2.7 FIRE INFORMATION

2.7.1.1 Occupiers Fire Safety Responsibility

The Regulatory Reform (Fire Safety) Order 2005 (RRO) replaced 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.

The aim is to ensure that all necessary details on fire safety installations and performance requirements of the building is communicated to the owner, occupier and/or end user, so that the building can be correctly operated, managed and occupied safely.

The RRO places the responsibility of fire safety onto the 'Responsible Person' who will be a named individual who has day-to-day control of premises.

Information provided in this section will enable the Responsible Person to look at the relationship between how the building was built and how it is run. They have the responsibility to take what has been delivered to them and ensure that they provide a fire safe environment for the occupiers and visitors. The Responsible Person needs information on the original fire design/strategy to be able to understand what has been provided and what implications there are for them in terms of running the building and maintaining the designed fire safety measures.

This combination of information can then inform the mandatory Fire Risk Assessment which will need to be carried out when the building is occupied (this will be in **section 2.7.2** when available).

The Building Safety Act 2022 also calls for an Accountable Person to be identified who will also require access to this information.

Regulatory Reform (Fire Safety) Order 2005 Rules include a requirement to:

- Carry out a fire-risk assessment identifying any possible dangers and hazards.
- Consider who may be especially at risk.
- Eliminate or reduce the risk from fire as far as is reasonably possible and provide fire precautions to manage any residual risks.
- Control the usage or storage of flammable or explosive materials.
- Create a plan to deal with any emergencies and keep records of your findings.
- Inform people using the facility about any risks identified and provide information and training as required.
- Review findings and procedures

Review findings and procedures 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
https://www.ife.org.uk/write/MediaUploads/Membership/FRR/8_Tips_for_choosing_a_competent_Fire_Risk_Assessor.pdf

The building has been designed and constructed based upon a 24-hour monitoring/concierge is available to monitor the building.

The main isolation points are in the following locations:

Service	**Location**
Water	*Please see Incoming Supplies Drawings*
Life safety water (sprinkler)	*Please see Incoming Supplies Drawings*
Electricity	*Please see Incoming Supplies Drawings*
Generator	*Please see Incoming Supplies Drawings*
Gas	*N/A*

Key fire safety information can be readily accessed using the links below.

Architects Fire Barrier Drawings	*5.1.1 Architects Final Drawings*
Fire Stopping Locations and Products	**Boris system login:** https://pyrotect.boris-software.com/ Username: (**Block A**) C4551AWP Password: E8mXW4 Username: (**Block B**) C4551BWP Password: uq35NB Username: (**Block C**) C4551CWP Password: y2mxyCT Username: (**Block D**) C4551DWP Password: 3uctpN Username: (**Block E**) C4551EWP Password: sRc7aP Username: (**Block F**) C4551FWP Password: J3EcU8
Designers Risks Assessments	*2.6 Key Structural Principles*
Commissioning Certs	*4. Testing & Commissioning*
Building Logbook	*1.5.3 Building Logbook*
Maintenance Schedule	*2.5 Mechanical & Electrical Maintenance Schedule*

AOV Technical Submission	*Link*
Sprinkler System Technical Submission (to show controls/alarms)	*Link*
Fire Alarm System Technical Submission Landlords & Apartments	*Link*
Generator Technical Submission including load testing arrangements	*Link*

It should also be noted that this information is not exhaustive and is intended to signpost commonly required information. Further technical information is available in other sections of this manual.

2.7 FIRE INFORMATION

2.7.1.2 Fire Strategy

The fire strategy is provided by **Orion Fire Engineering** and follows in this section.

ORIONFIRE
ENGINEERING

FINAL DESIGN INTENT FIRE STRATEGY

PROJECT NAME: Bletchley View Phase 1, Milton Keynes

DATE: 9th September 2024

REF: OF-000572-DFS-01-C

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Quality Assurance

Rev	Date	Prepared/Updated By	Reviewed By	Comments
-	30/06/2022	Catherine Henry	Ben Cooper/Oskar Dzielak	First Issue – for design team comment
A	30/09/2022	Catherine Henry	Oskar Dzielak	Updates following clarification of RFI items from client, provision of updated drawings and comments/input from Building Control. Inclusion of Time Equivalence analysis in Appendices.
B	29/05/2024	Stuart Hutchinson	Oskar Dzielak	General report update to capture minor layout alterations during the construction phase and fire strategy alterations that have been agreed in principle over emails with Salus Building Control.
C	09/09/2024	Stuart Hutchinson	Oskar Dzielak	Fire strategy updated to include final design intent information.

Relevant Qualifications and Experience

Catherine Henry Senior Fire Engineer MChem Master of Chemistry	Catherine is currently employed as a Senior Fire Engineer with 12 year's experience in the fire safety industry and has been with Orion Fire for two years. Catherine has an additional two and a half years' experience as a Fire Engineer prior with Exova Warringtonfire as well as 8 years' experience in the Reaction to Fire testing department at Exova Warringtonfire.. Catherine has both led and supported projects from RIBA Stages 1-6 on a wide range of developments including new build high-rise residential buildings, hotels, warehouses and care home and conversion of existing buildings into use for residential, hotel and care home use. Catherine is currently undertaking a MSc in Fire Engineering at the University of Central Lancashire, due to be completed in August 2025
Stuart Hutchinson Associate Fire Engineer BEng (Hons) Fire Engineering MIFSM, ACABE	Stuart is an Associate Fire Engineer with 12 years' experience in the fire industry, 7 years' specialising in fire engineering with further experience in fire consultancy and fire risk assessment. Stuart has led projects on a wide range of developments from RIBA Stage 1 through to RIBA Stage 7 to deliver bespoke, cost-effective and risk-based solutions through adopting fire engineering principles to help meet specific client requirements. Stuart has had involvement across various sectors including commercial, heritage, industrial, leisure, high-rise residential, large multi-block residential sites and residential refurbishment projects. Stuart also has extensive experience in fire risk assessment and a sound knowledge of the management of fire safety in occupied buildings. Stuart has led a teams of up to 11 engineers at various levels across a range of projects and is responsible for the development and management of the fire strategy design elements of the project from scoping through to design and construction.
Oskar Dzielak Director MEng (Hons) Fire Safety Engineering AIFireE	Oskar is a company Director and has 9 years' experience in fire engineering in the UK. Oskar is a strong leader with excellent interpersonal and management skills. Innovative and technically excellent engineer experienced on a wide range of projects and industry sectors. Led a team of 8 engineers at various levels delivering a range of projects across sectors, meeting design aspirations and exceeding client expectations while maintaining commercial awareness. With 9 years of experience in the fire safety industry, Oskar has brought a fresh and innovative outlook on fire safety and design of buildings. He has successfully led projects at various stages of design and construction and worked across various sectors including residential, commercial, assembly and recreation, industrial, among the main project types.
Ben Cooper Director MSc (Hons) Fire Safety Engineering BEng (Hons) Fire Engineering AIFireE	Ben is a company Director and has 10 years' experience in fire engineering in the UK. Ben is a professional leader with a strong technical background. Joined a team of 5 in his previous employment and assisted in growing that into a team of 30, becoming responsible for half of the region's turnover whilst sitting on an internal board for reviewing quality across the business. Accumulated a wide array of fire engineering skills over his career and is driven to build a business reputation for providing the highest possible level of service of a fire engineer. Focussed on practical, buildable solutions and identifying issues early on that could otherwise result in designs that cannot feasibly be adopted on site.

