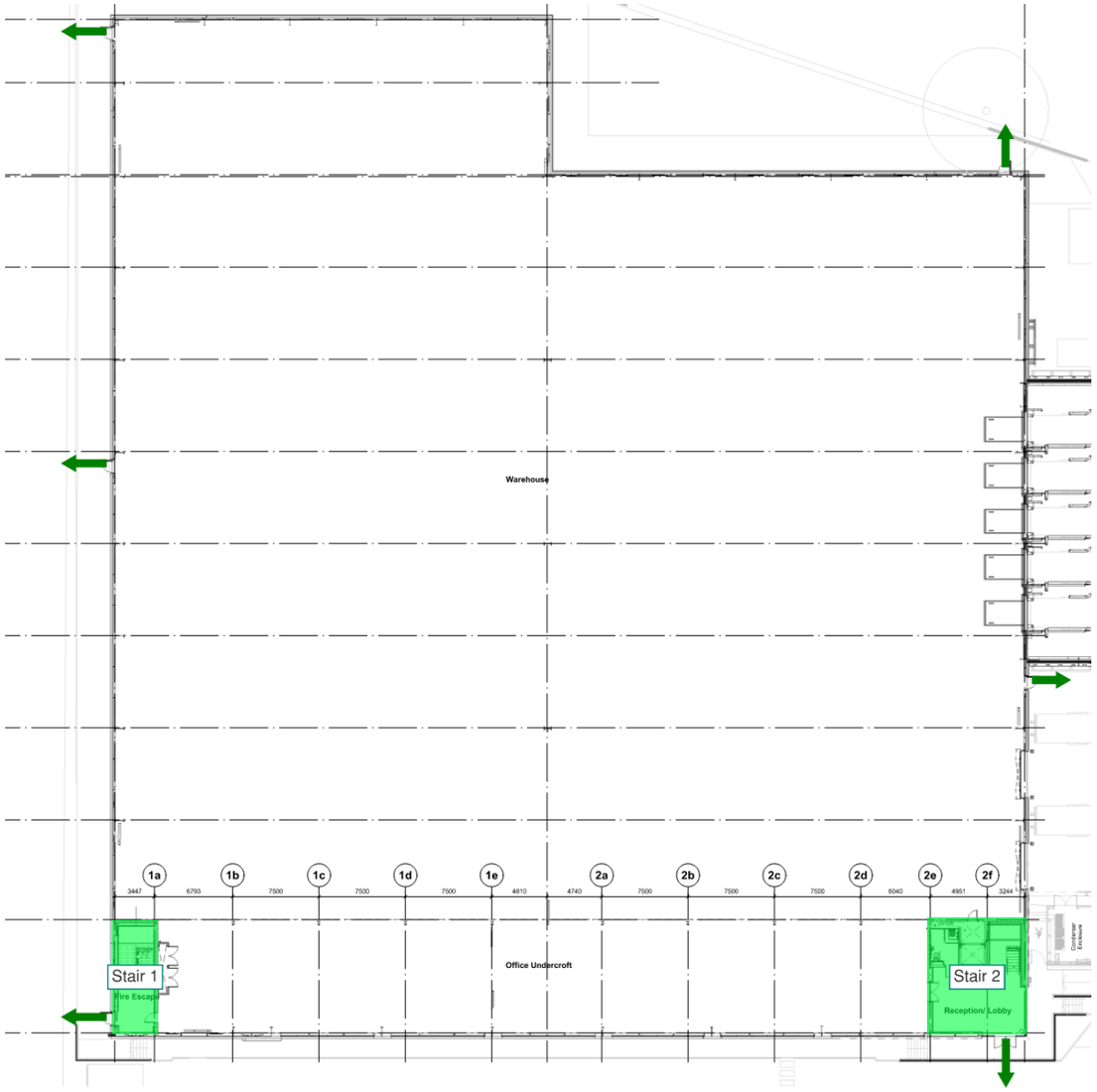
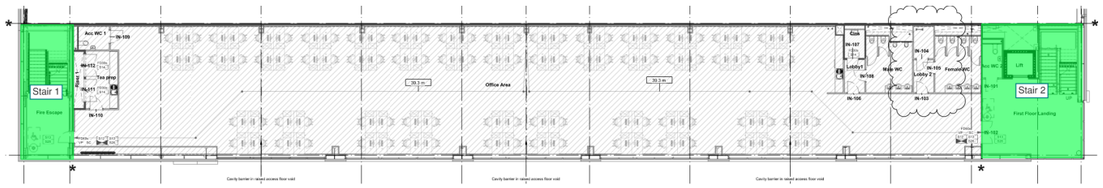
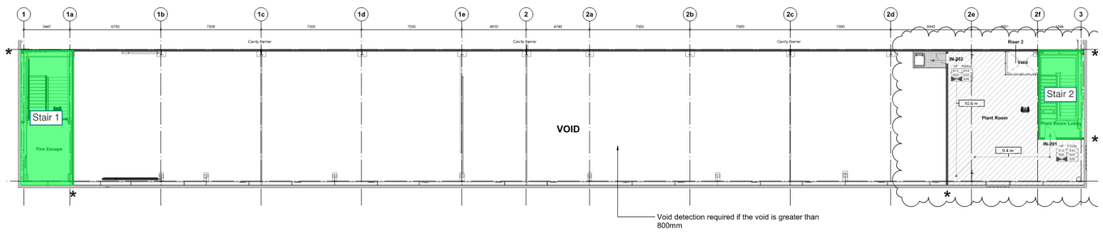


Figure 2: Warehouse GA layout plan



First Floor Office Plan
1 : 100



Plant Deck Plan
1 : 100

Figure 3: Upper floors GA layout plans

4 OCCUPANT CHARACTERISTICS

4.1 DEMOGRAPHICS

All areas within the warehouse and the adjoining office will include occupants who are awake and familiar with the building layout, their surroundings, and the associated escape routes.

All areas of the office may contain persons who need assistance or who may be a wheelchair user and need and assistance in the event of a fire.

As the Second-Floor plant room will not be provided with lift access, it has been assumed that the plant room will not be accessible to occupants with mobility, cognitive, and / or sensory impairments.

4.2 PURPOSE GROUPS

The purpose groups of the areas under the scope of this report have been established using Table 0.1 of the ADB and the occupancy characteristics in Table 3 of this report.

Normal hazard storage classification was assumed for the warehouse. It should be confirmed by the design team that no high hazard items will be stored in the warehouse, as per Note 3 to Table 2.1 of ADB.

Type of Accommodation	Purpose Group
Storage (normal hazard)	7(a)
Office	3

Table 3: Type of accommodation / purpose group

4.3 OCCUPANCY NUMBERS

The occupancy numbers for the buildings are presented in Table 4 of this report.

The occupancy numbers for the building have been assessed using Table D1 of the ADB with the following floor space factors:

- Warehouse and plant – 30m^2/person;
- Office – 6m^2/person;
- Tea prep – 7m^2/person.

Table 4 of this report identifies the expected occupancy numbers for the aforementioned areas:

Level	Room	Area (m^2)	Floor Space Factor (m^2/p)	Expected Room Population (p)	Expected Floor Population (p)
Ground Floor	Warehouse	6,350	30	212	212
First Floor	Office	565	6	95	97
	Tea Prep	10	7	2	
Second Floor	Plant Room	73	30	3	3
Total					**312**

Table 4: Expected occupant loading

5 DEVIATIONS FROM STANDARD GUIDANCE

Table 5 of this report lists the deviations from the guidance of the ADB, including the associated Fire Engineering justification. It should be noted that the following actions are a risk until agreed with the Building Control Body and Fire Service.

Item	Description	Deviation / Justification
1	Travel distances within the warehouse	The travel distances shown in Figure 4 of this report are non-compliant with the alternate direct (30m) Means of Escape requirements of Table 8 of this report to support the shell and core design. It is recommended that an ASET/RSET analysis is undertaken at fit-out stage to justify the alternate actual travel distances (45m) which may include the presence of racking, storage units etc. Refer to Section 6.2.3 of this report for more details.
2	Fire vehicle access	The fire vehicle access to the site does not meet the recommendations of the ADB due to the existing site constraints. As part of the compensatory measures, two new hydrants will be provided adjacent to the building and adjacent to the fire vehicle parking position. Pedestrian access will be available to all elevations. Refer to Sections 9.1 and 9.2 of this report for more details.

Table 5: Deviations from standard guidance

6 MEANS OF WARNING AND ESCAPE

6.1 EVACUATION PHILOSOPHY

The building should be designed and managed under a simultaneous evacuation strategy. The fire alarm system should be designed so that once the alarm has been activated, the simultaneous evacuation of the whole building commences.

The fire alarm cause and effect principles for the building are summarised in Table 6 of this report.

Accommodation	Cause	Effect
All areas	Smoke / heat detector activated	• Alarm signal sounds throughout the unit; • Immediate evacuation occurs; • HVAC shutdown; • Lifts ground; • Security doors unlock / fire doors close (if applicable); • Any sliding doors fail safe to the open position; and, • Notification sent to fire alarm panel.

Table 6: Cause and effect schedule

6.2 HORIZONTAL ESCAPE

6.2.1 General

In general, where an individual room occupancy load is expected to exceed 60 persons, the exit doors should open in the direction of escape. All doors used as a Means of Escape / final exit will be readily openable without the use of a key at all material times. Any securing devices should enable escape from within during a fire scenario. Exits should achieve at least 850mm throughout to cater for disabled occupants.

Any areas where a single exit is provided, or up to two exits swinging against the direction of escape, will be limited to 60 occupants at any one time.

6.2.2 Number of exits

In accordance with Clause 2.9 of the ADB, the minimum number of escape routes is presented in Table 7 of this report should be achieved throughout the building.

Number of People Served	Number of Escape Routes
60	1
600	2
More than 600	3

Table 7: Minimum number of escape routes

6.2.3 Travel Distances

The purpose groups for the building have been identified within Table 3 of this report. Travel distances should be limited depending on the purpose group, in line with the guidance provided in Table 2.1 of ADB and presented in Table 8 of this report.

Purpose Group	Travel Within	Maximum Travel Distance (meters)			
		Single Direction		Alternative Means of Escape	
		Direct	Actual	Direct	Actual
7(a)	Warehouse [1]	16.67	25	30	45
3	Office	12	18	30	45
2-7	Plant Room	6	9	23.3	35
	Place of special fire hazard [2]	6	9	12	18
	Rooftop Plant	N/A	60	N/A	100

Notes:
1) A normal hazard storage classification was assumed for the warehouse. It should be confirmed by the Design Team that no high hazard items will be stored within the warehouse as per Note 3 to Table 2.1 of ADB.
2) The Design Team should confirm whether the plant room will constitute a place of special fire hazard as defined in Appendix A of the ADB.

Table 8: Travel distance requirements

Travel distances within the warehouse and office have been measured from the furthest point on the floorplate to a storey exit or point of divergence. The travel distances are shown in Figure 4 to Figure 7 of this report.

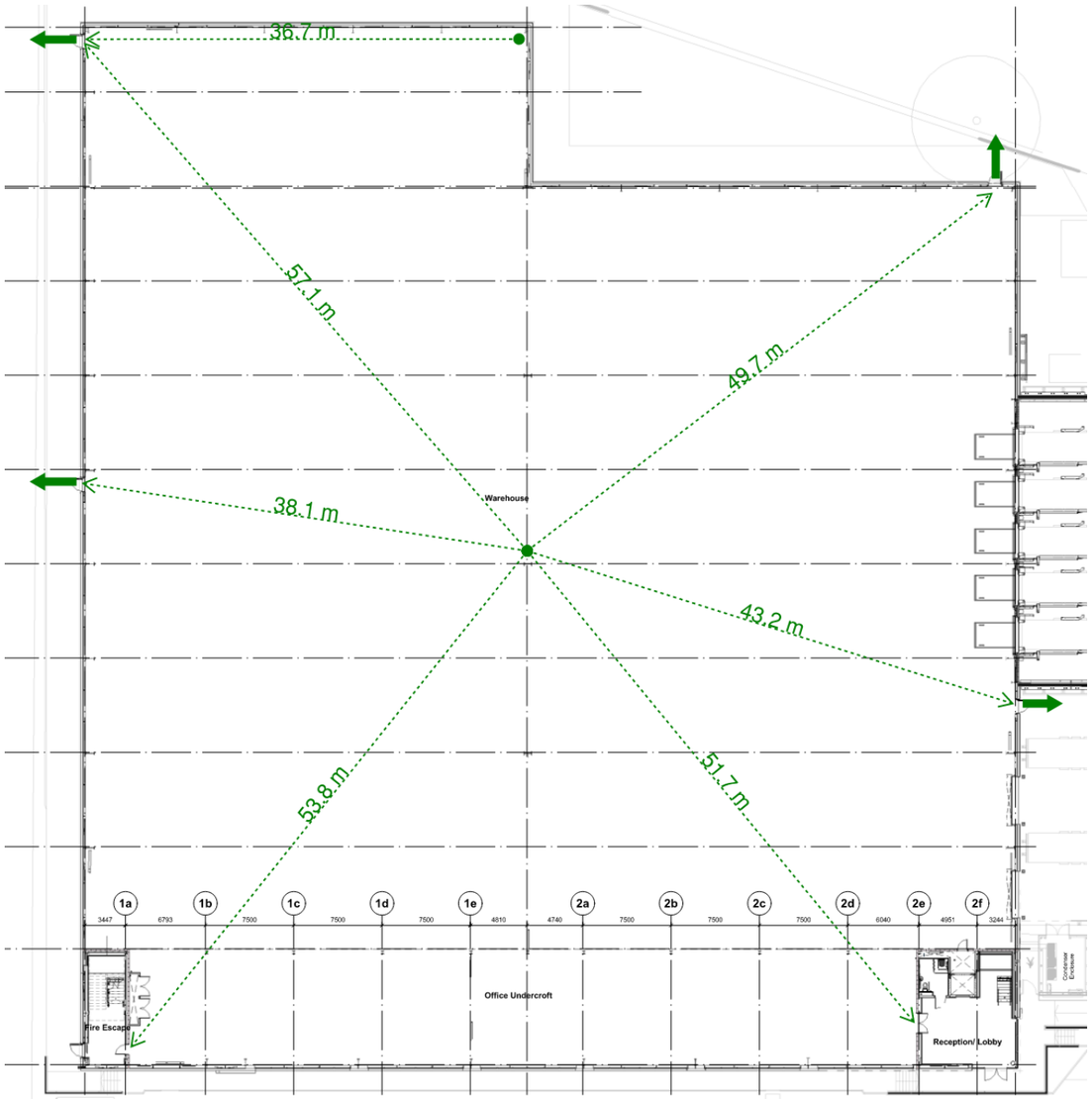


Figure 4: Travel distances within the warehouse

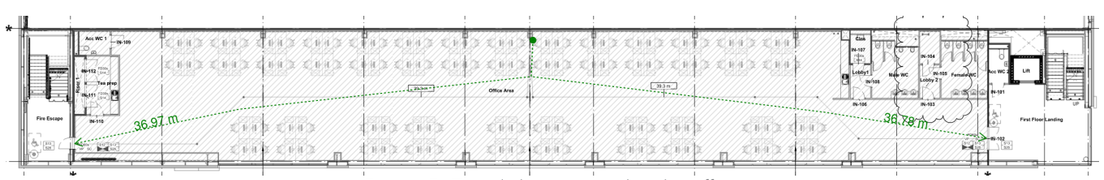


Figure 5: Travel distances within the office

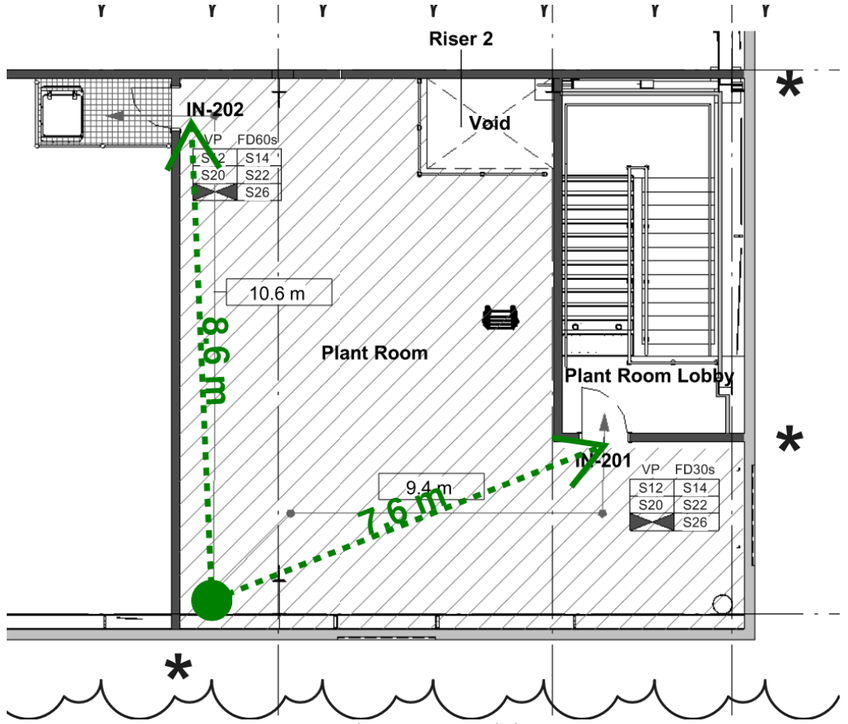


Figure 6: Plant Room travel distances

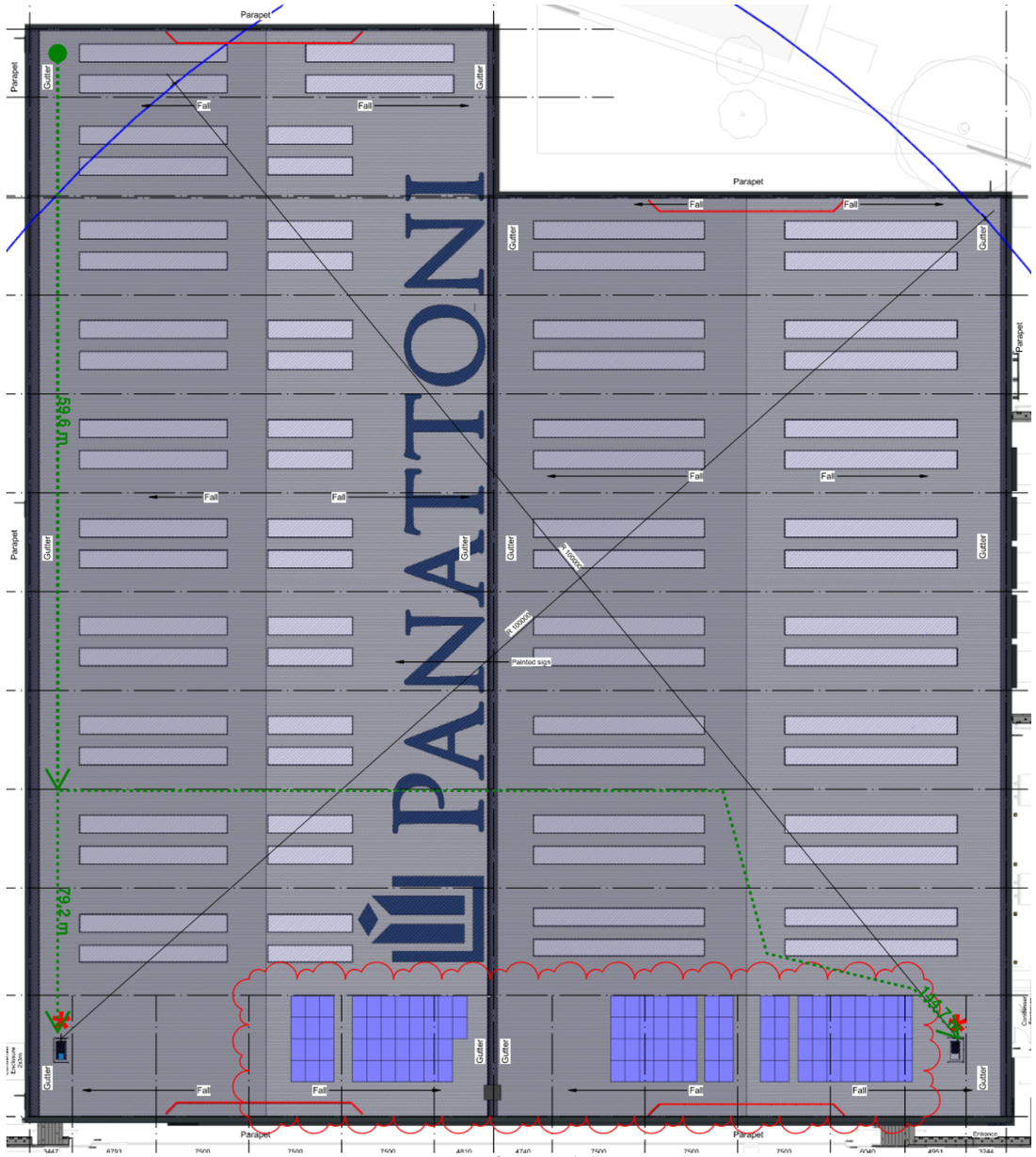


Figure 7: Rooftop travel distances

The travel distances within the warehouse shown in Figure 4 do not meet the alternative Means of Escape (direct) recommendations of ADB as noted in Table 8 of this report. Direct travel distances are recommended to be within 30m to allow for fit-out of partitions and furniture.

The Design Team have been informed that the layouts may impose limitations on the fit-out, and that an ASET / RSET analysis may be required to be undertaken at fit-out stage to justify the alternate actual travel distances (45m) which will include the presence of racking, storage units etc.

As internal layouts of the office are known; the actual travel distances have been considered for the office. The travel distances within the office shown Figure 5 of this report are in line with the actual travel distance (45m) recommendations of the ADB. If any changes to the proposed internal layouts of the office are proposed at a later date; the fit-out team should ensure that the travel distances within the office are within the recommended limits.

The travel distances within the plant room shown in Figure 6 of this report are in line with the recommendations of the ADB.

The travel distances on the roof shown in Figure 7 of this report appear to be in accordance with the recommendations of ADB. The escape routes across the roof and should be confirmed by the Design Team. The Design Team should also confirm whether the entirety of the roof will be accessible for maintenance / servicing.

6.2.4 Exit widths

The minimum required clear widths of the storey exits or final exits within the building are shown in Table 9 of this report.

Minimum Door Width (mm) [1]	Maximum Capacity
750 [2]	60
850	110
1,050	220
5 per person	More than 200
Notes: 1) Widths may need to be increased to meet guidance in Approved Document M. 2) Door widths narrower than 850mm are not suitable where access for unassisted wheelchair users is required.	

Table 9: Horizontal exit width requirements

6.2.5 Horizontal Exits Capacity

Table 10 of this report presents the horizontal exit widths on each storey of each building which indicates sufficient horizontal exit capacity on each storey separately:

Level	Area	Width of Storey Exit (mm)[1]	Leading into / to	Exit Capacity [2]	Horizontal Exit Capacity	Expected Area Population
Ground Floor	Warehouse	~~850~~	~~Outside~~	~~110~~	500	212
		850	Outside	110		
		850	Outside	110		
		850	Outside	110		
		850	Protected stair (Stair 1)	110		
		850	Protected stair (Stair 2)	60 [3]		
First Floor	Office	~~850~~	~~Protected stair (Stair 1)~~	~~110~~	110	97
		850	Protected stair (Stair 2)	110		
Second Floor	Plant Room	850	Protected Stair (Stair 2)	60	60	3
Notes:						

Level	Area	Width of Storey Exit (mm)[1]	Leading into / to	Exit Capacity [2]	Horizontal Exit Capacity	Expected Area Population

1. The exit widths should be confirmed by the Design Team.
2. The storey exit with the largest capacity has been discounted (~~strikethrough~~)
3. Limited to 60 persons when exit opens opposite to direction of escape.

Table 10: Horizontal escape capacity

6.2.6 Inner Rooms

The cleaner's room, storage room, and tea prep accessed from the office create an inner room arrangement. These inner rooms are allowed, given the provision of an L2 automatic fire detection and alarm system to the office and provided that inner room occupant load does not exceed 60 occupants and travel distance limits are met. The access rooms should not be places of special fire hazard, which should be confirmed by the design team.

6.3 VERTICAL ESCAPE

6.3.1 Number of Escape Stairs

The First Floor office will be served by two protected escape stairs located in either corner of the southwest elevation of the building.

At Second Floor, the plant room will be accessed directly from Stair 2; however, an alternative escape route from the plant room will be available via a fixed ladder leading into the office on the floor below.

6.3.2 Stair Widths

Each stair will achieve a minimum clear width of at least 1,000mm.

6.3.3 Stair Capacity

The escape capacity of the stairs has been calculated based on a phased Evacuation Strategy, which includes protected lobbies at each level. The escape capacity of the stairs for a phased Evacuation Strategy is based on the two largest adjacent floor plates.

Stair	Stair Width [mm]	No. of Floors Served [-]	Capacity [persons]	Overall Capacity [persons]	Maximum Expected Occupancy [persons]
~~Stair 1~~	~~1,400~~	~~2~~	~~335~~ [1]	310 [1]	100
Stair 2	1,300	2	310 [1]		
Note 1: Subject to horizontal exit capacity. See previous sub-section. Note: In order to determine the maximum vertical escape capacity, the widest stair has been discounted on the basis that the stairs are not provided with protected lobbies.					

Table 11: Stair capacities – above ground

The maximum expected occupancy on the upper floors (including the plant room occupancy) is 100 persons. Therefore, the stairs will provide sufficient capacity for the upper floors.

6.3.4 Merging Flow

A merging flow condition is present within the protected stair cores at Ground Floor, as presented in Figure 8 of this report.

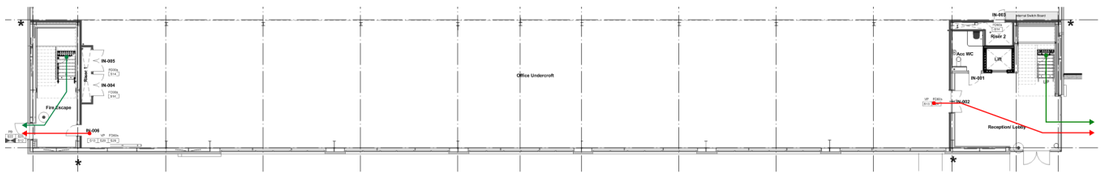


Figure 8: Merging condition at Ground Floor

In accordance with Diagram 2.6 of the ADB, the minimum width of the final exit can be calculated using the following formula (where distance between the final exit and the lowest riser or the storey exit, whichever is less, is more than 2m):

$$W = \frac{\left(\left(\frac{N}{2.5}\right) + 60S\right)}{80}$$

Where:

- W is the minimum width of the final exit, in meters (m);
- N is the number of people served by the final exit level storey exit;
- S is the stair width for the upward portion of the stair, in meters (m).

<u>Stair 1</u>

The escape route via Stair 1 is expected to be used by the occupants of the warehouse occupancy. Therefore:

- N = 36 persons (based on the maximum occupancy (xx) of the warehouse at Ground Floor divided by the number of exits available); and,
- S = 1,400mm;

Therefore:

$$W = \frac{\left(\frac{35}{2.5}\right) + (60 \times 1.4)}{80}$$

$$W = 1.225m$$

As the calculated final exit width required to satisfy the merging condition is less than the stair width; the final stair exit to Stair 1 should achieve at least the same width as the stair it servers.

<u>Stair 2</u>

The escape route via Stair 2 is expected to be used by the occupants of the warehouse occupancy. Therefore:

- N = 36 persons (based on the maximum occupancy of the warehouse at Ground Floor divided by the number of exits available); and,
- S = 1,300mm;

Therefore:

$$W = \frac{\left(\frac{35}{2.5}\right) + (60 \times 1.3)}{80}$$

$$W = 1.15m$$

As the calculated final exit width required to satisfy the merging condition is less than the stair width; the final stair exit to Stair 2 should achieve at least the same width as the stair it servers.

The Design Team should confirm the final exit widths to the stairs.

6.3.5 Protected Stair Lobbies

Where a building with more than one upper storey is served by a single stair; the stair should be provided with protected lobbies in order to meet the recommendations of the ADB.

The proposed building will be provided with two protected stair cores, which will serve the office at First Floor. At Second Floor, the plant room will be provided with direct access to Stair 2; and, an alternative escape route via a fixed ladder leading into the office on the floor below, as shown in Figure 9 of this report. On the basis that at least two means of escape will be available from the Second Floor plant room, the stairs need not be provided with protected lobbies in order to meet the requirements of the ADB.

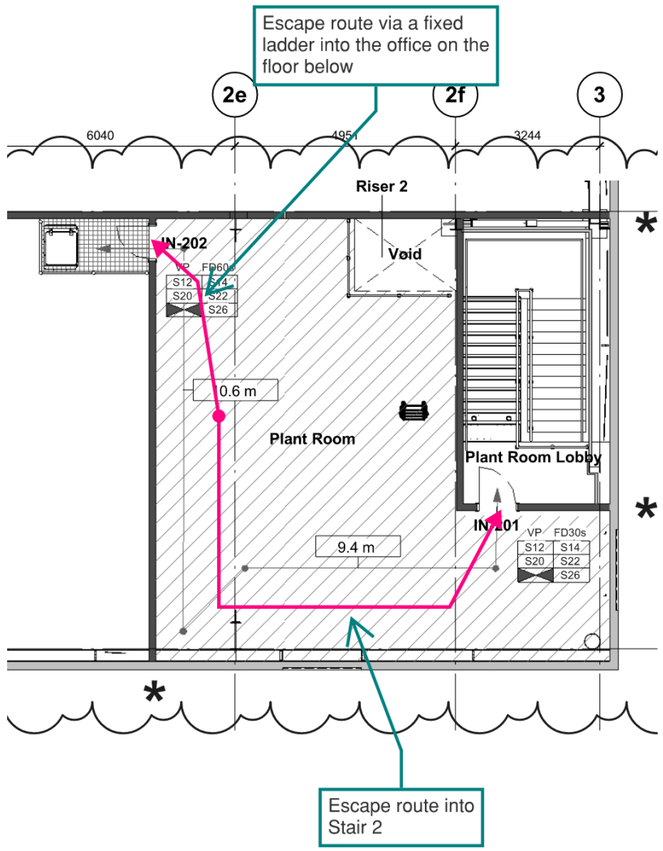


Figure 9: Escape routes from the Plant Room at Second Floor

6.3.6 Reception

In accordance with the Clause 3.38 of ADB, stairs used as Means of Escape should be free of potential sources of fire. However, in limited circumstances certain facilities may be incorporated into protected stairs. This includes the provision of a reception desk / inquiry office at Ground Floor, provided that the building is not served by a single stair and the area of the reception / inquiry office is limited to 10m^2. Therefore, the area of the reception located within Stair 2 at Ground Floor should be limited to 10m^2.

6.3.7 Final Exits

The ground floor final exits from all stairs will be required to achieve a clear exit width at least equal to the clear width of the stairs being served.

Doors should open in the direction of escape. This includes the final exits / discharging point of the escape stairs. Where automatic sliding doors are proposed, these should fail safe to the open position upon the activation of the fire detection and alarm system or power failure.

6.3.8 Fixed Ladders

It is proposed that the alternative means of escape from the Second Floor plant room is via a fixed ladder leading into the office on the floor below.

Fixed ladders are also provided as a means of access to the roof.

In accordance with Clause 1.33 of the Approved Document K, the proposed escape ladders should conform to BS EN ISO 14122-4, BS 4211, and BS 4592.

6.4 OCCUPANTS WITH DISABILITIES OR IMPAIRMENTS

6.4.1 Refuges and Emergency Voice Communication (EVC) systems

A refuge space will be provided within each stair enclosure at First Floor. As there is stepped access on the external routes of escape leading from the final stair exit to Stair 1; a refuge space will be provided outside, adjacent to the external stairs and final stair exit at Ground Floor. On the basis that a ramp will be available from the final exit to Stair 2 to a place of ultimate safety away from the building; a refuge space is not required within Stair 2 at Ground Floor.

The refuge spaces should measure at least 1400mm x 900mm in area. The refuge should be signed and contain a means for occupants to communicate with the building management that they need assistance (Emergency Voice Communication (EVC) system, as per BS 5839- Part 9). EVC systems and refuge areas should be indicated on the plans and will need to be verified by the Design Team.

As no lift access is proposed to the Second Floor lift; refuges need not be provided with the stair enclosures at Second Floor.

6.4.2 Management Plan and PEEP

The Management Plan should be reviewed against the proposed staffing levels for the scheme post occupation.

A Management Strategy will need to be developed for the accommodation by the owner / building management and will incorporate details of how the building complies with the requirements of The Equality Act 2010, including suitable provisions for occupants with disabilities using residential amenity and ancillary areas. The Management Strategy will include information on staff training, how occupants with a disability will be evacuated in the event of a fire and identify key roles in ensuring that they are assisted in a fire situation.

7 INTERNAL FIRE SPREAD

7.1 INTERNAL LININGS

The internal linings should meet the recommendations shown in Table 12 of this report:

Location	Class of Lining
	European Class
Commercial Demise	
Small rooms of area up to 30m² (non-residential areas)	D-s3, d2
Other rooms	C-s3, d2
Circulation spaces	B-s3, d2

Table 12: Wall and ceiling linings

The Class of linings recommended in Table 12 of this report can be downgraded within (but not less than Class 3 or D-s3, d2) in walls of rooms, providing the total area of those parts in any one room does not exceed one half of the floor area of the room and subject to a maximum of 60m². It should be noted that the reduction in classification does not apply to circulation routes / escape routes but small rooms outside of these areas.

7.2 ELEMENTS OF STRUCTURE

Where one element of structure supports or gives stability to another, the supporting element will have no less fire resistance than the higher element. The measures also provide for elements of structure that are common to more than one building or compartment and these should be constructed to the relevant provisions. Any elements of structure which only support themselves or a roof do not require any fire resistance.

Elements of the structure are based on the assumed height of the top floor level within the building. Based on the guidance within Table B4 of ADB, elements of structure should achieve at least 60 minutes fire resistance. However, any elements of structure supporting walls / floors achieving a higher fire resistance duration should achieve at least the same fire resistance duration as the walls / floors they support.

7.3 FIRE COMPARTMENTATION

In accordance with Clause 8.3 of the ADB, the office should be separated from the warehouse with construction achieving at least 60 minutes fire resistance.

In accordance with Table 8.1 of ADB, under the purpose group 7a (storage), there is a limitation on the area of any floor of 7,000m². As the total area of the warehouse is approximately 6,350m², the maximum compartment size is not currently exceeded, and compliance is therefore achieved.

In accordance with Table 8.1 of ADB, under the purpose group 3 (Office), there is no limitation on the compartment areas, and compliance is therefore achieved.

The stairs should be enclosed with construction achieving at least 30 minutes fire resistance. However, where the stair also forms part of a compartment wall / compartment floor, the stair should achieve at least the same fire resistance duration as the compartment wall / floor.

As the lift is located within the protected stair enclosure, the lift does not need to achieve any particular fire resistance duration.

Risers should either:

- Be enclosed with construction achieving at least 30 minutes fire resistance and be provided with suitable firestopping provisions where the services penetrate walls / floors achieving a higher fire resistance duration; or,
- Be enclosed with construction achieving the same fire resistance duration as the walls / floors they penetrate.

Places of special fire hazard should be enclosed by fire resisting construction as per Table 13 of this report. Places of special fire hazard should be confirmed by the Mechanical & Electrical Engineer.

If the tea prep will contain cooking facilities (cooking hobs and / or ovens); the tea prep will need to be enclosed with 30 minute fire rated construction.

The summary of compartmentation provisions required are shown below:

Element within the Building	Required Fire Resistance (minutes)	Fire Door / Resistance (minutes)
Elements of structure	60	N/A
Compartment walls / floors separating purpose groups	60	FD60S
Protected stair enclosure (minimum rating)	30	FD30S
Protected stair enclosures (when forming part of a compartment walls / floor)	60	FD30S
Service risers / lift shafts penetrating compartment walls / floors	60	FD30
Low risk ancillary areas (stores / cleaners cupboard / places of special fire hazard)	30	FD30S
Kitchens containing cooking facilities	30	FD30S

Table 13: Fire resistance / fire door requirements

7.3.1 Fire Stopping

Any openings for services will be fire stopped, unless protected throughout their entire length with fire resisting material.

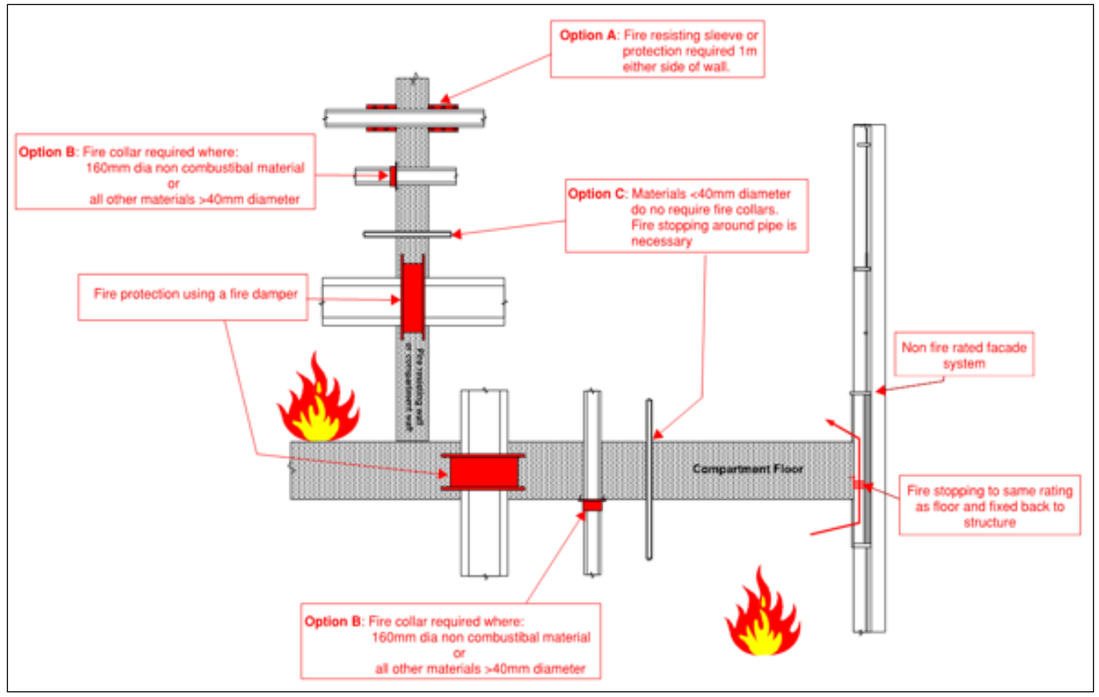


Figure 10: Fire stopping details

This is to prevent the passage of fire and assist in retarding the movement of smoke. Joints between elements of structures that serve as barriers to fire will be fire-stopped to prevent the passage of fire and smoke.