1 Introduction

1.1 Project Brief

1.1.1 Orion Fire Engineering have been appointed by Winvic Construction Ltd to produce a design fire strategy for the Bletchley View Phase 1 development in Milton Keynes. This report details the recommended fire safety features to be incorporated into the design of the building.

1.1.2 Orion have updated the design fire strategy to reflect the final design intent of the report, the tense in which the report is written has not been updated as the report will always remain as a performance specification and therefore, where the report state 'should', it means that at the time of the specification, a requirement is to be met. Even where future changes are to take place, these requirements should continue to be met.

1.1.3 The Building Regulations set a minimum acceptable standard for a building in England. As the recommendations within this report are primarily based on complying with Part B of the Building Regulations, this report should be seen as a minimum fire safety standard for the building. Therefore, all recommendations given within this report must be incorporated into the design of the building in order to meet Building Regulations. Should any aspect of the report be unachievable, Orion Fire Engineering should be contacted at the earliest opportunity to review that aspect of the design.

1.1.4 Building Regulations approval can only be granted by a Building Control Body (BCB), and approval of this report is subject to the review of the BCB. As part of the Building Regulations approvals process, the BCB must undertake a formal consultation with the Fire Safety Enforcing Authority (FSEA) for any building that would be subject to the Fire Safety Order upon completion of the works. Although the FSEA cannot enforce under the Building Regulations, they may provide observations under Building Regulations in addition to items that they would consider as enforceable under the Fire Safety Order on completion of the building and any best practice recommendations for the building that would not be enforceable under any regulations. It is noted that this report has been approved by Salus Building Control. Salus Building Control issued a final certificate (ref 501428) on 6th September 2024, refer to Section 8 for further details.

1.1.5 A summary of the report has been provided in Section 8 that lists the key fire safety features and systems that are to be provided within the building, alongside references to relevant sections within this report for those systems and also references to the applicable British Standards. This is to serve as a reference for the Responsible Person for the building to aid in the ongoing fire risk assessment procedure of the building. The summary may also provide an aide-mémoire for designers; however, the detailed performance specification for fire safety systems is contained within the main body of the report.

1.1.6 Orion have not allowed under the current scope for the review of any further fire safety requirements applicable to the scheme above and beyond the relevant Part B Building Regulations requirements e.g., employer's requirements, insurer/funder requirements, warranty provider requirements.

1.2 Legislation and Proposed Design Guidance

1.2.1 The Building Regulations 2010 contains functional requirements that are broad statements that describe how the building should perform to meet the requirements of the Building Regulations. Prescriptive codes, such as Approved Document B, BS 9991 and BS 9999 provide specific recommendations for the majority of typical buildings. The adoption of one of these prescriptive codes is one way to achieve compliance with the Building Regulations.

1.2.2 The design recommendations for the residential areas of the building have been prepared using BS 9991: 2015 (incorporating Corrigendum No.1): "*Fire safety in the design, management and use of residential buildings – Code of practice"* as the primary fire safety guidance document. The recommendations for the residential aspects of the development made within this report are based upon the recommendations given within BS 9991 and the various supporting British Standards.

1.2.3 The commercial units in the development will be designed in accordance with Approved Document B (ADB) Volume 2 (2019) Incorporating 2020 and 2022 Amendments (ADB Vol 2). The recommendations made within this report are based upon the recommendations given within ADB Vol 2 and the various supporting British Standards.

1.2.4 Upon occupation of the building, the common areas and commercial units will be subject to the Regulatory Reform (Fire Safety) Order 2005 (RRO). The RRO places a legal responsibility on the Responsible Person of the building to ensure that the building is properly maintained with regard to fire safety. Upon completion of the project, this fire strategy will provide a summary of the fire safety provisions that should be in place within the building, to assist the Responsible Person in discharging their duties under the RRO.

1.2.5 The responsible person on occupation should provide adequate fire safety information to all eventual residents of the flats. This could be in the form of a home user guide to include basic prevention measures and the fire evacuation strategy and procedures. Further information on advice to occupiers of dwellings in residential buildings including an example fire evacuation plan is provided in Annex F of BS 9991:2015.

1.2.6 The fire emergency plan ought to be communicated to each resident on occupation. Residents ought to have a clear understanding of what actions to take should a fire situation change, and they need to evacuate the building.

1.3 Project Information

1.3.1 The documentation below and drawing information listed in Table 1 has been reviewed whilst producing this final design intent report. Any information not listed below or in Table 1 has not been reviewed by Orion Fire Engineering. All recommendations made within this report are based on the drawings and documents listed below. Any revisions to those drawings may invalidate this report.

1.3.2 No information contained within the below documents appears to identify that there were any variations within the fire strategy. It should be noted that any documentation not listed below has not been reviewed by Orion Fire. The following information has been reviewed:

- Design, Installation and Commissioning certificates for the landlords BS 5839-1 fire detection and alarm systems by Britania Fire & Security Ltd, dated 22.08.2024.
- Design, Installation and Commissioning certificates (various) for domestic BS 5839-6 fire detection and alarm systems to each apartment by EBM Electrical Services Ltd