Situation	Pipe Material and Maximum Nominal Internal Diameter (mm)		
	(a) Non-Combustible Material	(b) Lead, Aluminium, Aluminium alloy, uPVC, Fibre Cement	(c) Any Other Material
Structure (but not a wall separating buildings) enclosing a protected shaft which is not a staircase or a lift shaft	160	110	40
Compartment Wall or Compartment floor	160	160 (stack pipe) 110 (branch pipe)	40
Any other situation	160	40	40

Table 14: Permitted pipe penetration details

7.3.2 Cavity Barriers

Cavity barriers should be installed within any extensive cavity (concealed space) with the potential of unseen fire spread. The key areas that require cavity barriers are as follows:

- At the junction between an external cavity wall and every fire compartment floor and fire compartment wall.
- At the junction between an internal cavity wall and every compartment floor, compartment wall or other wall or door assembly forming a fire resisting barrier.
- At the edges of cavities (including around openings, i.e. windows).

Indicative locations of cavity barriers are shown in Figure 11 below.

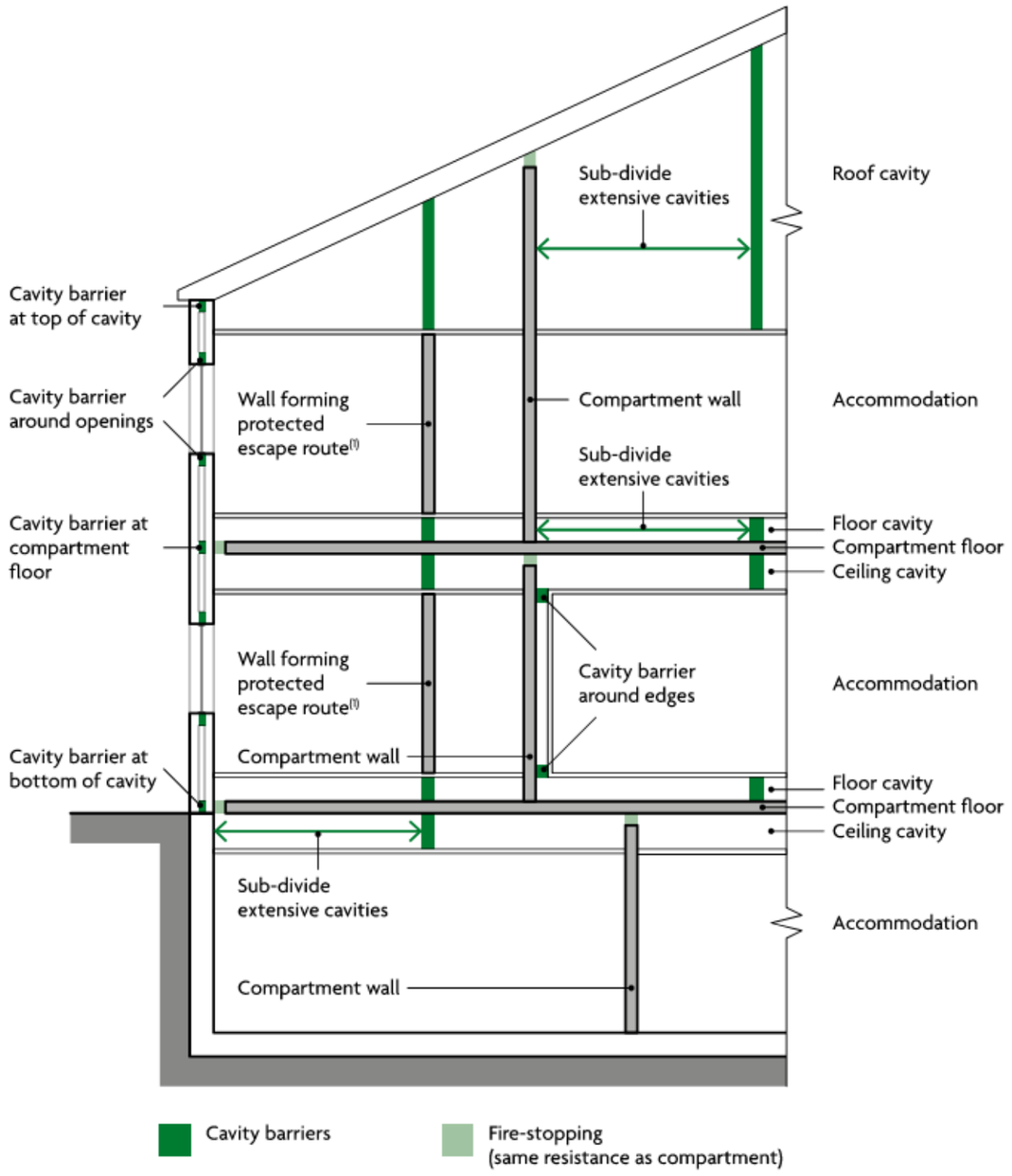


Figure 11 Provisions for cavity barriers

In addition to the above locations, cavity barriers are also normally required in cavities (including ceiling voids and under floor service voids) where the cavity exceeds 10m or 20m (depending on the surface of the products exposed within the cavity i.e. the classification of the materials exposed within the cavity being worse or better than Class C-s3,d2).

If a single room with a ceiling cavity or underfloor cavity exceeds the dimensions mentioned above, cavity barriers need only be provided on the line of the enclosing partitions for of that room, provided that the following conditions are met:

- The cavity barriers are a maximum of 40m apart;
- The surface of the material / product exposed within the cavity is Class C-s3,d2 or better.

However, if even larger cavities (>40m) are required, a summary of the necessary provisions for avoiding cavity barriers are listed in Table 15 of this report:

Barrier Criteria for Large Cavities
A) The room and the cavity together are compartmented from the rest of the building.
B) An automatic fire detection and alarm system meeting the relevant recommendations of BS 5839-1 is fitted in the building (however detectors are not required in the cavity) if it meets certain criteria.
C) If the cavity is used as a plenum, the recommendations about re-circulating air distribution systems in BS 9999 are to be followed.
D) The surface exposed in the cavity is Class B-s3,d2 or better and the supports and fixings in the cavity are Class A1.
E) The flame spread rating of any pipe insulation system is Class C-s3,d2 or better.
F) Any electrical wiring in the void is laid in metal trays, or in metal conduit.
G) Any other materials in the cavity are of Class A2-s3,d2 or better.

Table 15: Cavity details

The cavity barriers will provide a 30-minute fire-rating (i.e. 30 minutes integrity and 15 minutes insulation) and should be mechanically fixed to the structure in all locations. Any penetrations through the cavity barriers will be either;

- Fitted with a proprietary sealing system, or
- Pipes of limited diameters that are sealed with fire-stopping or sealed with sleeving of non-combustible pipe material.

7.3.3 Fire Doors

All fire doors within the building should be provided in accordance with the ADB including testing for performance with respect to the relevant standards.

All fire doors should generally be openable without the use of a key at all material times and open in the direction of escape, where the occupancy of a room / space exceeds 60 persons, escape / fire doors should always open in the direction of escape and be provided with panic fastenings.

The minimum rating required has been detailed in Table 13 of this report.

7.4 BUILDING SERVICES COORDINATION

7.4.1 Gas Services

Any gas services should be designed and installed in accordance with all current versions of Gas Safety Guidance and Regulations (1998) & Pipelines Safety Regulations (1996) where applicable.

7.4.2 Electrical Services

Electrical services should be designed and installed in accordance with the latest version of Electrical Guidance and Regulations, mainly BS 7671 18th Edition.

8 EXTERNAL FIRE SPREAD

8.1 FIRE RESISTANCE OF EXTERNAL WALLS

8.1.1 Relevant Boundaries

The fire resistance requirements of an external wall depend on its distance from the relevant boundary.

The "relevant boundary" may be one of the following.

a. The site boundary; or,
b. The centre line of a space where further development is unlikely, such as a road, railway, canal, or river; or
c. An assumed notional boundary between two buildings on the same site.

The site boundaries are shown indicatively in Figure 12 of this report. The site is bounded by the adjoining sites to the northeast, southeast, and northwest; and, by Horton Road to the southwest. The southwest boundary will be taken as the middle of the adjoining road. All other relevant boundaries will be actual site boundaries.

Figure 12: Indicative site plan with boundary

8.1.2 External Walls within 1m from the Relevant Boundary

External walls within 1m from the relevant boundary should achieve the same level of fire resistance as the structure they serve (i.e. 60 minutes fire resistance) from both sides, for Integrity and Insulation criteria.

Exceptions to this are as per Figure 13 of this report.

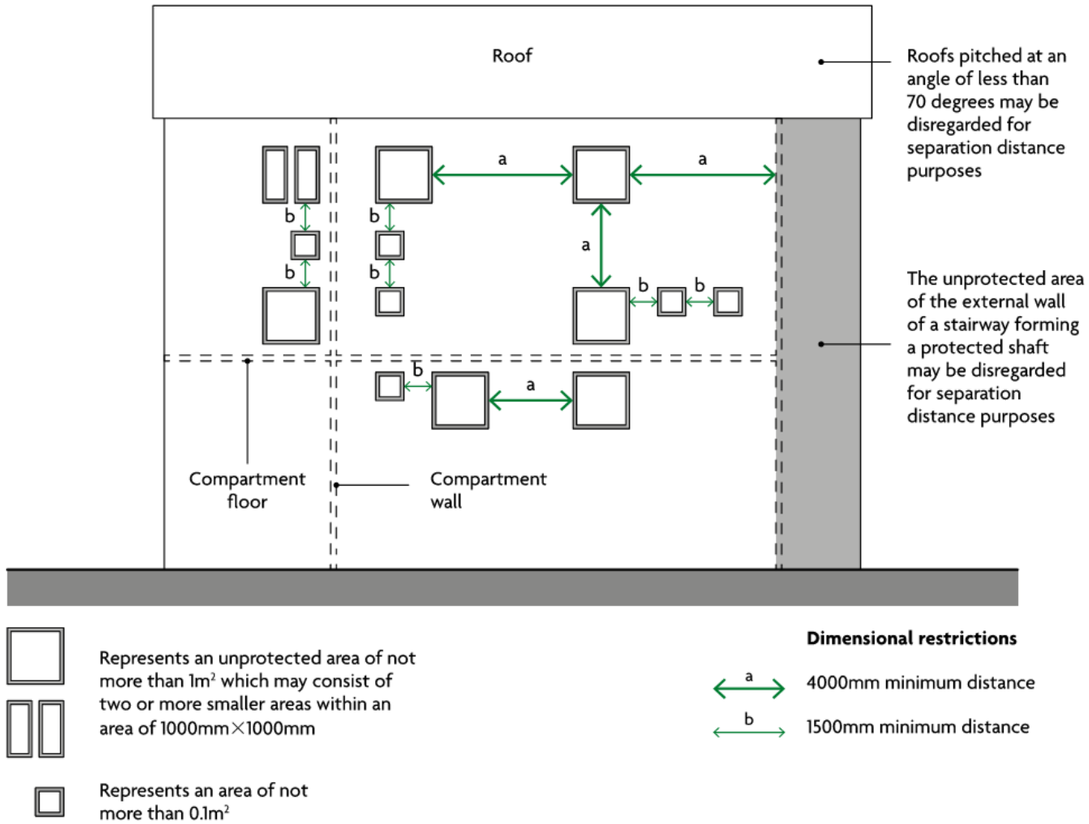


Figure 13 Small unprotected areas that may be disregarded in assessing the separation distance from the boundary.

8.1.3 External Walls 1m or More from the Relevant Boundary

External walls that are not within 1m from the relevant boundary may need to be protected subject to an assessment. This assessment and its results are described in the following sub-section.

Where such external walls need to be protected, their protected areas should achieve the same fire resistance of the structure they serve in terms of the Integrity fire resistance criterion (i.e. 60 minutes fire resistance) and 15 minutes in terms of insulation fire resistance criterion, from the inside.

8.1.3.1 Unprotected Areas Assessment

BR 187 methodology has been employed (enclosing rectangle) to calculate the allowable unprotected area, expressed as a percentage of the external wall area corresponding to individual fire compartments on each building elevation. The labelling convention for the elevations and the boundary distances are presented in Figure 14.

The boundary on the southeast elevation steps back significantly from 8.3m to 31.5m. Therefore, to allow an overall larger unprotected area on the southeast elevation, it is proposed that the southeast elevation is fully protected up until the point

where the site boundary steps back from 8.3m to 31.5m. Therefore, for the purpose of the external fire spread assessment, the boundary distance for the southeast elevation has been taken as 31.5m.

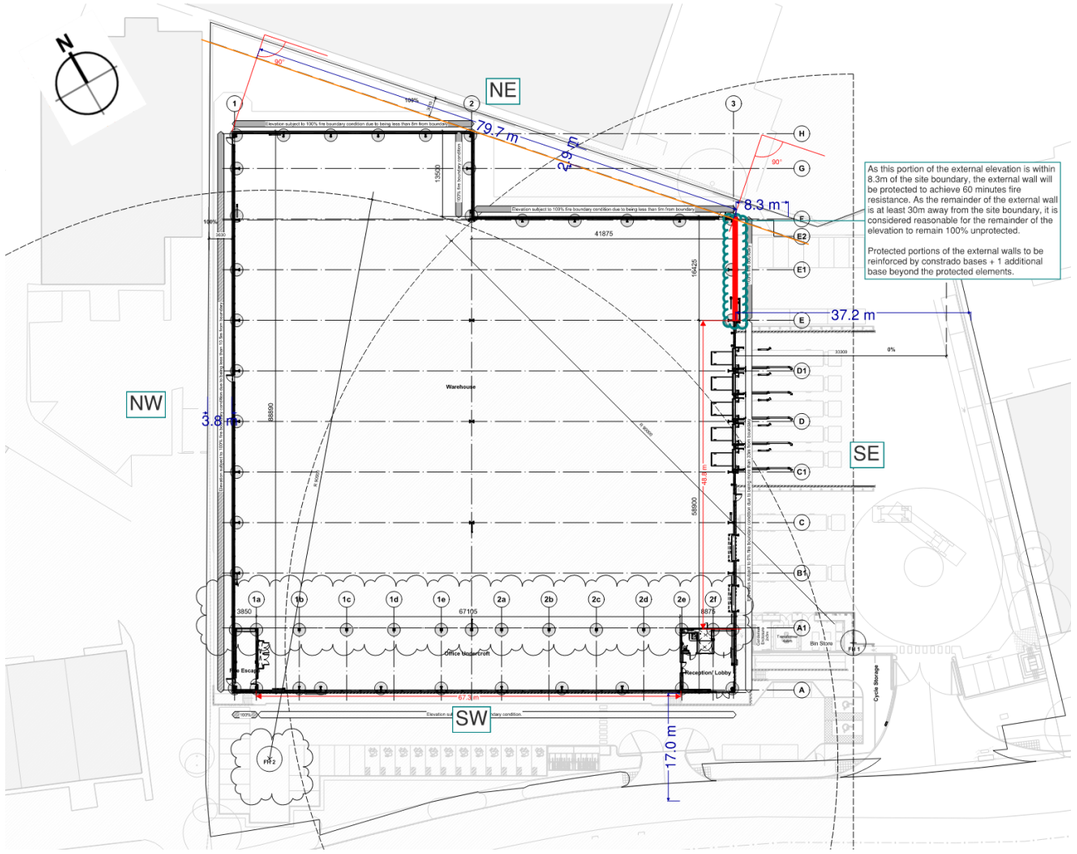


Figure 14: Elevations assessed

The external fire spread calculations have been carried out on the basis that no automatic fire suppression will be provided to the building. A heat flux assumption of 168kW/m^2 has been used for the warehouse, with an 84kW/m^2 value used for the office.

The results of the analysis are presented in Table 16 of this report. The calculated percentage of allowable unprotected area of each assessed fire compartment façade is provided in the last column of this table. The remaining percentage should be protected as per Section 8.1.3.

Fire Compartment / Façade	Boundary (m)	Height (m)	Width (m)	Sprinklers?	Radiation Intensity (kW/m^2)	Maximum Allowable Unprotected Area (%)
NE	2.9	16.6	79.5	No	168	0%
SE	37.2	16.6	56.5	No	168	100%
SW, Warehouse	17.0	5.0	67.2	No	168	100%
SW, Office	17.0	11.6	67.2	No	84	100%
NW	3.6	16.6	78.0	No	168	0%

Table 16: Allowable unprotected area on external walls

The boundary distances and compartment heights outlined in Table 16 should be confirmed by the Design Team.

8.2 EXTERNAL WALL CONSTRUCTION

8.2.1 General

The external envelope should not provide a medium for fire spread if it is to be a risk to the health and safety of the occupants of the building. The use of combustible materials in the cladding system and in cavities may present a risk in tall buildings.

8.2.1.1 Non-Residential

There are no limitations for the fire performance classification of the proposed building, other than the external wall surfaces which should comply with section 8.3.

8.3 EXTERNAL SURFACES

As per Table 12.1 of the ADB (and Figure 15 of this report); based on the building height not exceeding 18m and all elevations being more than 1m from the boundary, the external wall of the building need not achieve any particular reaction to fire performance classification. However, it is recommended that external surfaces do not provide a means of flame spread and are constructed from non-combustible materials as far as reasonably practicable.

Building type	Building height	Less than 1000mm from the relevant boundary	1000mm or more from the relevant boundary
'Relevant buildings' as defined in regulation 7(4) (see paragraph 10.14)		Class A2-s1, d0[1] or better	Class A2-s1, d0[1] or better
All 'residential' purpose groups (purpose groups 1 and 2)	More than 11m	Class A2-s1, d0[2] or better	Class A2-s1, d0[2] or better
	11m or less	Class B-s3, d2[2] or better	No provisions
Assembly and recreation	More than 18m	Class B-s3, d2[2] or better	From ground level to 18m: class C-s3, d2[3] or better From 18m in height and above: class B-s3, d2[2] or better
	18m or less	Class B-s3, d2[2] or better	Up to 10m above ground level: class C-s3, d2[3] or better Up to 10m above a roof or any part of the building to which the public have access: class C-s3, d2[3] or better[4] From 10m in height and above: no minimum performance
Any other building	More than 18m	Class B-s3, d2[2] or better	From ground level to 18m: class C-s3, d2[3] or better From 18m in height and above: class B-s3, d2[2] or better
	18m or less	Class B-s3, d2[2] or better	No provisions

Figure 15: Classification of external wall surfaces

8.4 ROOF COVERINGS

Roof coverings will comply with Section 14 of the ADB, including protection around junctions with compartment walls. At this stage we recommend employing $B_{ROOF}(t4)$ to all roof coverings.