- Certificates of completion of access control equipment by Britania Fire & Security Ltd dated 22.08.2024.
- Automatic transfer switch sign off sheets for the firefighter lifts and sprinkler pumps by EBM Electrical Services Ltd dated 26.07.2024.
- Email 02.09.2024 from Winvic Construction Ltd confirming cavity barriers have been installed as per the fire strategy report and architects fire strategy drawings. The cavity barriers were checked via Winvic QA system by Winvic Management.
- Commissioning certificates for the dry riser installations by UK Dry Risers Ltd, dated 05.10.2023 and 09.02.2024.
- Design, Installation and Commissioning certificates for Evacuation Alert Systems by Britania Fire & Security Ltd dated 22.08.2024.
- Commissioning reports for the life safety generators issued by Advanced Diesel Engineering Ltd dated 20.06.2024 and 10.07.2024.
- Completion certificates for the emergency lighting systems issued by EBM Electrical Services Ltd dated 31.05.2024.
- Email 02.09.2024 from RSW Joinery Contractors Ltd confirming fire doors have been installed in conjunction with the fire strategy report and manufacturer installation guidelines provided by ASPEX doorsets.
- Email 22.08.2024 from Buckinghamshire Fire and Rescue Service confirming fire hydrants are all operational and regularly serviced. Follow up email confirmation 02.09.2024 from Winvic Construction Ltd that the new fire hydrant on South Terrace is also operational.
- Certificate for the passive fire protection installation works by Pyrotect Ltd dated 16.08.2024.
- Stove Guard sign off sheets for apartments 01D1 and 07B2 issued by EBM Electrical Services Ltd dated 26.07.2024.
- Declaration of Conformity for installation of the firefighter lifts issued by Schindler dated 25.07.2024.
- Installation and commissioning certificates for the smoke ventilation systems issued by JLA dated 30.08.2024.
- Certificate of compliance for the installation of the residential sprinkler system issued by Premier Mist UK Ltd dated 03.09.2024.
- Email 12.08.2024 from Winvic Construction Ltd confirming the structural RC frame with pre-requisite 50mm cover achieves 2 hours fire protection.
- Email 02.09.2024 by Winvic Construction Ltd confirming all wayfinding signage has been installed as per the architects drawings.

Table 1: Drawing Information Reviewed

Produced By	Drawing Number	Drawing Title	Revision
	GA Plans		
RG+P	E21062-RGP-A-00-DR-A-1000	Ground Floor Plan A	C02
	E21062-RGP-A-01-DR-A-1001	First Floor Plan A	C04
	E21062-RGP-A-02-DR-A-1002	Second Floor Plan A	C04
	E21062-RGP-A-03-DR-A-1003	Third Floor Plan A	C04
	E21062-RGP-A-04-DR-A-1004	Fourth Floor Plan A	C04
	E21062-RGP-A-05-DR-A-1005	Fifth Floor Plan A	C04
	E21062-RGP-A-06-DR-A-1006	Sixth Floor Plan A	C04
	E21062-RGP-A-07-DR-A-1007	Seventh Floor Plan A	C04
	E21062-RGP-A-08-DR-A-1008	Eighth Floor Plan A	C04
	E21062-RGP-A-09-DR-A-1009	Ninth Floor Plan A	C05
	E21062-RGP-A-RF-DR-A-1010	Roof Plan A	C03
	E21062-RGP-B-00-DR-A-2000	Ground Floor Plan B	C04
	E21062-RGP-B-01-DR-A-2001	First Floor Plan B	C02
	E21062-RGP-B-02-DR-A-2002	Second Floor Plan B	C03
	E21062-RGP-B-03-DR-A-2003	Third Floor Plan B	C03
	E21062-RGP-B-04-DR-A-2004	Fourth Floor Plan B	C03
	E21062-RGP-B-05-DR-A-2005	Fifth Floor Plan B	C03
	E21062-RGP-B-06-DR-A-2006	Sixth Floor Plan B	C03
	E21062-RGP-B-07-DR-A-2007	Seventh Floor Plan B	C05
	E21062-RGP-B-RF-DR-A-2008	Roof Plan B	C04
	E21062-RGP-C-00-DR-A-3000	Ground Floor Plan C	C03
	E21062-RGP-C-01-DR-A-3001	First Floor Plan C	C03
	E21062-RGP-C-02-DR-A-3002	Second Floor Plan C	C03
	E21062-RGP-C-RF-DR-A-3003	Roof Plan C	C03
	E21062-RGP-D-00-DR-A-4000	Ground Floor Plan D	C05
	E21062-RGP-D-01-DR-A-4001	First Floor Plan D	C02
	E21062-RGP-D-02-DR-A-4002	Second Floor Plan D	C02
	E21062-RGP-D-03-DR-A-4003	Third Floor Plan D	C02
	E21062-RGP-D-04-DR-A-4004	Fourth Floor Plan D	C02
	E21062-RGP-D-05-DR-A-4005	Fifth Floor Plan D	C02
	E21062-RGP-D-06-DR-A-4006	Sixth Floor Plan D	C02
	E21062-RGP-D-07-DR-A-4007	Seventh Floor Plan D	C03
	E21062-RGP-D-RF-DR-A-4008	Roof Plan D	C04
	E21062-RGP-E-00-DR-A-5000	Ground Floor Plan E	C04
	E21062-RGP-E-01-DR-A-5001	First Floor Plan E	C02
	E21062-RGP-E-02-DR-A-5002	Second Floor Plan E	C02
	E21062-RGP-E-03-DR-A-5003	Third Floor Plan E	C02
	E21062-RGP-E-04-DR-A-5004	Fourth Floor Plan E	C02
	E21062-RGP-E-05-DR-A-5005	Fifth Floor Plan E	C05
	E21062-RGP-E-RF-DR-A-5006	Roof Plan E	C04
	E21062-RGP-F-00-DR-A-6000	Ground Floor Plan F	C05
	E21062-RGP-F-01-DR-A-6001	First Floor Plan F	C04
	E21062-RGP-F-02-DR-A-6002	Second Floor Plan F	C05
	E21062-RGP-F-03-DR-A-6003	Third floor plan F	C05

Produced By	Drawing Number	Drawing Title	Revision
	E21062-RGP-F-RF-DR-A-6004	Roof plan F	C04
	GA Elevations		
	E21062-RGP-A-XX-DR-A-1101	Elevation A1	C08
	E21062-RGP-A-XX-DR-A-1102	Elevation A2	C07
	E21062-RGP-A-XX-DR-A-1103	Elevation A3	C08
	E21062-RGP-A-XX-DR-A-1104	Elevation A4	C08
	E21062-RGP-B-XX-DR-A-2101	Elevation B1	C08
	E21062-RGP-B-XX-DR-A-2102	Elevation B2	C07
	E21062-RGP-B-XX-DR-A-2103	Elevation B3	C09
	E21062-RGP-B-XX-DR-A-2104	Elevation B4	C09
	E21062-RGP-C-XX-DR-A-3101	Elevations C1-4	C03
	E21062-RGP-D-XX-DR-A-4101	Elevation D1	C06
	E21062-RGP-D-XX-DR-A-4102	Elevation D2	C07
	E21062-RGP-D-XX-DR-A-4103	Elevation D3	C07
	E21062-RGP-D-XX-DR-A-4104	Elevation D4	C06
	E21062-RGP-E-XX-DR-A-5101	Elevation E1	C05
	E21062-RGP-E-XX-DR-A-5102	Elevation E2	C06
	E21062-RGP-E-XX-DR-A-5103	Elevation E3	C06
	E21062-RGP-E-XX-DR-A-5104	Elevation E4	C06
	E21062-RGP-F-XX-DR-A-6101	GA Elevations F1 and F3	C07
	E21062-RGP-F-XX-DR-A-6102	GA Elevations F2 and F4	C04
	Site Plans		
RG+P	E21062-RGP-SW-00-DR-A-0011	Site Plan North	C05
	E21062-RGP-SW-00-DR-A-0021	Site Plan South	C06
	E21062-RGP-SW-00-DR-A-0201	Fire Strategy - Site plan north	C02
	E21062-RGP-SW-00-DR-A-0202	Fire strategy - Site plan south	C02
	E21062-RGP-SW-00-DR-A-0203	Car park ventilation - North	P01
	E21062-RGP-SW-00-DR-A-0204	Car park ventilation - South	P01
	E21062-RGP-SW-01-DR-A-0013	GA Podium Plan North	C03
	E21062-RGP-SW-01-DR-A-0022	GA Podium Plan South	C03
Hexa Consulting	600296-HEX-00-00-DR-TP-0300	Fire Tender Vehicle Tracking	P02
TPM Landscape	3630-101	Landscape – Ground Level	E
	3630-102	Landscape – Podium Level	C
	Fire Strategy Plans & Elevations		
RG+P	E21062-RGP-A-00-DR-A-1200	Fire Strategy Ground Floor A	C03
	E21062-RGP-A-01-DR-A-1201	Fire Strategy First Floor A	C02
	E21062-RGP-A-09-DR-A-1209	Fire Strategy Ninth Floor A	C02
	E21062-RGP-A-SL-DR-A-1202	Fire Strategy 2nd to 8th Floor A	C02
	E21062-RGP-A-XX-DR-A-1211	Fire Strategy Elevation A1	C03
	E21062-RGP-A-XX-DR-A-1212	Fire Strategy Elevation A2	C02
	E21062-RGP-A-XX-DR-A-1213	Fire Strategy Elevation A3	C02
	E21062-RGP-A-XX-DR-A-1214	Fire Strategy Elevation A4	C02
	E21062-RGP-B-00-DR-A-2200	Fire Strategy Ground Floor B	C03
	E21062-RGP-B-01-DR-A-2201	Fire Strategy First Floor B	C02
	E21062-RGP-B-07-DR-A-2207	Fire Strategy Seventh Floor B	C02

Produced By	Drawing Number	Drawing Title	Revision
	E21062-RGP-B-SL-DR-A-2202	Fire Strategy 2nd to 6th Floor B	C02
	E21062-RGP-A-XX-DR-A-2211	Fire Strategy Elevation B1	C03
	E21062-RGP-A-XX-DR-A-2212	Fire Strategy Elevation B2	C02
	E21062-RGP-A-XX-DR-A-2213	Fire Strategy Elevation B3	C02
	E21062-RGP-A-XX-DR-A-2214	Fire Strategy Elevation B4	C02
	E21062-RGP-C-SL-DR-A-3201	Fire Strategy Block C Townhouses	C04
	E21062-RGP-C-XX-DR-A-3202	Fire Strategy Elevations C1 - C4	C03
	E21062-RGP-D-00-DR-A-4200	Fire Strategy Ground Floor D	C04
	E21062-RGP-D-01-DR-A-4201	Fire Strategy First Floor D	C02
	E21062-RGP-D-SL-DR-A-4202	Fire Strategy Upper Floors D	C02
	E21062-RGP-D-XX-DR-A-4204	Fire Strategy Elevation D1	C02
	E21062-RGP-D-XX-DR-A-4205	Fire Strategy Elevation D2	C02
	E21062-RGP-D-XX-DR-A-4206	Fire Strategy Elevation D3	C02
	E21062-RGP-D-XX-DR-A-4207	Fire Strategy Elevation D4	C03
	E21062-RGP-E-00-DR-A-5200	Fire Strategy Ground Floor E	C03
	E21062-RGP-E-01-DR-A-5201	Fire Strategy First Floor E	C02
	E21062-RGP-E-05-DR-A-5203	Fire Strategy Fifth Floor E	C02
	E21062-RGP-E-SL-DR-A-5202	Fire Strategy 2nd to 4th Floor E	C02
	E21062-RGP-E-XX-DR-A-5205	Fire Strategy Elevation E1	C02
	E21062-RGP-E-XX-DR-A-5206	Fire Strategy Elevation E2	C03
	E21062-RGP-E-XX-DR-A-5207	Fire Strategy Elevation E3	C02
	E21062-RGP-E-XX-DR-A-5208	Fire Strategy Elevation E4	C02
	E21062-RGP-F-00-DR-A-6200	Fire Strategy Ground Floor F	C03
	E21062-RGP-F-01-DR-A-6201	Fire Strategy First Floor F	C03
	E21062-RGP-F-02-DR-A-6203	Fire Strategy Second Floor F	C03
	E21062-RGP-F-03-DR-A-6204	Fire Strategy Third Floor F	C02
	E21062-RGP-F-XX-DR-A-6205	Fire Strategy Elevation F1 & F3	C03
	E21062-RGP-F-XX-DR-A-6206	Fire Strategy Elevation F2 & F4	C03

1.4 Site and Building Description

1.4.1 The Bletchley View project is a new residential development, consisting of two distinct sites, North and South (see site plan provided in Figure 1 below). The North Site comprises 3 blocks, Blocks A - C, whereas the South site also comprises 3 blocks, namely Blocks D – F. The building heights of each block as measured from the lowest adjacent ground level to the topmost occupied storey is displayed in Figure 2 and also summarised for ease of reference in Table 2 below.

Table 2: Building Heights for Blocks A - F

Block	Building Height (m)
A	26.56
B	22.50
C	6.15
D	21.37
E	16.22
F	9.29

1.4.2 A breakdown of each of the blocks is given below:

<u>North Site:</u>

- Block A – 10 storeys – consisting of 72 apartments (mix of 1 bedroom and 2 bedroom) spread over the 1st to 9th floors and comprising a commercial premises at ground floor, along with a residential bin store and bike store.
- Block B - 8 storeys – consisting of 38 apartments (mix of 1 bedroom and 2 bedroom) spread over the 1st – 7th floors and comprising a bike store and plant at the ground level. There is also a communal garden provided on the 7th floor.
- Block C – row of 3 three storey townhouses

<u>South Site:</u>

- Block D – 8 storeys – consisting of 42 apartments (mix of 1 bedroom and 2 bedroom) spread over the 1st – 7th floors. At ground floor there is space for a commercial premises, a bike store, bin store and plant room.
- Block E – 6 storeys – consisting of 16 apartments (mix of 1 bedroom and 2 bedroom) spread over the 1st – 4th floors. Located on the ground floor there is a bike store and a plant room and on the 5th floor, a communal garden and a roof pavilion are provided.
- Block F – 4 storey apartment block consisting of four one bedroom apartments spread over the 1st and 2nd floors, a community space on the ground floor and a private amenity space on the 4th floor roof level. Adjoining the apartment block is a block of 6 four storey townhouses.