Additionally, roof areas which are located 1,500mm either side of a compartment wall should achieve a classification of $B_{ROOF}(t4)$, on a substrate or deck of a material rated as Class A2-s3,d2 or better. Roof covering and deck could be composite structure e.g. profiled steel cladding.

If used, double-skinned insulated roof sheeting should incorporate a band of material rated Class A2-s3,d2 or better, a minimum of 300mm in width, centred over the compartment wall.

If roof support members pass through the compartment wall, fire protection to these members for a distance of 1,500mm on either side of the wall may be needed to delay distortion at the junction.

Any fire-stopping at the head of the compartment wall should be carried up to the underside of the roof covering e.g. roof sheets.

9 ACCESS AND FACILITIES FOR THE FIRE SERVICE

9.1 VEHICULAR ACCESS

Fire Service vehicle access to the site will be via Horton Road and the associated car park and loading bay to the southwest and southwest of the building. As the mean roof level of the building exceeds 11m, provisions for high reach appliance access are required to the building.

Based on a combined area of the warehouse and office not exceeding 8,000m^2, fire vehicle access should be available to least 50% of the building perimeter with doors into the building sited no more than 60m apart.

The ADB recommends that the fire vehicle access routes should include suitable turning provisions where the fire appliances would need to otherwise reverse more than 20m.

In the proposed arrangement fire vehicle access is available to the southwest and southwest elevations of the building, which totals to approximately 45% of the building's perimeter. Whilst vehicle access is available to the southwest across the entire elevation, the fire appliance will need to reverse more than 20m; and, it is not possible to provide turning facilities due to the constraints of the existing site.

The Design Team will confirm that the hardstanding requirements outlined in ADB Diagram 15.2 (e.g., hard standing for high reach fire appliances is provided within 2m of the buildings elevations) will be achieved on the elevations where fire vehicle access is available. These areas are indicated in pink in Figure 16 below.

Pedestrian access for Firefighters will be available to the entire southwest, northwest, and northeast elevations and compliance is indicated on the proposed design with ADB.

As outlined in Section 15 of the ADB, where full compliance with the general code guidance cannot be achieved due to site constraints and planning permission, it is advisable to seek advice from the local Fire and Rescue Service as early as possible and this report seeks to provide sufficient alternative means of active fire Firefighting provisions to assist and help compensate for the lack of post fire provisions under B5.

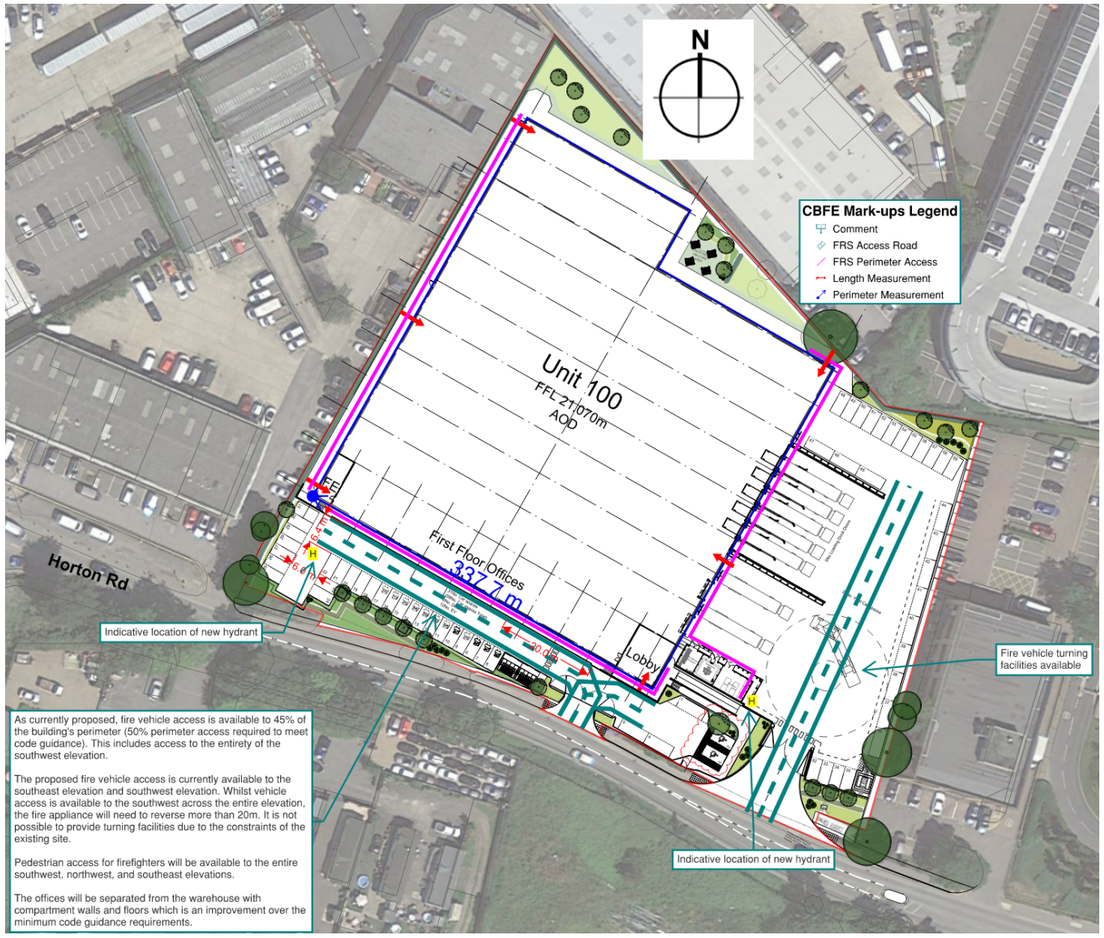


Figure 16: FRS access provisions

Due care should be given to ensure that the vehicle access route achieves the guidance recommendations for pump / high reach appliances as shown in Table 17 of this report. The proposed appliance type / specification / loading should be confirmed by the Local Fire and Rescue Service. Any access / security measures in and around the site (especially any barriers or bollards preventing vehicle access) should be by-passable by the Fire and Rescue Service (FRS). The details of any bypass arrangements will need to be developed and agreed with the Fire Service as applicable.

Appliance Type	Min. Width of Road Between Kerbs	Min. Width of Getaways	Min. Turning Circle Between Kerbs	Min. Turning Circle Between Walls	Min. Clearance Height	Min. Carrying Capacity[1]
Pump[1]	3.7m	3.1m	16.8m	19.2m	3.7m	12.5t
High Reach[1]	3.7m	3.1m	26.0m	29.0m	4.0m	17.0t
Notes: 1) 1) Specific Fire Service Requirements should be confirmed with the local Fire and Rescue Service.						

Table 17: Fire vehicle – Appliance type

9.2 HYDRANT PROVISION

New and additional hydrants should be provided to all new buildings where an existing hydrant is more than 100m from an entry point into the building and the building contains a compartment greater than 280m^2 in floor area.

The Design Team on the project have confirmed that the new building is located within 100m from an entry point of the development to an existing hydrant main near the site. It is therefore confirmed that no further provision is necessary under the guidance documentation in relation to providing a new hydrant or extended the hydrant main to service the building and compliance under ADB is achieved.

However as stated earlier in the report, due to the site constraints, the required 50% perimeter access for a high reach appliance and the maximum reversing distance of 20m cannot be achieved to the Northwest and Southwest elevations. The current perimeter access achieves 45% due to the shape of the building on the North elevations. The reversing distance in total is around 57m from gridline 1A to gridline 2D as indicated on drawing number P23025_UMC_BR_00_DR_A.

It is therefore proposed to extend the existing hydrant main onto the site with two new outlet points. These outlet points will be located on the Southwest elevation between gridlines A – A1 and on the Southeast elevation between gridlines 1A – 1B as indicated on drawing number P23025_UMC_BR_00_DR_A. Both locations are proposed strategically so that multiple Fire Service appliances can be located adjacent to opposite elevations at the same time.

The additional hydrant locations are proposed so they provide a more efficient and increased level of safety for both occupants and Fire Service personnel via the hybrid Firefighting strategy. It can be confirmed that the effectiveness of having two hydrant outlets immediately adjacent to the elevations that have personnel and vehicle access will be an increased benefit when compared directly to having to access the existing hydrant which is located away from the building and the access doors / Fire Service crew.

The location of these hydrants also results in the majority of the building being accessible to within 90m from each hydrant outlet as indicated in drawing number P23025_UMC_BR_00_DR_A (also shown indicatively in Figure 16 of this report).

In relation to the Fire Service vehicle reversing distance, we propose that this additional 37m may be acceptable to the local Fire Service based on the details below:

1. 20m is based on historical data and requirements that are outdated by modern vehicles and Fire Service operational standards;
2. The reversing requirement will only be required post fire event resulting in additional time and care being taken to reverse a modern Fire Service vehicle easily from grid lines 1A to 2D; and,
3. The road providing vehicle access is at least 6.4m wide and complies with guidance in ADB for access (3.7m required for a high reach appliance).

9.3 PERSONNEL ACCESS

Firefighting access for the warehouse and office will be primarily via the main entrance into the office. Where access is provided to a façade, doors into the should be sited no more than 60m from the corner of the building, and no more 60m apart.

The drawings provided by the design team indicate compliance with this requirement and doors have been located close to the new hydrant locations on the Northwest, Southeast and Southwest elevations with doors also provided as close to the middle of each elevation as possible.

10 ACTIVE FIRE SAFETY SYSTEMS

10.1 AUTOMATIC FIRE DETECTION AND ALARM

10.1.1 Overall

A summary of the fire alarm and detection systems for the blocks is presented in Table 18 of this report:

Purpose Group	Detection and Alarm Category Designed in Accordance with BS 5839 Part 1 and 6	
	Minimum Grade / Category	Proposed Grade / Category
Warehouse	M	M (BS 5839-1)
Office	M	L2 (BS 5839-1)

Table 18: Fire alarm and detection systems

10.1.1.1 Fire Alarm Panel

The systems will be fully addressable in order to enable building management as well as the Fire Service to easily locate a fire. It is recommended to include the main fire detection and alarm panel within the reception located within Stair 2 at Ground Floor.

10.1.2 Fire Detection and Alarm System

As part of the shell and core design, it is proposed to provide a manual fire detection and alarm system to the warehouse; and, a Category L2 automatic fire detection and alarm system to the office. The provision of an automatic fire detection and alarm system to the warehouse will be subject to the building fit-out, and does not form part of the shell and core proposals. Any automatic fire detection and alarm systems proposed to the warehouse will be installed by the building tenant/operator.

The fire detection and alarm systems will be designed, installed, and commissioned in accordance with BS 5839-1. This will include detection, manual call points and sounders as necessary to comply with a BS 5839-1.

Based on the roof being accessible for maintenance, sounders and flashing beacons may be required to meet the recommendations of BS 5839-1. This will be subject to a suitable fire risk assessment carried out by the fit-out team and an automatic fire detection and alarm system specialist, and does not form part of the shell and core proposals. Where required, sounders and flashing beacons will be provided on the roof by the building tenant/operator.

10.2 FIRE AND SMOKE DAMPERS

Fire and smoke dampers will be required to all lines of internal compartmentation and fire resistance when the integrity has been breached. Fire dampers should always be located within the thickness of the fire separating element they are protecting and suitable access for inspection, maintenance and testing should always be provided.

Fire dampers are not suitable for stair enclosures – instead, fire resisting ductwork should be employed.

All fire dampers should conform to BS EN 15650: 2010. They should have an E classification equal to or greater than the wall / floor through which they pass.

Fire dampers activated only by fusible links are not suitable for protecting escape routes or for ductwork passing through lines of compartmentation (floors or walls). In such instances an ES classified fire and smoke damper which is activated by a fire and smoke detector shall be used.

The following spaces constitute a protected escape route:

- Protected stair enclosures (including above- and below-ground portion of the stairs);
- Protected lobbies (including common residential corridors, and all protected corridors / lobbies at basement and ground floors); and
- Protected corridors including internal cluster corridors.

The Fire and Smoke Damper Strategy should be generally in accordance with the requirements specified Section 10 of the ADB.

10.3 EMERGENCY LIGHTING

Emergency lighting will be provided throughout the building and maintained in accordance with the recommendations of BS 5266-1 and will also be included in the following areas:

Risk Profile	Areas Requiring Escape Lighting
Any	All sanitary accommodation with a floor area over 8m^2
	Windowless sanitary accommodation with a floor area less than 8m^2
	Electricity and generator rooms
	Switch room / battery room
	All escape routes

Table 19: Emergency lighting

Emergency lighting will be provided on all escape routes. The installation will also comply with the Codes of Practice for Emergency Lighting BS 5266-1.

10.4 ESCAPE ROUTE SIGNAGE

Escape signage will be provided above storey exits and final exit doors from the common areas within the accommodation. Emergency escape signage will be required to meet the requirements of the Regulatory Reform (Fire Safety) Order 2005. Such signage will meet the recommendations of BS 5499 – 4 and will be located as follows, except for escape routes which are in ordinary use:

- All designated escape routes or escape routes across open areas will be provided with signage, especially stairs and other changes in level and direction.
- The position of all doors and other exits sited on escape routes, including storey exits and final exits will be identified by signs.
- Where an escape route from a room is not conspicuous or confusion could occur, the route will be indicated by a sign, including intermediate signs where necessary.
- All changes of direction in corridors, stairways and open spaces forming part of an escape route will be marked with intermediate signs. Each intermediate door or junction will be similarly signed.

It is suggested that the final signage provision is agreed with the Regulatory Authorities prior to occupation of the building.

Fire resisting doors, fire exit doors and escape routes in and around the building will be provided with signage meeting the recommendations of BS 5499-5.

10.5 EMERGENCY POWER SUPPLIES

In the event of a failure of the mains power supply a secondary backup power supply will be provided to feed all life safety systems that require electricity to function as intended. The secondary supply will be appropriate for the life safety system concerned. The following life safety systems will include a backup power supply:

- Automatic fire alarm and detection systems;
- Illuminated emergency signage;
- EVC equipment for disabled refuge points; and
- Emergency lighting.

As a life safety system, dual power supplies will be needed as part of this system, which are expected to be provided as batteries for the majority of small systems (fire detection and alarm, emergency lighting, etc.).

For other systems, power supplies (where recommended by their relevant design BS) should be provided via two separate intakes into the building from independent external substations, or Uninterruptible Power Supply (UPS), or via a single intake and a standby generator.

The diverse (primary and secondary) power cables should only come together in the fire compartment housing the control panel by means of an automatic change-over switch, unless the cable route is via a fire compartment, which does not open onto areas requiring protection via the relevant life safety system.

10.6 ARCFAULT PROTECTION (PV PANELS)

If PV panels are to be installed on the roof, care should be taken that they are installed correctly and in accordance with the manufacturer's recommendations. During the early stages of this technology, there were a number of instances where poorly fitted panels led to a risk of fire and undue spread. It is therefore recommended that arc-fault protection is provided to these panels in order to mitigate the risk of ignition and therefore reduce the associated fire risk.

It is recommended that these panels also be fitted with a shutdown mechanism so that the Fire Brigade can shut down the panels to ensure no further power is generated. It is recommended that this be linked to the fire alarm system such that it shuts down automatically in the event of a genuine fire alarm activation. This will help to ensure Firefighter safety by removing power / electricity for potential fire loads.

11 FIRE SAFETY MANAGEMENT

11.1 GENERAL

Given the use and likely occupancy of the building, management procedures will assist in the prevention and control of fires and the evacuation of occupants.

Good housekeeping standards will be enforced to ensure that the effectiveness of the fire safety provisions is not affected.

Maintenance procedures should be developed to ensure that all equipment and services within the building are able to operate effectively.

A full Fire Risk Assessment should be carried out by the occupier / developer of the building (coordinated by the landlord where multiple tenants are present) nearer to the development completion and be in place on occupation to meet The Regulatory Reform (Fire Safety) Order (FSO) 2005. The assessment should be maintained and act as a record of the provision and measures, passive and active, used to minimise fire risk within and around the building.

11.2 KEY MANAGEMENT ISSUES

This section describes each of the key management areas that will need to be implemented and maintained during the lifetime of the building:

- All necessary fire safety systems must be regularly maintained and tested.
- The building management will regularly monitor and control the specification and use of combustibles within the escape routes and circulation areas. These areas will generally be maintained free of all combustibles and the escape routes will be unobstructed at all times.
- A full Fire Risk Assessment should be developed and kept up to date at all times and especially when any physical changes are made or the use of the building changes.
- All building staff and tenants will receive regular training including roles and responsibilities for key members of staff.

Fire Safety Management

A level 2 management process should be put in place as a minimum, key management areas that will need to be developed implemented and maintained during the lifetime of the building.

- Planning for changes in risk profile.
- Resources and authority.
- Staffing levels & ratio to occupants.
- Fire training.
- Work control and repairs.
- Communications.
- Maintenance and testing.
- Liaison with Fire Service.
- Contingency planning.

Further information is available via BS 9999.

Control of Evacuation and Fire Safety Planning / Implementation.

A detailed fire safety plan will be drawn up by the building management, which will provide clear simple advice for the occupants in the event of an emergency.

The fire safety plan will be prepared, maintained and implemented by the fire personnel responsible for the building in question and will include:

- The procedures to be adopted in the event of a fire signal being given.
- Procedures for evacuation of occupants.
- Procedures for equipment maintenance.
- Procedures for recording and monitoring equipment maintenance and any fire incidents.
- Special procedures which are in place for occupants who may have a disability and procedures which are in place to ensure that all occupants are made aware to staff when they are in the building

Expanding on the information given above, the Fire Strategy includes a number of risk critical areas resulting in the need to formalise the fire safety management in the building. To develop and maintain the safety of the building, the building management should formulate a policy statement appropriate to the building configuration, location, occupation, and if relevant, to the building users. The policy statement should include:

- General safety issues related to the use of the building
- Possible fire scenarios
- Aims and objectives of the proposed management system and its methodology

This policy should be endorsed by the highest level of management.

11.3 REGULATION 38

To satisfy Regulation 38 of The Building Regulations 2010, it is proposed that a full package of building design information is passed to the end user. It is proposed that the following relevant information is provided to the end users:

- This Fire Strategy report;
- Any management information proposed in addition to that contained in this Strategy;
- Details of all passive fire safety measures (including compartmentation, cavity barriers, fire doors, self-closers, and duct dampers);
- Details of the fire alarm and detection systems, emergency lighting, emergency signage, access controls, door hold open devices;
- Details of all active fire safety measures including the smoke control system design, mode of operation and control systems;
- Details of fire hydrants;
- Details of life safety equipment, including life safety power supplies;
- Any high-risk rooms and equipment present;
- As built plans for the building;
- Fire Strategy drawings of every floor level within the building; and
- O&M Manuals for the building systems, including commissioning information and certification.

This information will be transferred as a package of information by the main contractor at handover of the building.