1.4.3 Blocks A and B are linked at the first-floor level by a podium, as are Blocks D and E.

1.4.4 Both the North and South sites are provided with a car park which serves all of the blocks on each site. For the North site some of the car park is under croft to Block A and for the South site, some of the car park is under croft to Blocks D and E.

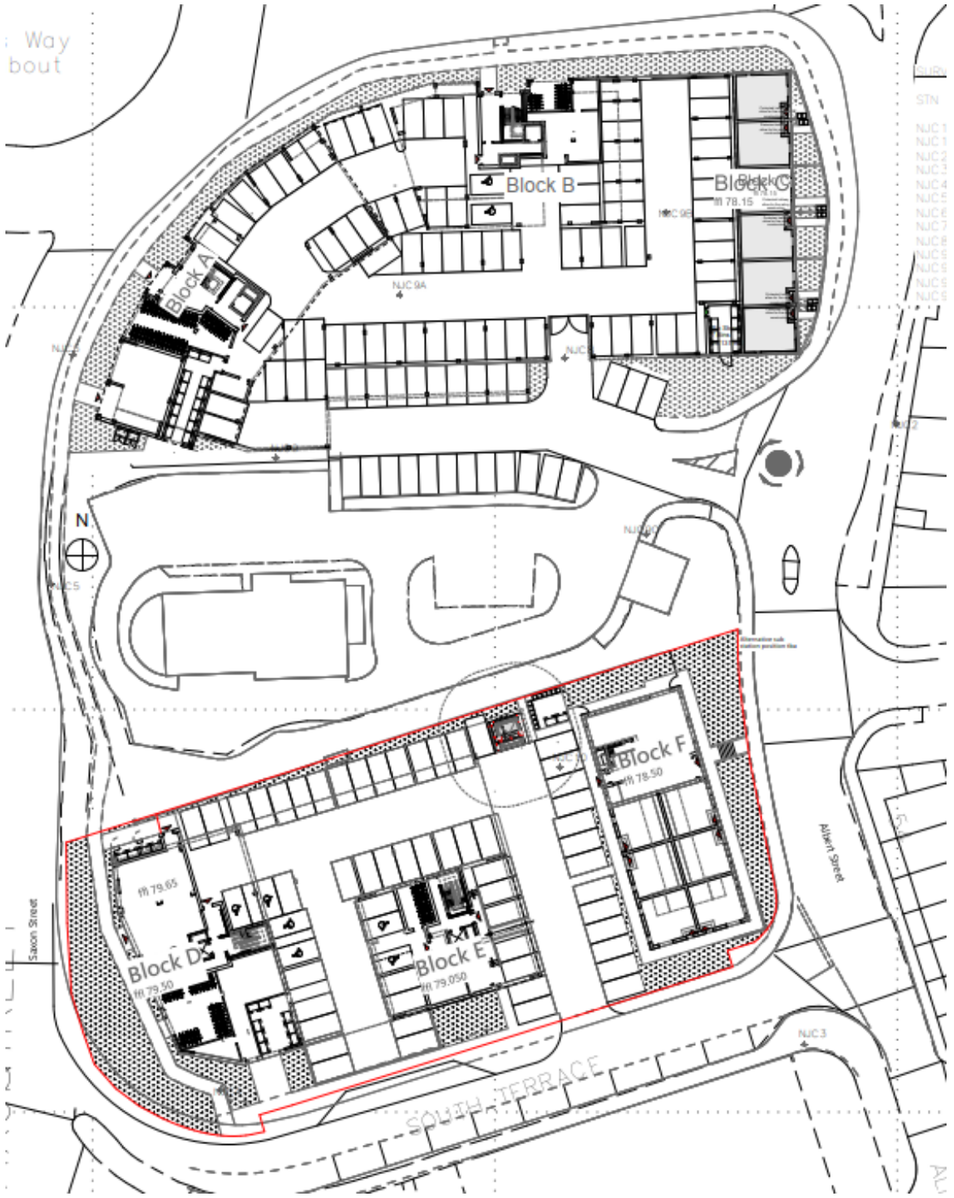
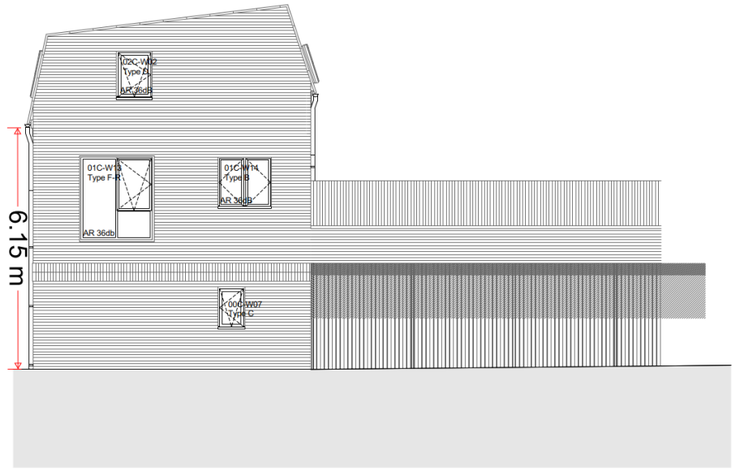


Figure 1: Site Plan - Bletchley View, Milton Keynes (RG + P Architects)

Block A



Block C



Block D

Block B



Block E



Block F



Figure 2: Height to the Topmost Occupied Storey – Blocks A – F

1.5 Variation from Prescriptive Guidance

1.5.1 The layout of the building is generally in accordance with the prescriptive recommendations given within BS 9991 for residential areas. All alternative approaches from the recommendations of BS 9991 have been summarised in this section for ease of reference. Unless listed below, no other aspect of the design should deviate from the relevant recommendations of BS 9991. All variation items have been discussed and agreed with Salus Building Control.

Table 3: Variation Items

Variation	Report Section
A number of open plan apartments within the development exceed the 8m x 4m recommendation of BS 9991 with an open kitchen.	2.3
The storeroom on Block D ground floor is accessed off the residential lobby. Typically stores should not be located on the common escape routes from residential accommodation. However, an enhanced fire door to FD60s is provided to the store and the arrangement is considered acceptable on the basis: • the store is sprinklered • a 1.5m^2 AOV is provided to ventilate the protected lobby at ground floor to protect the residential stair from the adjoining accommodation; • the store is significantly smaller than an open-plan apartment which would be permitted to open into the protected lobby therefore the potential fire load of the room is not considered to be significantly different (or greater) that the potential fire load within a much larger open-plan apartment; and • the room would be under the control of management such that the risks can be managed/mitigated, and the door would be kept locked shut when not in use.	2.3.19
As per BS 9991, ancillary accommodation should not connect with any part of the common escape route from a dwelling where a single escape route is provided. However, on the 2nd floor of Block A and the 1st floor of Block E, cleaners' cupboards have been provided in the common corridors. The fire risk posed from the cupboards is low (see section 2.3.19 for full list of the cupboards contents). In addition, the cupboards will be provided with FD30S fire doors and kept locked shut when not in use. Sprinkler protection will be provided to these cupboards which will limit the growth and spread of a fire should it occur in this location.	2.3.20
There are a number of electrical plant rooms accessed from other plant rooms or storerooms making them inner rooms. Block B has been provided with an inner-inner room, namely the essential supply room. As plant rooms are generally considered places of higher fire risk, plant rooms designated as access rooms would typically not be considered permissible. However, on the basis all inner rooms are small electrical plant rooms which will be occupied for short periods by a low number of trained personnel, in addition to automatic smoke detection being provided to the access rooms and travel distances to a place of relative safety remaining within prescriptive limits for travel in a single direction, the proposed arrangements are considered acceptable.	2.3.34
In Blocks B and E, the escape doors from the communal roof gardens have a window within the 1.8m distance. However, technically the accommodation either side of the escape route is all sterile as its part of the corridor occupants would escape into, therefore accommodation within 1.8m is part of the protected sterile corridor and core. For this reason, it is considered acceptable to omit the fire resistance to the external wall to these areas.	2.3.37

Variation	Report Section
In accordance with 14.1.6 of BS 9991, 0.4m^2 permanent ventilation to the lobby adjoining car park from stair should be provided. This is applicable to Blocks A, B, D and E. However, it is considered that there is sufficient free area to the undercroft car parks that the 0.4m^2 permanent ventilation would be rendered inefficient and therefore it proposed to omit this from the lobbies. Therefore a single lobby is considered acceptable, which will be provided with smoke ventilation equivalent to the corridor levels above in all blocks.	2.6.19 & 2.6.20
In Block A, due to the undercroft car park arrangement, the refuse store is provided with an internal access point and therefore should be provided with a permanently ventilated lobby. However, it is considered that there is sufficient free area to the car park that the lobby ventilation would be rendered inefficient and therefore it proposed to omit the lobby. This approach has been reviewed and agreed with Building Control.	2.6.19
The commercial unit of Block D exceeds 100m^2 (measured as 108m^2), and would typically require protected with a BS EN 12845 sprinkler system. A BS EN 12845 sprinkler system is not proposed to be provided and instead, the commercial unit shall require to be sub-divided by the tenant with a 60-minute fire-resisting partition (and FD60s fire-resisting door) to subdivide the floor space such that no one compartment exceeds 100m^2 to allow the residential sprinkler system to be extended into the Unit. The residential sprinkler tank capacity has been increased to accommodate the protection to the commercial unit, which will be subject to a separate Building Regulations application upon fit-out.	4.3.6
BS 9251 recommends that all walls are wet by the sprinkler system. It is not proposed to provide sprinkler heads in close proximity to the firefighters lifts as this could result in the 25mm ramps up to the lift being rendered ineffective, and would result in water ingress to the lift shaft.	4.3
Due to the height of the developments, the car parks to both sites would require a OH2 commercial sprinkler system designed and installed in accordance with BS EN 12845. However, a time equivalence analysis has shown that for the North Site Car Park sprinklers may be omitted on the provision of an uplift in the fire resistance period for separation between the car park and adjoining areas and any elements of structure in the car park from 90 minutes to 120 minutes. For the South Site Car Park, a time equivalence analysis has shown that 90 minutes fire resistance with regards to separation and applied to elements of structure supporting the car park is sufficient to enable the omission of sprinklers. The analysis to support omission of sprinklers from the car parks is provided in Section 4.3.14 and Appendix D –*Time Equivalence Analysis.*	4.3.14 & Appendix D –
A dry rising main has been provided to Block A in accordance with BS 9991. However, due to a pedestrian barrier running between the pavement and road, the direct access route for firefighters from the pump appliance to the primary building entrance and dry riser inlet will be extended as they will need to navigate an extended distance around the barrier. To mitigate this, an additional dry riser inlet shall be provided to the rear entrance to Block A such that there are two separate Fire Service access points and two separate dry riser inlets to provide the Fire Service with multiple options to mount an effective intervention in the event of a fire. The secondary access and inlet means there is no single point of failure that could prevent or significantly delay access for the Fire Service.	6.5.1

2 Means of Escape

2.1 Evacuation Principle

Apartment Blocks

2.1.1 The apartments of the proposed development will adopt a “stay-put” evacuation strategy, whereby upon detection activation within a dwelling, occupants of that dwelling will evacuate. Evacuation of the remaining apartments within a block would only be carried out at the instruction of the fire service if deemed necessary (e.g., via the Evacuation Alert System as per Section 6.7).

Townhouses

2.1.2 The townhouses will operate on a simultaneous evacuation principle whereby in the event of a fire all occupants will be required to evacuate the Townhouse of fire origin. This will be limited to the townhouse affected only as each townhouse is classified as a different building under Building Regulations.

Ancillary/non-residential Areas

2.1.3 Residential ancillary accommodation will adopt a simultaneous evacuation strategy whereby upon detection activation within the ancillary accommodation, the alarm should sound throughout ancillary accommodation. Ancillary areas for the blocks include the following as summarised below:

- Block A
  - Bin Store
  - Bike Store
  - Switch Room
- Block B
  - Communal Roof Gardens
  - Plant Room
  - Switch room
  - Bike Store
- Block C – No ancillary areas
- Block D
  - Store Room
  - Bike Store
  - Bin Store
  - Switch room
- Block E
  - Communal Roof Gardens
  - Roof Pavilion
  - Tank Room
  - Switch room
  - Bike Store
- Block F
  - Community Room Space
  - Roof Amenity Space
- Site
  - Undercroft car parks
  - Generator rooms
  - Roofs providing maintenance access

Commercial Units

2.1.4 Blocks A and D both feature commercial premises on the ground floor. The commercial areas will operate a simultaneous evacuation strategy, i.e., when the alarm is activated in these areas, it will result in the evacuation of all occupants within the fire effected area.

2.2 Fire Detection and Alarm Systems

Apartment Blocks

2.2.1 The apartments provided to the blocks are open plan in nature and should therefore be provided with Grade D1 Category LD1 fire detection and fire alarm system designed and installed in accordance with BS 5839-6.