12 APPENDIX A – DRAWINGS REFERENCED

This report is based on the following plans and revision shown:

Author	Description	Reference	Revision
UMC Architects	Site Layout	P23025_UMC_EX_00_DR_A_0601	C07
	Fire Boundaries Plan	P23025_UMC_BR_00_DR_A_1404	C03
	Overall Ground Floor Plan	P23025_UMC_BR_00_DR_A_1001	C06
	Office Fire Strategy	P23025_UMC_BR_ZZ_DR_A_1402	C06
	Roof Level Fire Strategy	P23025_UMC_BR_RL_DR_A_1405	C02
	Fire Boundary Elevations	P23025_UMC_BR_ZZ_DR_A_1403	P01

Panattoni Poyle

Seal id	Level	Location	Seal	X	Y	Penetrating service	Add. seals	Seal type
116	First floor	Main office,office area	Firehalt - Plastic Pipe Detail A	35	35	Pipe	1	60 Min F/S
115	First floor	Main office,office area	Firehalt - Cable Tray	450	50	Cable basket/cable tray	1	60 Min F/S
114	First floor	Main office,office area	Firehalt - Cable Tray	350	50	Cable Bunch	1	60 Min F/S
113	First floor	Main office,office area	Firehalt - Cable Tray	150	30	Cable basket/cable tray	1	60 Min F/S
112	First floor	Main office,office area	Firehalt - Metal Pipe	50	50	Steel Beam	3	60 Min F/S
111	First floor	Main office,office area	Firehalt - Metal Pipe	600	60	Pipe	1	60 Min F/S
112	Level 0	WHITE WOLL	A - Batt & Mastic - Wall	80	80	Pipe	1	120 Min F/S
111	Level 0	WHITE WOLL	A - Batt & Mastic - Wall	400	100	Pipe	0	120 Min F/S
110	Level 1	FIRE ESCAPE STERPS	C - Vertical Cavity Barrier/Other Linear	10000	200	Cable basket/cable tray	0	60 Min F/S
109	Level 1	FIRE ESCAPE STERPS	C - Vertical Cavity Barrier/Other Linear	10000	200	Cable basket/cable tray	0	30 Min FS
108	Level 1	FIRE ESCAPE STERPS	C - Vertical Cavity Barrier/Other Linear	10000	200	Conduit/Cable	0	30 Min FS
107	Level 1	FIRE ESCAPE STERPS	C - Vertical Cavity Barrier/Other Linear	10000	200	Cable basket/cable tray	0	30 Min FS
106	Level 1	FIRE ESCAPE STERPS	A - Batt & Mastic - Wall	300	50	Cable basket/cable tray	0	120 Min F/S
105	Level 1	FIRE ESCAPE STERPS	H - Mastic to Circular Penetration	30	30	Conduit/Cable	1	120 Min F/S
104	Level 1	FIRE ESCAPE STERPS	B - Batt & Mastic - Pattress	550	300	Cable basket/cable tray	0	120 Min F/S
103	Level 1	FIRE ESCAPE STERPS	B - Batt & Mastic - Pattress	300	250	Conduit/Cable	1	120 Min F/S
102	Gf	Open plan space	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
101	Gf	Open plan space	B - Batt & Mastic - Pattress	249	249	Pipe	0	90 Min F/S
100	Gf	Acc WC	F - Pipe Wrap	99	99	Pipe	0	60 Min F/S
99	Gf	Acc WC	B - Batt & Mastic - Pattress	299	299	Pipe	0	60 Min F/S
98	Gf	Acc WC	B - Batt & Mastic - Pattress	349	249	Pipe	0	60 Min F/S
97	Gf	Acc WC	F - Pipe Wrap	49	49	Pipe	3	60 Min F/S
96	Gf	Acc WC	B - Batt & Mastic - Pattress	249	249	Pipe	1	60 Min F/S
95	1st floor	Acc WC	I - HP Mastic to Circular Penetration	99	99	Pipe	0	60 Min F/S
94	1st floor	Acc WC	B - Batt & Mastic - Pattress	249	249	Pipe	0	60 Min F/S
93	1st floor	Acc WC	F - Pipe Wrap	49	49	Pipe	3	60 Min F/S
92	1st floor	Acc WC	B - Batt & Mastic - Pattress	449	249	Pipe	0	60 Min F/S
91	1st floor	Acc WC	B - Batt & Mastic - Pattress	249	249	Pipe	0	60 Min F/S
90	1st floor	Male WC	F - Pipe Wrap	49	49	Pipe	3	60 Min F/S
89	1st floor	Male WC	B - Batt & Mastic - Pattress	499	249	Pipe	0	60 Min F/S
88	1st floor	Cleaners	A - Batt & Mastic - Wall	199	199	Pipe	0	60 Min F/S
87	1st floor	Cleaners	F - Pipe Wrap	49	49	Pipe	1	60 Min F/S

86	1st floor	Cleaners	B - Batt & Mastic - Pattress	349	199	Pipe	0	60 Min F/S
85	1st floor	Cleaners	Firehalt - Cable Tray	49	49	Pipe	1	60 Min F/S
84	1st floor	Cleaners	B - Batt & Mastic - Pattress	299	199	Pipe	0	60 Min F/S
83	1st floor	Cleaners	F - Pipe Wrap	49	49	Pipe	2	60 Min F/S
82	1st floor	Cleaners	C - Vertical Cavity Barrier/Other Linear	399	299	Pipe	0	60 Min F/S
81	1st floor	Office area	Firehalt - Cable Tray	49	49	Cable basket/cable tray	1	60 Min F/S
80	1st floor	Office area	Firehalt - Metal Pipe	49	49	Pipe	3	60 Min F/S
79	1st floor	Office area	Firehalt - Plastic Pipe Detail A	49	49	Pipe	0	60 Min F/S
78	1st floor	Office area	Firehalt - Cable Tray	449	49	Cable Bunch	1	60 Min F/S
77	1st floor	Office area	Firehalt - Cable Tray	49	49	Cable basket/cable tray	1	60 Min F/S
76	1st floor	Office area	Firehalt - Cable Tray	199	49	Cable basket/cable tray	3	60 Min F/S
75	GF	Open plan space	L - Profile Fillers - Decking Filler - Intubatt	199	69		1	60 Min F/S
74	GF	Open plan space	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
73	GF	Open plan space	B - Batt & Mastic - Pattress	399	249	Pipe	1	90 Min F/S
72	1st floor	Lobby	F - Pipe Wrap	49	49	Pipe	2	60 Min F/S
71	1st floor	Lobby	B - Batt & Mastic - Pattress	199	149	Pipe	0	60 Min F/S
70	1st floor	Lobby	B - Batt & Mastic - Pattress	349	199	Pipe	1	60 Min F/S
69	1st floor	Lobby	B - Batt & Mastic - Pattress	199	99	Cable basket/cable tray	0	60 Min F/S
68	1st floor	Landing	B - Batt & Mastic - Pattress	349	249	Conduit/Cable	0	60 Min F/S
67	1st floor	Female WC	F - Pipe Wrap	49	49	Pipe	1	60 Min F/S
66	1st floor	Female WC	B - Batt & Mastic - Pattress	249	249	Pipe	2	60 Min F/S
65	1st floor	Female WC	F - Pipe Wrap	49	49	Pipe	2	60 Min F/S
64	1st floor	Female WC	B - Batt & Mastic - Pattress	499	249	Pipe	0	60 Min F/S
63	GF	Open space	L - Profile Fillers - Decking Filler - Intubatt	199	69		5	60 Min F/S
62	GF	Open space	F - Pipe Wrap	99	99	Pipe	0	60 Min F/S
61	GF	Open space	B - Batt & Mastic - Pattress	499	349	Pipe	1	60 Min F/S
60	GF	Open space	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
59	GF	Open space	C - Vertical Cavity Barrier/Other Linear	299	299	Pipe	1	60 Min F/S
58	GF	Open space	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
57	GF	Open space	C - Vertical Cavity Barrier/Other Linear	249	249	Pipe	1	60 Min F/S
56	GF	Open space	L - Profile Fillers - Decking Filler - Intubatt	199	69		0	60 Min F/S
55	GF	Open space	F - Pipe Wrap	59	59	Pipe	0	60 Min F/S
54	GF	Open space	B - Batt & Mastic - Pattress	299	249	Pipe	1	60 Min F/S
53	GF	Open space	L - Profile Fillers - Decking Filler - Intubatt	199	69		1	60 Min F/S
52	GF	Open space	F - Pipe Wrap	99	99	Pipe	0	60 Min F/S
51	GF	Open space	B - Batt & Mastic - Pattress	499	299	Pipe	1	60 Min F/S
50	GF	Open space	L - Profile Fillers - Decking Filler - Intubatt	199	67		3	60 Min F/S

49	GF	Open space	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
48	GF	Open space	B - Batt & Mastic - Pattress	499	249	Pipe	1	60 Min F/S
47	1st floor	Male WC	F - Pipe Wrap	59	59	Pipe	3	60 Min F/S
46	1st floor	Male WC	B - Batt & Mastic - Pattress	499	299	Pipe	0	60 Min F/S
45	1st floor	Store	Firehalt - Cable Tray	59	59	Pipe	2	60 Min F/S
44	1st floor	Store	B - Batt & Mastic - Pattress	499	249	Pipe	0	60 Min F/S
43	1st floor	Store	F - Pipe Wrap	59	59	Pipe	2	60 Min F/S
42	1st floor	Store	B - Batt & Mastic - Pattress	399	299	Pipe	0	60 Min F/S
41	1st floor	Female WC	F - Pipe Wrap	49	49	Pipe	0	60 Min F/S
40	1st floor	Female WC	B - Batt & Mastic - Pattress	249	199	Pipe	0	60 Min F/S
39	1st floor	Female WC	F - Pipe Wrap	59	59	Pipe	2	60 Min F/S
38	1st floor	Female WC	B - Batt & Mastic - Pattress	499	249	Pipe	0	60 Min F/S
37	1st floor	Office area	I - HP Mastic to Circular Penetration	299	149	Pipe	0	60 Min F/S
36	1st floor	Office area	A - Batt & Mastic - Wall	299	199	Cable basket/cable tray	0	60 Min F/S
35	1st floor	Office area	B - Batt & Mastic - Pattress	299	199	Conduit/Cable	0	60 Min F/S
34	1st floor	Office area	B - Batt & Mastic - Pattress	299	149	Cable basket/cable tray	0	60 Min F/S
33	1st floor	Office area	Firehalt - Cable Tray	59	59	Pipe	1	60 Min F/S
32	1st floor	Office area	A - Batt & Mastic - Wall	299	199	Pipe	0	60 Min F/S
31	1st floor	Office area	C - Vertical Cavity Barrier/Other Linear	999	75	N/A	0	60 Min F/S
30	1st floor	Landing	A - Batt & Mastic - Wall	99	99	Conduit/Cable	0	60 Min F/S
29	1st floor	Landing	B - Batt & Mastic - Pattress	199	199	Conduit/Cable	0	60 Min F/S
28	1st floor	Landing	H - Mastic to Circular Penetration	299	999	Pipe	0	60 Min F/S
27	1st floor	Landing	A - Batt & Mastic - Wall	299	199	Cable basket/cable tray	0	60 Min F/S
26	1st floor	Acc WC	A - Batt & Mastic - Wall	499	149	Cable basket/cable tray	0	60 Min F/S
25	1st floor	Acc WC	F - Pipe Wrap	49	49	Pipe	3	60 Min F/S
24	1st floor	Acc WC	B - Batt & Mastic - Pattress	499	199	Pipe	1	60 Min F/S
23	1st floor	Acc WC	I - HP Mastic to Circular Penetration	249	199	Pipe	0	60 Min F/S
22	1st floor	Acc WC	B - Batt & Mastic - Pattress	499	399	Pipe	0	60 Min F/S
21	1st floor	Acc WC	B - Batt & Mastic - Pattress	399	399	Cable Bunch	0	60 Min F/S
20	1st floor	Acc WC	F - Pipe Wrap	59	59	Pipe	0	60 Min F/S
19	1st floor	Acc WC	B - Batt & Mastic - Pattress	299	199	Pipe	0	60 Min F/S
18	1st floor	Acc WC	B - Batt & Mastic - Pattress	199	199	Conduit/Cable	0	60 Min F/S
17	1st floor	Acc WC	B - Batt & Mastic - Pattress	449	249	Conduit/Cable	0	60 Min F/S
16	1st floor	Acc WC	A - Batt & Mastic - Wall	199	199	Pipe	0	60 Min F/S
15	1st floor	Acc WC	B - Batt & Mastic - Pattress	899	349	Cable Bunch	0	60 Min F/S
11	1	Open plan space	Firehalt - Cable Tray	10000	6000	Cable basket/cable tray	2	60 Min F/S
10	2	Plan DEK	C - Vertical Cavity Barrier/Other Linear	4000	270	N/A	0	60 Min F/S

9	2	Plan DEK	C - Vertical Cavity Barrier/Other Linear	5000	250	N/A	0	60 Min F/S
8	1	Plan office	C - Vertical Cavity Barrier/Other Linear	70000	290	N/A	0	60 Min F/S
7	1	Stairs	C - Vertical Cavity Barrier/Other Linear	4000	100	N/A	0	60 Min F/S
6	1	Stairs	C - Vertical Cavity Barrier/Other Linear	4000	160	N/A	0	60 Min F/S
5	1	Stairs	C - Vertical Cavity Barrier/Other Linear	3500	290	N/A	0	60 Min F/S
4	1	Stairs	C - Vertical Cavity Barrier/Other Linear	4000	230	N/A	0	60 Min F/S
2	2	Plan DEK	C - Vertical Cavity Barrier/Other Linear	5000	230	N/A	0	60 Min F/S
1	2	Plan DEK	C - Vertical Cavity Barrier/Other Linear	9000	300	N/A	0	60 Min F/S

BWF FIRE DOOR ALLIANCE

BWF Fire Door Alliance
Fire Doors and Doorsets

Best Practice Guide

FDA/BPG_Feb2021

BWF Fire Door Alliance: The leading authority on fire door safety

A fire door is a vital safety device engineered to save lives and property.

The correct specification, supply, fitting and maintenance are critical and the responsibility of each and every person in the process.

It's only when a fire breaks out that the consequences of poorly manufactured or fitted fire doors are known.

This Best Practice Guide has been prepared by the British Woodworking Federation (BWF Fire Door Alliance) Fire Door Scheme. It is the complete reference source for everything that you and your customer need to know about third party certificated timber fire doors and doorsets.

Get it right = Protect Lives and Property

Get it wrong = Risk to Life and Property

Note: While every effort has been made to ensure the accuracy of advice given, the BWF cannot accept liability for loss or damage arising from the use of the information supplied in this publication.

Note: Other certification schemes adopt different marking options see www.firedoorsafetyweek.co.uk for further info.

The BWF Fire Door Alliance Fire Door and Doorsets Scheme

The BWF Fire Door Alliance was established in 2018 to draw together the Warringtonfire Certifire and BM TRADA Q-Mark third party certification schemes to promote the importance of using third party certificated fire doors and components as a critical part of any passive fire plan.

Regular testing and assessment of fire doors and components is necessary to ensure that products will perform in the event of a fire.

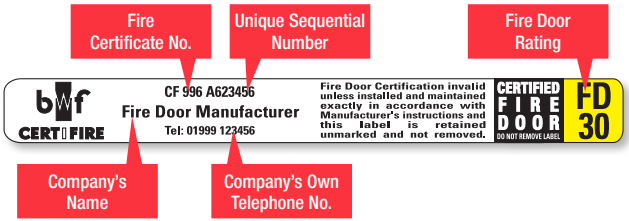
Scheme members operate strict, audited manufacturing control and supply systems and regularly fire test their products to ensure that they will perform if a fire breaks out. The audit ensures that processes are robust and effective training is in place to minimise risk.

The Scheme offers clear and simple methods of tracing a fire door and its components throughout the entire fire door chain.

It's all in the Label

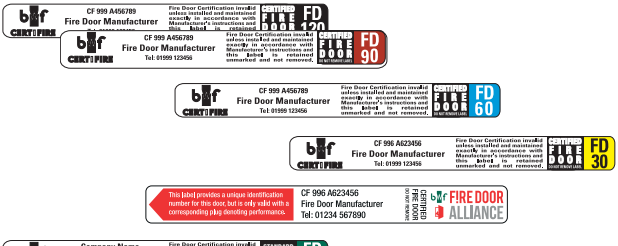
The label provides traceability through the entire supply chain.

Labels should NEVER be removed from the door



The label displays the member's name and phone number and the certification number. Each Prime Door Manufacturer and Licensed Processor label has a unique serial number and the door's fire rating.

Other labels associated with the BWF Fire Door Alliance:



The Fire Door Chain – Who's responsible?

A critical chain of responsibility

- Raw Material and Component Supplier
- Manufacturer
- Processor
- Specifier
- Supplier
- Door Installer
- Door Inspection and Maintenance

Using this guide

This guide is for anyone in the fire door supply chain, from raw material or component supplier, right through to the customer. It has been spilt up into sections to lead you through your responsibilities and actions at every stage of the process.

The Fire Door Process

- A Basic Introduction to Fire doors
- Design and Specification
- Ordering and Procurement
- Delivery and Storage
- Installation
- Use Maintenance and Inspection

This guide is accompanied by easy to use checklists and pictures to support at every stage of the process and help the user recognise areas of risk in the fire door chain.

Further information can be found at www.firedoors.bwf.org.uk

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Close the door on Fire door Safety

Guide to Symbols

In addition, there are easy to recognise symbols to support you at every stage and highlight checks and risk areas.

Compliance Warning	
Check the Fire Certificate & Data Sheet	
Best Practice	
Safety Warning	
Component Compatibility	
Installation Instructions	
Top Tip	

Contents

bwf FIRE DOOR ALLIANCE

Fire Doors A Basic Introduction

1

What is a fire door?

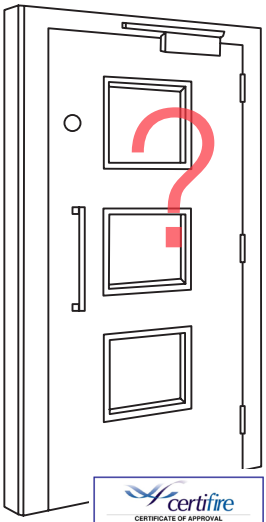
A door must have fire test evidence to prove that it is a fire door.

This evidence could be in the form of test reports, assesment reports or third party certification documentaiton.

A fire door must be tested by or the results of tests verified by an independent test organisation in accordance with British or European Standards.

Installed and maintained correctly, it will perform in the event of a fire.

The best way to prove to your customer that you have supplied a fire door is by a current fire certificate of approval issued by a third party certification scheme, proving that testing is relevant to the supplied product and has been done by an independent accredited third party.




certifire

CERTIFICATE OF APPROVAL
No CF 553

FIRE DOORS LTD

CERTIFIED PRODUCT

TECHNICAL SCHEDULE

COMPLIANCE WARNING | CHECK THE FIRE CERTIFICATE | BEST PRACTICE | SAFETY WARNING | COMPONENT COMPATIBILITY | INSTALLATION INSTRUCTIONS | TOP TIP

What happens if you get it wrong?