2.2.2 The fire alarm sounder should be audible throughout the apartment and to a level that is not less than:

- 75dBA at the bedhead (measured with the doors to the room closed)
- 65dBA in living areas (measured with the door to the room closed)
- 65dBA on terraces (measured with the access door open)

2.2.3 If the above cannot be achieved on the terraces then additional sounders should be provided to achieve a suitable sound pressure level.

2.2.4 To operate the smoke ventilation on residential common escape routes, a Category L5 detection system in accordance with BS 5839-1 should be provided to these areas. The system is provided to actuate the smoke ventilation only and will not act as a means of warning occupants within their apartment of a fire. As the building operates on a stay-safe evacuation strategy, there should be no sounders or Manual Call Points within the common residential escape routes. In the event of a smoke detector activating within the stair enclosure, the vent at the head of the stair should open. In the event of a smoke detector activating within a ventilated lobby/corridor, the vents within that lobby/corridor and at the head of the stair should open simultaneously.

2.2.5 The communal roof areas in Blocks B and E and any roof maintenance areas are to be provided with sounders and visual display units. The warning devices should be linked to the detection within the ancillary areas and common lobbies and stairs. Activation of detection in these areas should be programmed to activate all rooftop sounders. It is also proposed to link the fire warning on rooftops to the sprinkler flow switch via an interface to the fire alarm to alert occupants on the roofs should a fire occur in an unoccupied apartment.

2.2.6 The podiums between blocks A and B and between blocks D and E should be provided with additional beacons and sounders so as to warn podium occupants of a fire in either block. The external beacons and sounders for this purpose, should be linked to the L5 detection system in the relevant access corridor.

2.2.7 As per the recommendations of BS 5839-1, the fire alarm panel should be located at an appropriate location, suitable for staff and firefighters attending site. As per the fire alarm drawings provided, the fire alarm panel for each of the apartment blocks is located in the main entrance lobby.

2.2.8 It has been confirmed that on-site building management will not be present 24 hours a day. The client team has also confirmed the fire alarm systems will not be provided with remote monitoring.

2.2.9 As the building has been provided with a number of fire safety systems, it is crucial that adequate interfaces and connections are provided between these facilities for correct operation and monitoring purposes. The fire alarm interfaces need to be designed in accordance with BS 7273 and should include the following fire safety systems:

- Access control, hold open devices and magnetic locks on fire doors (in accordance with BS 7273-4)
- Lifts and their respective plant
- Sprinkler systems
- HVAC systems
- Smoke Ventilation:
    - Common Corridor Smoke Ventilation
    - AOV at the head of stair
- Any non-fire related sound systems

Ancillary areas

2.2.10 The ancillary accommodation throughout should be provided with a Category L2 fire alarm and detection system to BS 5839-1. Under a Category L2 system, the coverage would normally be equivalent to a Category L3 system with the addition of detection in plant rooms.

2.2.11 Manual Call Points (MCPs) should be located on escape routes and storey exits leading directly to external from ancillary accommodation only. The positioning of MCPs should be designed so that no occupants need to travel more than 45m in any direction to reach the nearest call point. MCPs need to be provided on final exit doors, regardless of these doors not being designated as fire doors.

2.2.12 Note: Common escape routes solely serving residential accommodation do not require manual call points or sounders.

2.2.13 Although no fire alarm interface is required with the lifts to meet the minimum requirements of the Building Regulations, it is recommended that a smoke detector is provided at the head of the lift shaft and that on activation of that smoke detector, the lift returns to the lowest level unaffected by fire.

2.2.14 To allow wheelchair users and other non-ambulant residents to make a dignified escape from the building, the lift should only descend to lowest unaffected level in the event of a smoke detection activating within the lift shaft.

Townhouses

2.2.15 Fire detection and alarm systems installed throughout the townhouses should be a Grade D1, Category LD1 alarm system designed and installed in accordance with BS 5839-6.

2.2.1 The fire alarm sound notification should be audible throughout the townhouses including on the private amenity at third floor (Block F). A sound pressure level of 65dBA should be achieved on private terraces (measured with the access door open). If this cannot be achieved, additional sounders should be provided to achieve suitable sound pressure level.

Commercial Units

2.2.2 The commercial units are being designed as shell and core and will be subject to a separate Building Regulations application by the tenant on fit-out. No detection system would be required within the commercial units as a shell and core unit based on meeting the minimum requirements of the Building Regulations. Commercial units are to remain free of storage and combustible material whilst shell and core and until the sprinklers become operational in these compartments, See Section 4.3. Upon fit out, sprinkler protection should be made operational as soon as reasonably practicable however, this should be discussed with the Regulatory Authorities as part of the fit out works.

Summary

2.2.3 A summary of the fire detection and alarm systems provided within the blocks has been provided below in Table 4. A summary cause & effect matrix has been provided in Appendix A –*Summary Cause and Effect Matrix*. The C&E provided by Orion is intended as a starting point for Part B Regulations compliance and can be modified to suit operational needs.

Table 4: Fire Detection and Alarm Systems

Area Covered	System	Notes
Apartments	Grade D1 Category LD1	Automatic detection to BS 5839-6. Detection to all areas other than those with negligible sources of ignition, such as toilets, bathrooms and shower rooms. For the studio apartments small rooms having a limited area and containing cooking facilities, need to be provided with a multi-criteria detection head such to limit the potential for false alarms occurring. Sounders should achieve the audibility levels given in section 2.2.2.
Residential Corridors, Stairs, Lifts and Lobbies	Category L5	BS 5839-1. No sounders or manual call points should be provided on this system, it is provided to activate the smoke ventilation systems only. Smoke detectors in the lift shafts to descend lifts, no other detectors should descend the lifts. Sounders and beacons should be provided in the common terraces and be linked to the detection within the ancillary areas, common lobbies and stairs.
Ancillary Accommodation	Category L2	BS 5839-1. Sounders and beacon provided are linked to this detection system.
Car Parks	Category M	BS 5839-1. Podium areas are to be provided with sounders and Visual Display Units, linked to detection from the access areas.

Area Covered	System	Notes
Townhouses	Grade D1, Category LD1	BS 5839-6. Detection to all areas other than those with negligible sources of ignition, such as toilets, bathrooms and shower rooms.
Commercial units (Ground floor in Blocks A and D)	N/A	The commercial units are being designed as shell and core and no detection system would be required within the commercial units as a shell and core unit based on meeting the minimum requirements of the Building Regulations.

2.3 Horizontal Means of Escape

Means of Escape – Open Plan Apartments

2.3.1 Travel distances should be limited to 20m from the furthest point of the apartment to the front entrance door. Open plan flats should also meet the following recommendations:

- The size of the open-plan flat should not exceed 16 m × 12 m.
- Open-plan flats should be situated on a single level only.
- The ceilings within the open plan flat should have a height of not less than 2.25 m.
- The kitchen should be enclosed in open plan flats having an area exceeding 8m x 4m ($32m^2$). Cooking appliance in open plan flats having an area smaller than 8m x 4m should not be adjacent to the entrance of the flat.