Manufacturing, installing or maintaining fire doors incorrectly results in 5 main **Risks**:

- Danger for users of the building and possible loss of life
- Danger for emergency services responding to a fire
- You could be prosecuted resulting in a fine or imprisonment
- Property and possessions will not be protected
- Risk to reputation

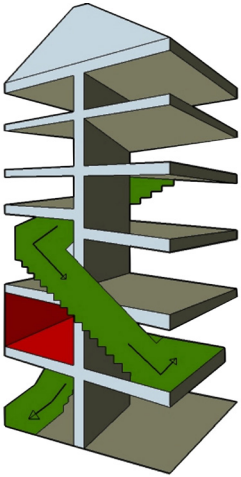
COMPLIANCE WARNING | SAFETY WARNING | TOP TIP

What do fire doors actually do?

Fire doors act as a barrier to a fire, cutting off and protecting parts of a building.

- Reducing the damage caused by fire and smoke
- Protecting evacuation routes
- Providing the emergency services with a protected route to access the building
- Protecting users of a building who may have difficulty evacuating quickly

Fire doors are a vital part of the building fabric, dividing the building into individual fire compartments, constructed and lined with suitable fire resisting materials to reduce the spread of fire.

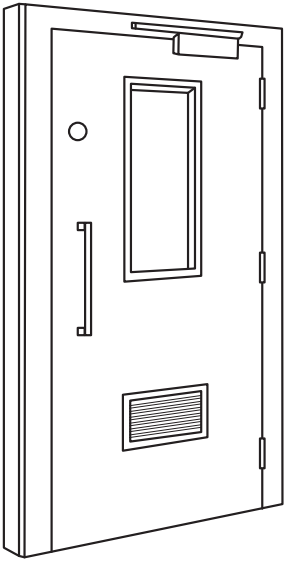


What makes a fire door work?

In the event of a fire the following elements are critical to making sure a fire door performs in a fire.

- ✓ Door leaf
- ✓ Frame / lining
- ✓ Intumescent seals
- ✓ Smoke seals*
- ✓ Latch or lock
- ✓ Hinges
- ✓ Door closer*
- ✓ Signage*
- ✓ Other ironmongery*
- ✓ Fire door glazing*
- ✓ Frame / wall sealing
- ✓ Threshold seals*
- ✓ Air transfer grille (ATG)*

(*if required)



Get just 1 thing WRONG =

High chance of Failure = Loss of Life or Property

Component Definitions

Door leaf	The fire door leaf is the main component of the doorset or door assembly and is usually manufactured to a range of standard sizes and door styles. Fire doorset performance is demonstrated by the manufacturer's test evidence, assessment reports or certification documents
Frame/Lining or Casing	The frame design, size, fixings and material is critical to the fire performance and fire rating.
Intumescent seals	Intumescent seals are located in the door edge or frame, these seals expand in the event of a fire and seal the gap between door and frame, stopping the passage of fire. The gap between the frame is often between 2 & 4mm but can be greater where supported by test evidence Excessive gaps may prevent intumescent seals performing correctly in the event of a fire.
*Smoke seals**	Combined with, or separate from intumescent seals and located in the perimeter of the frame or door edge. These wipe or compression seals restricts the flow of smoke. Remember: Smoke Kills.
*Fire door glazing**	Some fire doors have vision panels fitted in them. Special fire tested glass and glazing systems must be used. This operation should only be undertaken by a trained and competent individual, with a good working knowledge of the specific materials and glazing systems required.
*Threshold seals**	Threshold seals are located on the bottom of the door or threshold, they seal the gap under the door to prevent the flow of smoke and the passage of fire.

Component Definitions

*Signage** — Correct fire door signage should be fitted on all non-domestic fire doors at eye level.

Hinges — A minimum of 3 fire rated hinges must be used with correct intumescent pads, location and fixings.

*Door closer** — Some fire doors are fitted with closers to ensure the fire door always returns to its fully closed position and is held in the closed position when not in use.

*Latch or lock** — When fitted, the latch or lock engages the door leaf securely to the frame when the door is in the closed position. It is critical in securing the door in the event of a fire and preventing warping of the door.

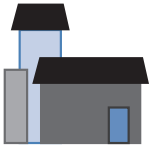
*Air transfer grilles** — Fire rated air transfer grilles are fitted into some doors to keep fresh air circulating within a building, combining air movement with fire protection. In everyday use, air can pass freely through the grilles to allow good ventilation. In a fire, the intumescent expands, fusing the grille into a solid mass that stops fire spreading. Some fire rated Air Transfer Grilles combine fire with cold smoke protection, using an electro mechanical shutter plate system that closes on fire alarm activation, preventing the spread of deadly smoke and fumes. Fire only rated Air Transfer Grilles should not be used on doors designated FD30S and FD60S in these doors, the combined fire and cold smoke dampers must be used.

*if required

All components must be right and listed on the Door Fire Certificate or Data Sheet to ensure performance.

Definitions - Fire Doorset

*'...complete unit consisting of a door frame and a door leaf or leaves, supplied with all essential parts from a **single** source'.*
BS EN 12519



This means that it is supplied as a **complete unit from one supplier**.

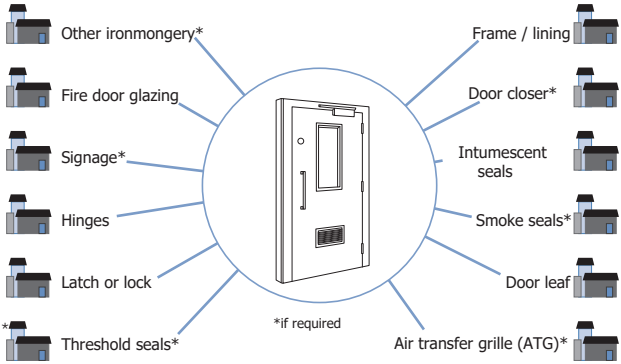
- Fully fitted up and finished, direct from the manufacturer
- Fitted with all compatible components and glazing
- Pre-assembled in the factory

This ensures that the entire doorset and components will match the manufacturer's test evidence, assessment reports or certification documents

When the whole doorset is supplied in individual component parts for assembly on site, this is often referred to as a door kit.

Definitions - Fire Door Assembly

'...complete assembly as installed, including door frame and one or more leaves, together with its essential hardware supplied from separate sources'. BS EN 12519

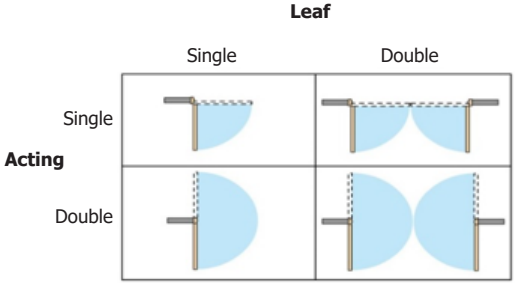


This means that the components can be sourced from many **different manufacturers or suppliers**.

To make sure that the door assembly works, it must be:

- Only altered as defiend in the manufacturer's test evidence, assessment reports or certification document.
- Fitted with compatible components as per installation instructions, and
- The compatible components must be listed on the door leaf manufacturer's test evidence, assessment reports or certification document.

Door configuration



Configuration describes whether a door is single or double leaf and what direction the door opens.

Not all doors can be fitted in a double configuration as different intumescent seals and/or different ironmongery may be required.

Always check the manufacturer's test evidence, assessment reports or certification document or contact the door manufacturer to make sure the correct specification is used in the correct configuration.

Glazed Apertures and Apertures for Air Transfer Grilles (ATG) and Other Ironmongery

Apertures are cut in door leaves for a variety of reasons to accommodate a glazed fixed light, air transfer grilles or other ironmongery such as letterplates.

Apertures can vary in dimension, fire rating, location, size, shape and specification of compatible components.

Different types of fire resisting glass

Classification	Definition
Integrity (E)	Stop the passage of fire and smoke
Radiation (EW)	As integrity (E) but also offers some reduction in heat transfer to the non fire side.
Integrity and Insulation (EI)	As integrity but also offers significant reduction in heat transfer from the fire side to the non-fire side

Cutting apertures and fitting of fire rated components or glazing systems in a fire door is a highly skilled operation that should be carried out only by a trained person, ensuring the correct materials are used.

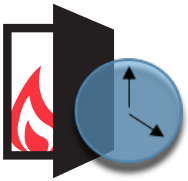
The allowed size, shape and compatible materials and components are detailed on the primary fire test report, assessment or third party certification document.

Always order your glazed door direct from a suitably certificated manufacturer or licensed processor to ensure performance. BWF Fire Door Alliance members are trained, audited and certificated to undertake this task.

Never cut apertures, or fit vision panels or air transfer grilles on site, you will invalidate any certification.

Fire door rating

Fire door rating = Classification from results indicating the minimum period a fire door assembly is expected to resist fire when subjected to a test

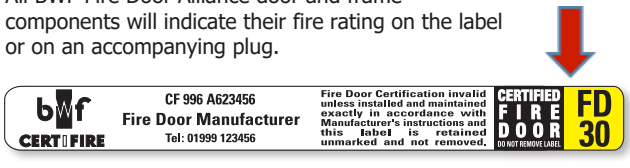


Tested to BS 476-22 or EN 1634-1.

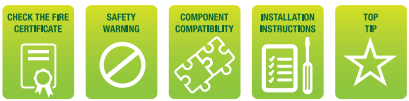
UK ratings are given below, with the minimum period of time the fire door will resist fire in a test.

British Standard: Minimum fire resistance (integrity) rating	European Standard: Minimum fire resistance (integrity) rating	Minimum number of minutes the door should resist fire
FD 30	E 30	30 minutes
FD 60	E 60	60 minutes
FD 90	E 90	90 minutes
FD 120	E 120	120 minutes

All BWF Fire Door Alliance door and frame components will indicate their fire rating on the label or on an accompanying plug.



Fire doors are different to **fire and smoke** control doors.



Fire and smoke control doors

Sometimes doors are required to be both fire and smoke control doors.

Tested to BS 476-31.1 or EN 1634-3 for the passage of smoke at ambient temperature

This means there will be either a combined fire and smoke seal or separate intumescent and smoke seals fitted into either the edge of the door leaf and/or the frame.

If an air transfer grille (ATG) is fitted in the door leaf, it will contain an automatic smoke damper that will close if a fire breaks out.

The 'S' suffix (e.g. FD30S) denotes that the door is both a fire and smoke control door.

British Standard: Minimum fire resistance (integrity) rating	European Standard: Minimum fire resistance (integrity) rating	Minimum number of minutes the door can resist fire and cold smoke
FD 30S	E 30Sa	30 minutes
FD 60S	E 60Sa	60 minutes
FD 90S	E 90Sa	90 minutes
FD 120S	E 120Sa	120 minutes

Always check the gap between the door and frame (top, bottom & edges) and manufacturer's test evidence, assessment reports or certification document to ensure smoke seals will perform. The gap between the frame is critical and smoke seals must fill this gap when the door is closed. Excessive gaps will prevent smoke seals performing correctly in the event of a fire.

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Fire Door Regulations

2

Building Regulations

The Building Regulations provide guidance as to the **minimum** building standards to be achieved. They reference the relevant British and European Standards defining the test requirements and performance of the fire door assembly or fire doorset.

A building designer or owner may choose to fit fire doors in other locations than specified in the regulations to further protect life and property and reduce risk.

There are regional variations of the Building Regulations.

English & Welsh Building Regulations = Approved Documents

Building Regulations in Scotland = Technical Handbooks

Northern Ireland = Technical Booklets.

Note: England & Wales have separate Approved Documents. please check those local to you for guidance

Building Regulations relating to fire safety

	England and Wales	Scotland	Northern Ireland
Fire Safety	Approved Document B	Technical Handbook 2	Technical Booklet E

Other Building Regulations

Different Building Regulations detail other construction elements and performance relating to fire doors.

	England	Wales	Scotland	N Ireland
Fire Safety	B	B	2	E
Sound	E	E	5	G
Ventilation	F	F	3	K
Thermal	L	L	6	F
Accessibility	M	M	3	R
Safety	K	K	4	V
Security	Q	Q	4.13	

The full Building Regulations guidance documents are available to download from:

England: www.gov.uk/government/collections/approved-documents

Wales: www.gov.wales/building-regulations-approved-documents

Scotland: www.gov.scot/policies/building-standards/monitoring-improving-building-regulations/

Northern Ireland: www.dfpni.gov.uk/index/buildings-energy-efficiency-buildings/building-regulations/br-technical-booklets.htm

The following information is based on English Building Regulations. The Regulations in Northern Ireland, Scotland and Wales contain some differences.

Approved Document B – Fire Safety

The regulation and guidance affecting fire doors is contained in Approved Document B, volumes 1 and 2.

These specifically cover fire safety guidance for buildings in which fire doors play a critical role in fire safety.

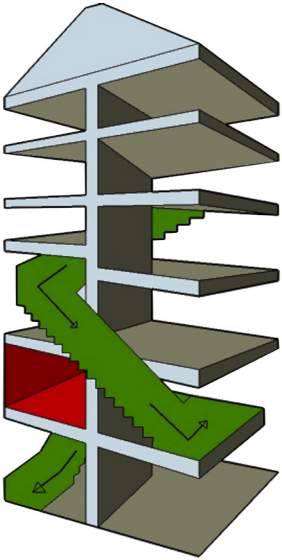
Part B is split into 2 sections:

Volume 1: Dwellings

Volume 2: Buildings other than Dwellings

Where should fire doors be fitted?

Fire Doors are required in an increasing number of buildings built in the UK according to the relevant national fire safety regulations.



Requirement, rating and location of fire doors is different for different types of buildings and is based on:

- Guidance for compliance with the relevant building regulations.
- The overall fire risk assessment* and plan (including escape routes).
  *if applicable.

It should be noted that beyond regulation, specification also drives requirement and insurance companies often place specific fire door requirements on projects. This is discussed in the following section.

Dwellings (Part B - VOLUME 1)

Fire doors are required:

- In a cavity barrier (wall) where applicable
- Above two levels, every door leading to the stairwell (at all levels). Where the door leads to a habitable room which have fire rated separating walls
- When a property has a loft conversion
- Between house and integral garage
- Between the business and residential elements in a mixed-use building

Note that this list is not exhaustive and other locations may require fire doors depending on the layout, use and fire plan of the individual dwelling.

Buildings other than Dwellings (Part B - VOLUME 2)

Fire doors are required in many different non-domestic buildings such as:

- Schools
- Hospitals
- Flats
- House of Multiple Occupancy (HMO)
- Nursing Homes
- Hotels
- Public Buildings
- Offices
- Warehouses
- Entertainment Venues
- Factories and more

The location and rating of fire doors will be based on the Fire Risk Assessment (FRA), design and layout of the particular building with consideration to the user's particular needs.

The FRA must always be carried out by a competent, trained and qualified individual. See Section 6.

Flats (Part B - VOLUME 1)

Fire doors are required:

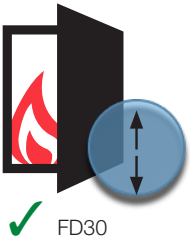
- Front door of individual flats
- Within individual flats to stop the spread of fire between rooms
- Other locations depending on the layout, use, fire risk assessment and fire plan of the individual building

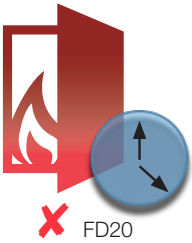
Fire Rating of Doors in the Building Regulations

Approved Document B identifies the rating of the door (e.g. FD30, FD60 etc.).

The guidance refers to the use of 20 minute fire doors (FD20) in some circumstances.

The BWF Fire Door Alliance does not provide labelling for 20 minute fire doors. The majority of member manufacturers produce 30 minute doors as a minimum and we are not aware of any specifications to this requirement.





The Building Regulations refer also to E30 or E30 Sa etc. This refers to product tested to the European test methods (EN1634 Part 1 or EN 1634 Part 3) rather than the British Standards.

Regulation 38 and handover

Regulation 38 applies in England and Wales and states that fire safety information must be handed to the **responsible person**' at the completion of a project, or when the building or extension is first occupied.

It places the responsibility of fire safety onto the **responsible person**'.

In order for the responsible person to carry out future inspections and maintenance of fire doors, it is important that the correct information such as installation and maintenance instructions and traceability to the Fire Certificate is handed to them.

Company's Name | Company's Own Telephone No. | CERTIFIRE Certificate No. | Sequential Number

The fire door label provides that **traceability**.

Use this simple checklist to ensure you have the correct information at handover.

Regulation 38 Checklist

- ✓ Location and rating of every fire door in the building
- ✓ The fire door certificate which MUST be relevant to the installed fire door*
- ✓ The type of seal (intumescent/smoke seal/acoustic) fitted to the door or frame
- ✓ Details of the door frame (hardwood, softwood, MDF etc.) and how that relates to the fire door certificate
- ✓ Details of the door leaf design and whether it contains specialist vision panels or ironmongery, such as letterplates or air transfer grilles, and how that relates to the fire door
- ✓ Details of hinges, closers and other essential building hardware (Conformity marked) and how that relates to the fire door certificate
- ✓ Maintenance information for each component, including the door lea
- ✓ Frequency of inspection and maintenance, where required.

Don't break the Fire door chain

Regulatory Reform (fire safety) order (FSO or RRO)

The Regulatory Reform (Fire Safety) Order 2005 or RRO, came into force in 2006.

The responsibility for fire risk assessment in **all non-domestic buildings**, including the common parts of flats and houses of multiple occupation, falls to the designated **responsible person**'.

The responsible person must carry out a fire safety risk assessment and implement and maintain a fire management plan. The law 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
- Providing accommodation for paying guests

Failure to comply with the FSO or RRO can place property and lives at risk and is likely to result in criminal prosecution.

Complying with the FSO or RRO= It's the law!

Note: The responsible person has the meaning given by article 3 of the Regulatory Reform (Fire Safety) Order 2005

Construction (Design and Management) Regulations 2015 (CDM 2015)

The revised CDM (2015) identifies responsibilities of designers and suppliers in regard to the safety of construction products that are supplied and installed. Construction companies will need to provide information, instruction, training and supervision, with workers having their training needs assessed against the needs of the job and employers to meet the gap in skills knowledge through appropriate training.

Crucially if you supply **fire door assemblies or doorsets** the new CDM regulations may make it your responsibility to provide safety information regarding the use of a product throughout its installation and service life. This would include installing a product correctly and providing installation and maintenance instructions to the building manager or customer in order for them to be able to inspect and maintain the fire door product safely.

*The designer's role when preparing or modifying designs is to **eliminate, reduce or control foreseeable risks** that may happen during construction or maintenance and use of a building **after it's been built**. The designer also provides information to other members of the project team to help them fulfil their duties.*

Source: Industry Guidance for Designers on CDM: CITB

Conformity marking

The appropriate product conformity marking (such as UKCA, UKNI+CE or CE) is required under the Construction Products Regulation (CPR) which applies to construction products that are made available on the market within Europe.

The Conformity label and Declaration of Performance (DoP) state product performance in the following fields (where applicable).

1. Mechanical resistance and stability
2. Safety in case of fire
3. Hygiene, health and the environment
4. Safety and accessibility in use
5. Protection against noise
6. Energy economy and heat retention
7. Sustainable use of natural resource

Conformity marking of Fire doorsets: It has been possible to Conformity mark external fire rated door sets since November 2016 and it became mandatory in November 2019. External doors acting as escape doors fitted with escape hardware must be Conformity marked.

Conformity marking does not currently apply to interior door sets and it is not possible to Conformity mark door assemblies or door leaves. In isolation Conformity marking does not offer the full advantages of certification, particularly in terms of traceability, information to support maintenance and interchangeability of components.

Conformity marking

Conformity marking of fire door hinges: Must be tested to BS EN 1935, should be used on fire or smoke doors and on all escape routes.

Conformity marking of door closing devices: Overhead and electro-magnetic closing devices and door co-ordinators tested to BS EN 1154/55/58 has been required since 2004.

Conformity marking of Panic and escape hardware: Panic and emergency exit devices intended for use on escape route doors can be Conformity marked and will be tested to either EN 1125 or EN 179.

Check for other Conformity marked hardware (e.g. locks and latches)

bwf FIRE DOOR ALLIANCE

Fire Doors Design and Specification

3

Sticking to the Specification – It's Critical

Building contractors are pressured to be on time and on budget. Cheaper untested products may save the client money, but if a fire breaks out, it will cost far more in lives and property.

It's straightforward:

Stay safe, Save lives and Stick to the Specification

By compromising the original specification, a fire door installation risks catastrophic failure in the event of a fire. This is discussed in the following section.

There are four major areas where contractors and their clients are at risk:

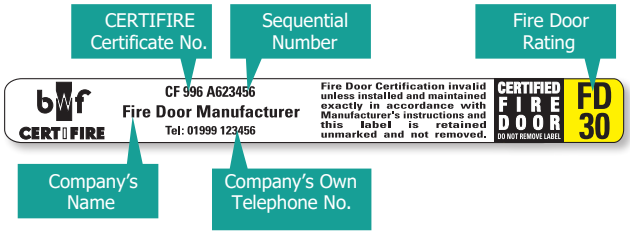
- Non-compliance with Building Regulations
- Non-compliance with the Regulatory Reform (Fire Safety) Order
- Lack of adequate insurance protection
- Insufficient protection for life or property

How to prove it

By using compatible products and suppliers, in accordance with the Fire Certificate and installation instructions, you can provide evidence of compliance of the fire performance of a fire door assembly or doorset to your customer.

The scheme label that is attached to the product provides:

- A Unique Identification Number
- The Fire Certificate Number
- The Fire Door Rating
- Contact details of the manufacturer or processor of the product



How to provide evidence

The label demonstrates to your customer or building control that the product has been certified by a third party, and as long as it has been correctly installed and maintained, it will perform in the event of a fire.

Unless a door is regularly inspected and adequately maintained, it may over time start to present a safety risk - using certificated products helps to support CDM requirements.

The Certifire Fire Certificate can be downloaded from the product register: www.warringtonfire.com/certified-companies/certifire and apply the relevant filters to find the manufacturer.

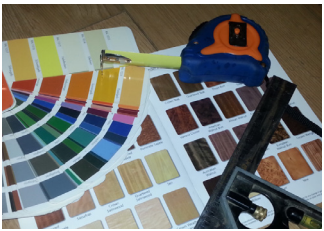
You can also find details of Q-Mark Manufacturers at www.bmtrada.com/certified-companies

A list of scheme members, who manufacture and supply certificated products can be found at:
https://firedoors.bwf.org.uk/search/supplier


certifire
CERTIFICATE OF APPROVAL
No CF 553
FIRE DOORS LTD
CERTIFIED PRODUCT
TECHNICAL SCHEDULE

CF 996 A623456
Fire Door Manufacturer
Tel: 01999 123456
Fire Door Certification invalid unless installed and maintained exactly in accordance with Manufacturer's instructions and this label is retained unmarked and not removed.
CERTIFIED FIRE DOOR DO NOT REMOVE LABEL
FD 30

Design and Specification



The early stage of the design and specification of fire doors and doorsets can present a challenge to avoid costly mistakes.

Major insurance companies typically insist on the use of third-party certificated passive and active fire protection products.

The RISCAuthority Design Guide: Essential Principles (No.5) states:

As a minimum, all fire protection products shall be third party certified to an appropriate product - or performance-based standard .

Many people CLAIM to sell fire doors but many of them cannot provide acceptable evidence to back up their claims.

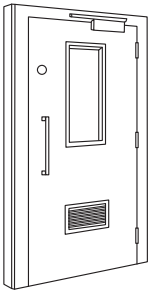
By specifying BWF Fire Door Alliance products in tender documents, ensures that the product is manufactured under strict factory production control systems and regularly fire tested to ensure consistency of quality and fire performance.

Compatibility of Components

Definition: Compatibility

All components have either been tested with the door and frame and has passed the fire test or an assessment has been made on the orginal test evidence. Compatible components are listed on the fire door certificate.


certifire
CERTIFICATE OF APPROVAL
No CF 553
FIRE DOORS LTD



- ✓ Door leaf
- ✓ Frame / lining
- ✓ Intumescent seals
- ✓ Smoke seals*
- ✓ Latch or lock
- ✓ Hinges
- ✓ Door closer*
- ✓ Signage*
- ✓ Other ironmongery*
- ✓ Fire door glazing*
- ✓ Frame / wall sealing
- ✓ Threshold seals*
- ✓ Air transfer grille (ATG)*

*if required

COMPLIANCE WARNING | CHECK THE FIRE CERTIFICATE | BEST PRACTICE | SAFETY WARNING | COMPONENT COMPATIBILITY | INSTALLATION INSTRUCTIONS | TOP TIP

Different elements and variables in a fire door assembly or fire doorset

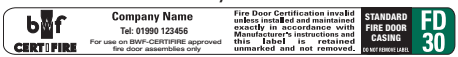
Frame, lining or casing

The frames, linings or casings can be supplied with pre machined or separate door stops and are wide ranging in design, finish and specification. If supplied separately the doorstop is correct to the frame / lining and the Fire Certificate.

Common frame, casing and lining profiles:

The MOST important things are that:

- Frame or lining is COMPATIBLE* with the door leaf and ironmongery and is correctly rated to suit the door
- The frame or lining is the correct size and material
- The frame or lining is suitable for use with the intended wall type
- Installation instructions are supplied
- It is a requirement that fire door frames are compatible with the test evidence, assessment or certification documents. It is possible to provide certificated frames under Certifire. Certificated frames must carry a BWF-Certifire label.

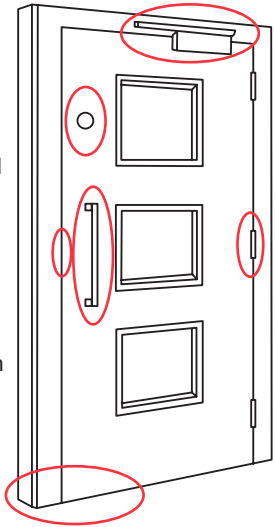


Choosing ironmongery

The ironmongery that is fitted to fire doors is wide ranging in type, design, fire rating, finish and specification.

The MOST important things are that:

- Ironmongery is COMPATIBLE* with the door leaf and frame and is correctly fire rated to suit the fire door
- Where required the ironmongery is conformity marked for fire performance. (See section 2)
- The ironmongery is supplied with installation instructions
- The correct fixings are used



*COMPATIBLE definition: All the ironmongery has been tested with the door and frame and has passed the fire test or has been assessed as compatible based on fire test evidence. Compatible ironmongery is detailed on the door certificate

Ironmongery - additional intumescent pads / material

Most ironmongery requires additional intumescent protection by pads or mastic unless specified by the door Fire Certificate.

Compatible ironmongery will provide detail within the packaging of the specification, size and location if additional intumescent protection is needed.

Where required, intumescent materials should be fitted in accordance with the installation instructions.

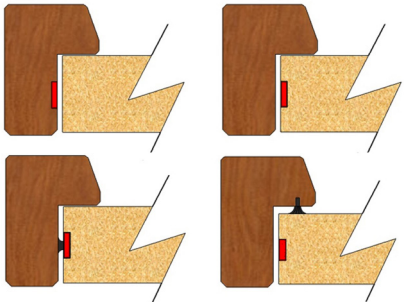
GAI Code of Practice. Hardware for fire and escape doors. Issue 4, 2012.

www.firecode.org.uk/

Choosing intumescent and smoke seals

The intumescent and smoke seals that are fitted to fire doors are wide ranging in size, intumescent material, colour and specification.

They can be supplied separately or combined as one seal.



They can be located in the door edge or frame

The MOST important things are that:

- Seals are COMPATIBLE* with the door leaf and frame and correctly fire rated
- The correct gap (as specified in the instructions) is achieved between the door and the frame

*COMPATIBLE definition: All seals have been tested with the door and frame and has passed the fire test or has been assessed as compatible based on fire test evidence. Compatible seals are detailed on the door certificate

Choosing the door leaf

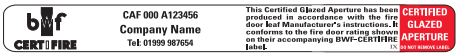
Fire door leaves are available in a very wide range of surface finish and material to suit every style or budget.

A fire door must NEVER have an aperture cut or be glazed on site as this is a highly skilled operation and should only be carried out by trained and competent personnel. Specify any apertures at point of order to ensure compliance with the Fire Certificate.

Cutting apertures or glazing a fire door leaf on site will invalidate any certification. This work must be carried out by a suitably certificated organisation and evidenced by the application of a Scheme glazing label or plug.

The MOST important things are:

- The door leaf is COMPATIBLE with the ironmongery, frame, seals and is correctly rated
- Any glazing is carried out by a the original door manufacturer or a licensed processor and carries the appropriate plug or label
- Installation instructions are provided
- The door leaf is BWF Fire Door Alliance approved.



Writing tender documents

The tendering process is an area where mistakes can often happen and specification gets broken. If you are responsible for writing tender documents for the procurement of fire doors, the following information is useful to include:

- All doors, frames and associated ironmongery and components must be Conformity marked and tested for fire performance where applicable
- All doors, frames and associated ironmongery and components must be COMPATIBLE and detailed on the Fire Certificate
- All products must be installed by a competent installer in accordance with the installation instructions and Fire Certificate

Scheme members can be found on the Find a Supplier page of the BWF Fire Door Alliance website

Specification Checklist - Doorsets

Guidance on measuring the frame opening is found in Section 6

Doorset Location		Important to make sure the correct door assembly is fitted in the correct location.
Fire and/or smoke rating		As prescribed in the building regulations, legislation and client specification.
Actual structural opening size	Height	See guidance for frame opening - section 6
	Width	
	Depth	
Actual frame height	Height	See guidance for frame opening - section 6
	Width	
	Depth	
Frame material and finish		All elements must be detailed on the Fire Certificate data sheet to prove performance and compatibility. By specifying BWF Fire Door Alliance approved door sets you are ensuring compatibility and performance.
Door material and finish		
Intumescent size and specification		
Ironmongery requirement and finish		
Threshold requirement		
Vision panels or other ironmongery such as ATG's or letterplates, that require factory preparation and / or fitting		
Installation and maintenance instructions		Always ask for instructions for fitting and maintaining.
Third party Certification	Always ask for third party certificated products with a current Certificate	By specifying BWF Fire Door Alliance approved door sets you are ensuring compatibility and performance.

Specification Checklist - Door Assemblies

Guidance on measuring the opening is found in Section 6

Door Assembly Location		Important to make sure the correct door assembly is fitted in the correct location.
Fire and/or smoke rating		As prescribed in the building regulations, legislation and client specification.
Actual structural opening size	Height	See guidance for frame opening - section 6
	Width	
	Depth	
Actual frame height	Height	See guidance for frame opening - section 6
	Width	
	Depth	
Frame material and finish		All elements must be detailed on the Fire Certificate data sheet to prove performance and compatibility. By specifying BWF Fire Door Alliance approved door assemblies you are ensuring compatibility and performance.
Door material and finish		
Intumescent colour		
Ironmongery requirement and finish		
Threshold requirement		
Vision panels or other ironmongery such as ATG's or letterplates, that require factory preparation and / or fitting		
Installation and maintenance instructions		Always ask for instructions for fitting and maintaining.
Third party Certification	Always ask for third party certificated products with a current Certificate	By specifying BWF Fire Door Alliance approved door assemblies you are ensuring compatibility and performance.

Procurement

Once you have confirmed your design and specification, the next step is to buy your fire door assembly or doorset.

Due diligence

You or your company should demonstrate due diligence by only using certificated products.

Checks should be built into your process to ensure that the specification detailed on the Fire Certificate matches the supplied door.

Using certificated products is the only way to ensure a product has been adequately tested, the Fire Certificate gives specific information about the specification and performance of the product and suitable information is made available to support the installer and maintenance teams to ensure that the door continues to meet the required standards throughout its service life, helping to fulfill CDM requirements.

Avoiding False Claims from suppliers

Beware of false claims from suppliers.

The only way to ensure fire performance is if the door has been tested and holds a current Fire Certificate produced by a suitable accredited third party.

Finding a Supplier

By using BWF Fire Door Alliance Members you can ensure that product supplied will be compatible, hold a current Fire Certificate and will be supplied with installation instructions.

Scheme members can be found on the Find a Supplier page of the BWF Fire Door Alliance web site

bwf FIRE DOOR ALLIANCE

Fire Door Installation

4

Why fire door installation matters

Installation of fire doors is as life critical as the product specification itself and should only be carried out by someone who is competent, has been specifically trained to install fire doors and understands their responsibilities in getting it right.

Always follow the manufacturer's installation instructions to maintain certification.

Fire doors that are incorrectly installed and fitted with incompatible components invalidate certification and will not provide adequate protection for occupants of the building.

For further information about fire door installation, refer to the BWF Fire Door Alliance Installation Guide.

Buying the door

Check your product at point of purchase, collection or delivery

- ✓ Check product is undamaged
- ✓ Check for the BWF Fire Door Alliance CERTIFIRE label
- ✓ Check that the order is correct and complete and all compatible components of the assembly or doorset have been delivered
- ✓ The specification should call for the moisture content of the timber components to be close to that which the doorset will experience in service.

NOTE – ORDER THE RIGHT DOOR: Altering the door for glazing apertures and air transfer grilles or resizing outside of the parameters on the certificate will make certification **VOID.**

Delivery

- Fire doors are heavy. Make sure that there is sufficient labour to handle doors and components
- Ensure that employees are trained in manual handling heavy objects
- Door assemblies or doorsets must be lifted evenly and securely to avoid any bending or damage of components or frames
- Protective wrapping should be kept in place as long as possible
- Paint grade doors should be sealed and primed on all faces and edges immediately after delivery. Do not paint over the label

Reference: The Manual Handling Operations Regulations 1992 (as amended) apply to work which involves lifting, lowering, pushing, pulling or carrying.

BEST PRACTICE | INSTALLATION INSTRUCTIONS | TOP TIP

Storage

Top tip:

Do not store in damp or exposed areas or near standing water, in direct sunlight or areas where there may be exposure to significant heat.

Doors should be:

- Stored flat, on a level and dry surface and kept clear of the floor on at least three level and robust bearers
- Protected from dirt and damage but without restricting air circulation
- Stacked so that they are not exposed to daylight as ultra violet light can cause fading or discolouration of timber and veneers
- Stored in the sequence they will be fitted to avoid double handling
- Avoid dragging them across each other in the stack
- Doorsets with projecting sills must have spacers between them in the stack to avoid damage

Care of fire doors on site (pre installation)

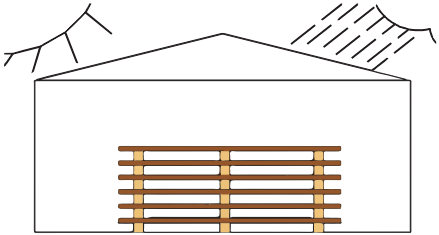
Moisture content of timber doors

For long term performance of the door and finish, the appropriate moisture content must be maintained during storage on site and during the construction process.

Rapid changes in moisture content and humidity can affect the product.

Product should only be installed once the site conditions are suitable and similar to the conditions that the product will experience in service.

- Ensure that the moisture content of the product is kept close to the level at which it was when the door was manufactured. Internal doors should be conditioned slowly to the service conditions before fitting
- Protect from abnormal heat, extreme dryness, humid conditions or sudden changes of temperature or humidity
- Do not store or fit in the building until the wet trades are finished and the building has dried out



Prefinished Doors

- Factory finished door frames or door linings should ideally be fitted into pre-formed openings and not built into masonry walls
- Pre-finished doors should retain their protective packaging until the latest possible time, ideally until after internal decorations have been completed
- If it is necessary to separate the doors from doorsets, each door and frame should be given an identification mark so that the correct door is returned to the correct frame

Finishing the edges of fire doors

Changes in moisture content can affect the size and shape of a door and all edges (sides, bottom and top) should be coated to prevent moisture from penetrating the timber.

Note: The label should not be painted over.

Finishing doors on site

- Decoration should be started as soon as possible after delivery, doors with factory applied primer should have at least one of the finishing coats applied as soon as possible after delivery or installation
- The back of external frames should be coated before installation
- Ensure surfaces and edges are in good order before applying finishing coats
- Ensure all surfaces and edges are painted
- The edges should be coated before fitting the door
- The label that identifies the fire door must NOT be painted over
- Damaging or defacing the label will result in the door no longer being accepted as a fire door

For additional and specific guidance for your product, contact your fire door supplier.

Pre installation checklist

Wall type: Of suitable fire resistance for the fire door assembly or doorset rating.	✓
Installation Instructions: You have the relevant installation instructions from the manufacturer.	✓
Gap between the wall and the frame behind the architrave: You have suitable materials and intumescent materials and mastics to fill the gap as detailed on the installation instructions or Fire Certificate data sheet.	✓
Door leaf: Suitable for the fire door rating. Free from damage. LLabel/s on top of door undamaged.	✓
Door frame: Free from damage. Suitable for the fire door rating. Compatible with the door assembly or doorset. Label/s on frame (if applicable) undamaged.	✓
Fire and smoke seals: Free from damage. Suitable for the fire door or smoke rating. Compatible with the door assembly or doorset.	✓
Fixings: You have appropriate fixings for the frame, hinges, lock, latch and other ironmongery as specified by the manufacturer.	✓
Ironmongery: Supplied with correct intumescent pads. Supplied with fitting instruction. Conformity marked for fire performance where applicable. Hinges free from damage. Suitable for the fire door rating. Compatible with the door assembly or doorset.	✓
Vision panels or other apertures cut in the door leaf for ironmongery such as letter plates or air transfer grilles: Check all ironmongery, glass, glazing beads, seals and intumescent materials are free from damage and secured to the door.	✓
Label: Check door label/s in place.	✓
Health and safety: You have carried out a thorough risk assessment of the installation process and limited any risks.	✓
Competency of workforce: Ensure your workforce are suitably trained and qualified to install fire doors.	✓

Pre installation contd.....

- Clean the location of fitting
- Carry out a risk assessment and method statement regarding installation

Installation

Doors should be installed in accordance with the installation instructions provided with every BWF Fire Door Alliance door leaf or doorset.

If you have queries about your door, contact the fire door manufacturer. Details can be found on the fire door label on the top or side edge of the door.

RISCAuthority DESIGN GUIDE: ESSENTIAL PRINCIPLES (No.6) states All fire protection products or systems shall be installed by appropriately trained specialist installers'.

Ensure that those fitting the fire door assembly or doorset are correctly trained, specifically about fitting fire doors, and understand their responsibilities

Always follow the installation instructions to maintain certification.

Some suppliers may reference this in a separate installation document, while others will supply this information in the Certifire Fire Certificate data sheet.

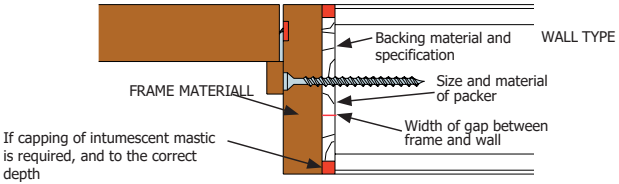
The sequence for installation described on the following pages is, fit the frame, size and fit hardware to the door leaf, offer the door leaf into position and mark the location of the hinges, recess either the leaf or frame for the intumescent seals, recess for the hinges in the frame. Hang the door leaf then mark and cut the location of the keeps in the frame. This is an example and other sequences could be employed on site

Installation process of a fire door

Always follow the installation instructions

Fitting the Frame

1. Locate frame in aperture.
2. Ensure the frame is square, straight and level.
3. Using suitable length, location, number of and specification of fixings, fix the frame in the aperture as specified in the installation instructions. Packers should be applied behind fixings. Only use packers that have a proven performance, having been successfully incorporated in an accredited fire door test
4. Check the frame is securely fixed on all sides.
5. Measure the frame aperture size to ensure the frame is straight, square and level and will fit the intended door with specified gap on all sides.
6. Check that the gap between the frame and the wall is completely sealed with fire stopping material that has a proven performance in successful fire tests, taking into consideration the substrate on either side of the gap (e.g. timber and masonry) the width of the gap and the thickness of the fire door frame (e.g. 70mm for typical softwood frame with 30 minutes fire resistance). A combination of materials (e.g. Intumescent mastic capping mineral wool) may be required to provide resistance to the passage of smoke as well as fire stopping for smoke control doors.



Points to consider when selecting the appropriate linear gap sealing system

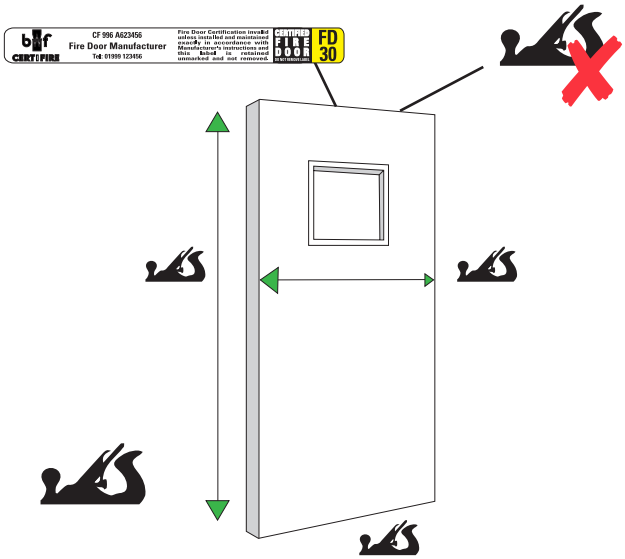
Door leaf

Before you hang the door leaf (only applicable to a door assembly)

Always follow the installation instructions to maintain certification.

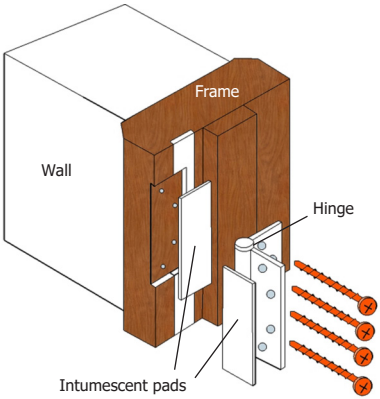
Size: A door leaf should only require minor resizing to fit the frame. Check the installation instructions for the maximum amount of material that can be removed.

Material should only be removed from the top of the door leaf as specifically instructed by the manufacturer. The label/s should not be removed, damaged or repositioned as this will invalidate certification.



Hinges

1. Recess the door edge for the correct number of hinges to the correct size and location.
2. Pilot holes should be drilled at each fixing point, at the correct size and depth, to ensure the timber does not split.
3. Fix hinges using the recommended length, size and specification of screw.
4. Ensure that intumescent pads are used under both hinge blades if specified in the installation instructions.



Lock or latch

1. Recess in the door edge for the lock or latch to the correct size.

2. Fix using the recommended length, size and specification of screw. Pilot holes should be drilled at each fixing point, at the correct size and depth, to ensure the timber does not split. Do not over-tighten the screws.

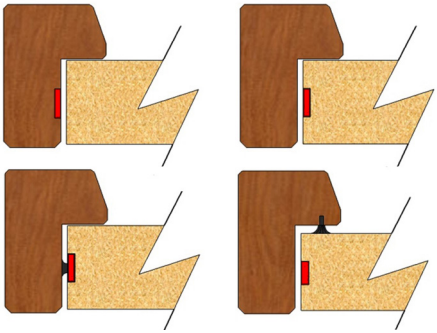
3. Repeat above in the frame for the keep.

4. Ensure that the correct intumescent material or intumescent mastic is used with the lock or latch if specified in the installation instructions and Fire Certificate data sheet.

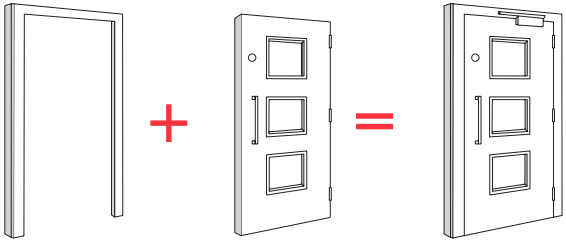
Intumescent, smoke and / or threshold seals

Fire and smoke seals can be located in the frame and/or the door edge as per the door manufacturer's test evidence.

1. The frame or door should be grooved to take the suitable seal size and number of seals depending on the door's fire rating and configuration.
2. The groove must be smooth, clean and free of dust.
3. Seals should be cut to full length and fitted securely, flush into the groove.

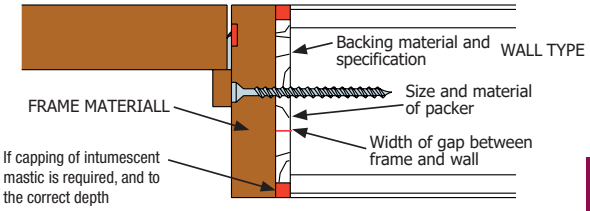


Hanging the door leaf



1. Position the door in the frame and mark where the hinges are located.
2. Recess in the frame for the correct number of hinges to the correct size.
3. Fix the hinged door leaf to the frame using the recommended length, size and specification of screw. Pilot holes should be drilled at each fixing point, at the correct size and depth, to ensure the timber does not split.
4. Ensure that intumescent pads are used under the hinge blades as specified in the installation instructions.
5. Test the door opening and closing action and ensure a smooth action.
6. Check the door closes level and straight against the stop on the frame.
7. Check that any smoke seals fill the gap around the perimeter of the door or frame.

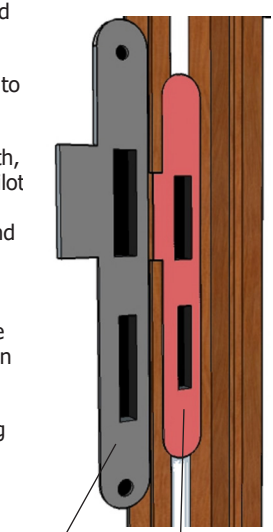
8. Only once all dimensional and functionality checks of the door have taken place, should backfilling of any further gaps between the backface of the frame and the wall be done. Intumescent material and intumescent mastic as specified in the installation instructions or the Fire Certificate data sheet should be used to fill any gaps, and only once this installation detail has been checked, architrave should be fitted.



Points to consider when selecting the appropriate linear gap sealing system

Fitting the lock or latch keep and any additional ironmongery

1. Position the door in the frame and mark where the keep is located.
2. Recess in the frame for the keep to the correct size.
3. Fix using the recommended length, size and specification of screw. Pilot holes should be drilled at each fixing point, at the correct size and depth, to ensure the timber does not split.
4. Ensure that intumescent pads are used under the keep if specified in the installation instructions.
5. Test the door opening and closing action to ensure a smooth movement and complete, secure engagement of lock or latch.



Post Installation Checklist

Door leaf • Free from damage • Fitting plumb level and square in frame • Consistent gap between door and frame (as specified on Fire Certificate) • Label/s on top of door undamaged	✓
Door frame • Free from damage • Suitable for the fire door rating • Compatible with the door assembly or doorset • Label/s in rebate are undamaged • Correct number of, specification, size and location of frame to wall fixings	✓
Fire and Smoke seals • Compatible with the door assembly or doorset • Suitable for the fire door or smoke rating • Intumescent seals are full length in door edge or frame • Seals are flush in grooves • Smoke seal fills the gap between the door and the frame on all sides • Free from damage • Compatible with the door assembly or doorset	✓
Latch or lock • Suitable for fire door rating • Conformity marked for fire performance • Engages securely with the keep in the frame or lining • Suitable for the fire door rating • Compatible with the door assembly or doorset • Fitted with correct intumescent pads if specified in the installation instructions	✓
Hinges • Fitted with correct intumescent pads if specified in installation instructions • Fitted with the hinge manufacturer's fixings that have been supplied and fire tested • Conformity marked for fire performance where applicable • Fitted with correct fixings (specification and length) • All fixings in place • Free from damage • Suitable for the fire door rating • Compatible with the door assembly or doorset	✓
Door closer (if required) • Fitted with correct intumescent pads if specified in the installation instructions • Conformity marked for fire performance where applicable • Fitted with correct fixings (specification and length) • All fixings in place • Free from damage • Suitable for the fire door rating • Compatible with the door assembly or doorset	✓
Signage • Check that the correct signage is in place and securely fixed to the door	✓

Post Installation Checklist contd.

Other ironmongery • Conformity marked for fire use on fire doors where applicable • Fitted with correct intumescent pads if specified in the installation instructions • Fitted with the ironmongery manufacturer's fixings that have been supplied and fire tested • Fitted with correct fixings (specification and length) • All fixings in place • All components free from damage • Suitable for the fire door rating • Compatible with the door assembly or doorset	✓
Vision panels or other apertures cut in the door leaf for ironmongery such as letter plates or air transfer grilles • Check all ironmongery, glass, glazing beads, seals and intumescent materials are free from damage and secured to the door • Check for the glazed aperture label or plug at the top of the door to prove that the door is glazed with compliant materials and glazing systems by a trained door processor • Site cutting of apertures and on site glazing is not permitted	✓
Gap between the wall and the frame behind the architrave • Suitable materials, intumescent materials and mastics have been used to fill the any gap as detailed on the installation instructions or the Fire Certificate data sheet	✓
Gap • Check the gaps between door leaf and frame (top, bottom & sides)are correct to installation instructions	✓
Wall type • Of suitable type (e.g. masonry, steel stud etc.) and fire resistance for the fire door assembly or doorset rating	✓
Threshold seals • When the door is closed the threshold seal (if fitted) engages fully and across its entire length	✓
Handover of documentation to prove fire performance • Check the label/s are in place on the top or edge of the door and/or the frame. • Installation instructions • Maintenance instructions • Refer to the CF / CAF number on the label • Fire certificate (CF) if applicable • Contact manufacturer if further information is required	✓
Label / Plug • In place, correct, undamaged	✓

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Fire Doors Inspection and Maintenance

5

Regular Inspection

Article 17 of the Regulatory Reform (Fire Safety) Order 2005 (RRO/FSO) makes it a legal requirement to ensure that fire resisting doors and escape doors are correctly installed and adequately maintained in order for them to be fit for purpose.

The authorities have the power to enforce the RRO/FSO and do prosecute or even close buildings down where breaches are discovered.

Building owners need responsible persons' as referenced in the RRO/FSO to help them comply with fire door regulations.

Fire door register

Many buildings will have a fire door register that records information and the history about each individual fire door. The fire door register is important as it provides a central hub for all the relevant information about the fire doors within a building.

It is a useful register for a building owner or responsible person to prove to authorities that regular inspection and maintenance has occurred. The type of information that the register will include:

Door identification number	0000001*
Door location	Flat 3 entrance door*
Fire or fire and smoke rating	FD60S*
Door manufacturer	XXXX
Fire Certificate (CF) number	CF (number)
Configuration	Single acting, single opening*
Installation date	DD/MM/YY*
Installed by (name and company name)	XXXX*
Frequency of inspection and maintenance cycle	3 months*

Note: *Indicates example of type of information recorded. This list is not definitive and should be further developed by the user for a particular need, building or location and in accordance with any Fire Risk Assessment.

Inspection and Maintenance

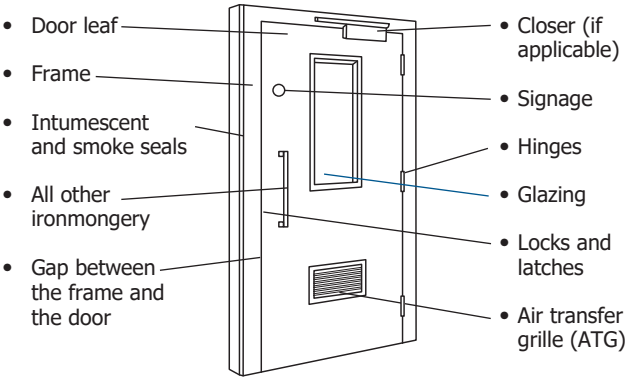
Fire doors should be regularly inspected for damage that may prevent the door from performing in the event of a fire. This may form part of the risk assessment for the building.

Any issues should be fixed as soon as possible using compatible, correct fire rated components. The selection of suitable components is supported by the Fire Certificate and door schedule.

To check compatibility of components, always check the Fire Certificate data sheet or contact the fire door manufacturer.

By not using compatible components as listed on the Fire Certificate, fire certification of the door will be invalidated.

All parts of the door assembly or doorset should be inspected by a competent person



Frequency of Inspection

- Periodic checks should be carried out at least once every six months
- Newly occupied buildings may require more frequent checks in the first year of use
- Doors where traffic is high are likely to be more susceptible to damage and should be checked more frequently than other doors in the building. E.g. once per week/month (depending on usage).

Inspection checklist for resident or homeowner

Door leaf and frame • The door and frame is fitted securely, square and level. • There is no distortion between the stiles, top and frame. The gaps between door and leaf must not be greater than those specified in the manufacturer's installation instructions or Fire Certificate data sheet • Damage to door leaf or frame	
Intumescent fire and smoke seals • Good condition • Full length and secure in groove • If seals are badly fitted, damaged, (or in the case of smoke seals) painted, they must be replaced with exactly the same size and intumescent material that was originally specified. Some standard intumescent seals can perform once painted, but it is not best practice and you should always refer to the manufacturer • If the smoke seals have to be replaced, then they should be fitted in one continuous length if possible	
Locks and lever handles • Lock levers fully return to the horizontal after use • Latchbolt is engaging smoothly and completely into the keep • Wipe any metal dust deposits off the latchbolt and keep • Adjust, lubricate or replace as per manufacturer's recommendation	
Hinges • No visible wear, dark marks or stains around the hinge knuckle could indicate wear and impending failure	
Closing and opening devices • Open the door fully and check it closes without binding on the floor • Open the door to approximately 5 degrees and again check that it closes fully, engaging any latch or seal • Check door closing speed to be approximately 10 seconds from 90 degrees and ensure that the door does not slam • Ensure that doors are not being wedged open • Make sure that door hold-open devices are not straining the doors against their self-closing devices • Ensure that doors on hold-open devices fully close when released - this should be checked daily • Check that mechanical hold-open devices have not been fitted • Hold-open devices on fire doors should be electro-magnetic, and connected directly to the fire detection and alarm system and/or power failure so that they can be released automatically if there is a fire or power failure. This should be checked weekly	
Mandatory safety signs • Signs have not been damaged or removed	

All ironmongery • All fixings are secure and in good condition • Some hinges, closer arms and locks might require lubrication and/or adjustment refer to manufacturer recommendations	
Apertures in the door leaf (glazed, air transfer grille, other ironmongery such as letter plates) • Glass is not cracked or broken • Glazing beads securely in place and undamaged • Air transfer grille or other ironmongery fitted in apertures in the doorleaf is secure, fire rated and in good condition	
Cleaning • Cleaning of Fire doors should be as per the manufacturer's instructions.	
Check the label and check the gap between the doorleaf and the frame and the threshold gap • Always check for the label • Find it on top of the door, or just below the bottom hinge on a doorset • Never tamper with the label • Never paint over the label • A damaged or non-existent label invalidates certification • If the label is damaged contact the manufacturer directly and inform them so they can act accordingly 	

Remember:

The full inspection and maintenance of a fire door can only be carried out by a trained and competent professional.

If you need to replace parts or components, you must use like for like and check that the correct, compatible components are listed on the installation instructions or Fire Certificate data sheet.

Remember: Use the manufacturer contact details on the label if you are unsure what replacement components are correct.

If you fit incompatible and incorrect components the certification of the door will be invalidated.

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Fire Doors Useful Tools and Further Information

6

How to measure the structural opening for a fire door assembly or doorset

Some fire door manufacturers will carry out a site survey to measure the opening in the wall and ensure that a correctly sized door and components are supplied.

However, if you are measuring the opening, the following list provides some points to consider.

Step 1: Measure the WIDTH of the aperture at the top, middle and bottom of the opening

Step 2: Measure the HEIGHT of the aperture on the left, middle and right hand side of the frame.

Step 3: Measure the depth of the opening (the wall thickness) at different points around the frame.

Other considerations: Sometimes site measuring is undertaken when the build is part way through and not all of the elements that lead to accurate dimensioning will be obvious. If you are measuring the aperture, check for finished floor heights and wall thickness. This information will also be available from architectural drawings.

Measure twice, cut once
There is no harm in checking measurements twice, prior to ordering. It will pay off in the long run.

Installation tolerances
Once you have measured the aperture, you should subtract at least 5 mm from the smallest width measurement and 5 mm from the smallest height measurement to give an installation clearance.

This dimension is known as the FINISHED FRAME SIZE.

It is important to allow a fitting clearance to ensure that the frame and door can be fitted squarely and level into the aperture without bending the components.

Non square or uneven apertures
Sometimes an aperture can be uneven and measure differently. The aperture size that you specify must be the SMALLEST measurement that is taken.

You MUST NOT cut material away from the fire door frame to make it fit.

Contact information

BWF Fire Door Alliance - Fire Door & Doorset Scheme
www.firedoors.bwf.org.uk

Certifire Certification
www.warringtonfire.com/certification-services/fire-certification/certifire

BM TRADA Q-Mark Fire Door Certification Scheme
www.bmtrada.com/certification-services/third-party-certification-fire/q-mark-fire-door-manufacture-scheme

Gap Testers

BWF Fire Door Alliance Gap testers are available by contacting the British Woodworking Federation. www.firedoors.bwf.org.uk/knowledge-centre/fire-door-gap-testers/

Publications

Fire Door Alliance Factcards
www.firedoors.bwf.org.uk/publications/guides-and-directories/

Fire Door Alliance Scheme Directory
www.firedoors.bwf.org.uk/publications/guides-and-directories/

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Notes

Contact:
The British Woodworking Federation 26 Store Street London WC1E 7BT
020 7637 2646
firedoors@bwf.org.uk

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