2.3.2 A number of the open plan apartments exceed the 8m x 4m ($32m^2$) recommendation stated above and have unenclosed kitchens. However, Orion Fire deem this acceptable due to the following;

- The enclosed kitchen requirement was introduced following an NHBC foundation study commissioned to assess life safety in the event of a fire in open plan flat layouts entitled “Open plan apartment layouts – assessing life safety in the event of a fire”. The NHBC study was not aimed at setting an upper limit on unenclosed kitchen open plan flat size, the 8m by 4m stipulated in the guidance is due to these dimensions being the largest open plan flat layout used within the study, featuring an unenclosed kitchen.
- The study concluded that through the provision of a BS 9251 or BS EN 12845 sprinkler system and an LD1 automatic detection alarm system to BS 5839-6, the conditions within an open plan flat are significantly improved over a code compliant design as stated in prescriptive guidance.
- Open plan apartments exceeding 8m x 4m where unenclosed kitchens are present, would offer a larger area for the smoke plume to develop and therefore the tenability conditions such as plume temperature and visibility would be improved over a code compliant design.
- Enclosing the kitchen does not eliminate the risk of a fire within the open plan apartment and therefore a fire risk within the open plan area remains, regardless of whether the kitchen is enclosed.
- There is no requirement placed on the fire rating of the enclosure provided to the kitchen area, therefore the enclosure could fail immediately at the onset of a fire within the apartment and therefore offering no protection to the kitchen area.

2.3.3 Where sprinkler protection is provided and fire detection is enhanced to Grade D1 Category LD1 standard, the travel distances can be increased to 20m in accordance with the recommendations of BS 9991. All apartments within the blocks have travel distances within the 20m requirement.

2.3.4 Currently, BS 9991 does not quantify what is regarded as an acceptable hob separation distance, and therefore the distance required as not to prejudice the escape route. Although currently in draft format, the upcoming revision of BS 9991 details hob separation distances required for tenable escape conditions within an open plan kitchen layout. As highlighted on Figure 3, all egress routes adjacent to hob facilities in unenclosed kitchens should be at least 1.8m plus;

- 0.9m (the 0.9m excludes fixed obstructions such as radiators);
- 0.3 m should be provided between the leading edge of the door and the 1.8 m.

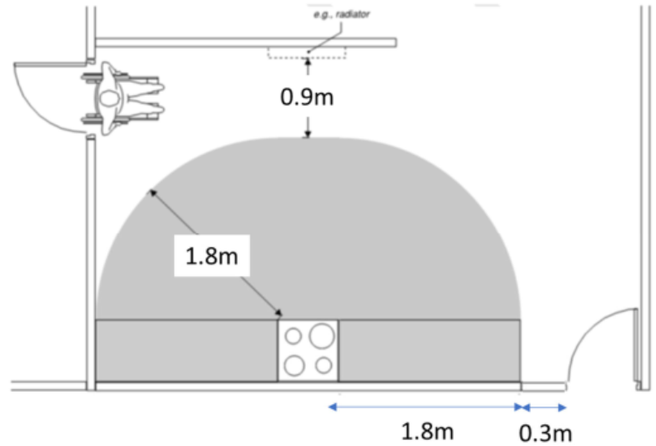


Figure 3: Hob Separation Distance

2.3.5 The Architect has provided marked up plans detailing the hob separation distance in each apartment. Upon review of these it has been noted that for some apartments, the hob separation distance is not within the requirements above. These are apartments 07B02 and 01D1. Therefore, additional fire protection measures should be provided to the cooking facilities (life safety cut offs) in these apartments. The apartments will be installed with life safety cut-off devices to the hobs.

2.3.6 The cut off device should be tested as per the criteria given in BS EN 50615 for a Category B device (for preventive power cut-off of the appliance). Category B cut-off devices are tested for multiple criteria. These are:

- The device must sense the heat of the pan and cut the power to the hob before ignition.
- The device must allow the pan of oil to reach a temperature of 200°C before activating. This is to prevent nuisance false alarms that could lead to the device being disabled by the user.
- After the device cuts the power to the hob, the test is continued for 10 minutes and oil must not ignite in that time.

Means of Escape – Townhouses

2.3.7 The travel distance limitation in the townhouses is 9m from any dwelling to a protected stair, this is achieved in all the townhouses in Blocks C & F.

2.3.8 The protected stairs should be provided with fire resisting construction of 30 minutes complete with FD 30 fire door sets (refer to section 4.4 for further details on compartmentation within the townhouses).

2.3.9 With regards to the townhouses in Block C, recesses will require 30min FR (this is increased to 60 minutes FR in the case of the walls between houses). See Figure 4 below:

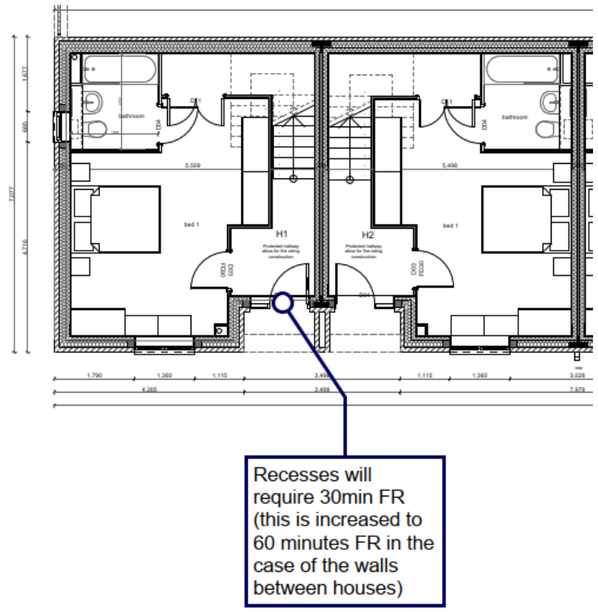


Figure 4: Block C Recesses to Stair

Means of Escape – Commercial Units – Blocks A and D

2.3.10 Travel distances within the commercial units should be limited to 18m in a single direction or 45m where alternative escape routes are available. It should be noted that this report is only covering the "shell and core" aspect and the responsibility for the design of the fire safety provision in each of the units falls onto the tenant and is subject to a fit out fire strategy and a separate Building Regulations application.

2.3.11 As the internal layout is not fixed in the commercial units, direct distances rather than actual distances must be used for assessment which are taken as 2/3rds of the actual distances. The direct distances are achieved within the ground floor commercial units of Blocks A and D.

2.3.12 Considering the commercial unit provided to Block A, the current arrangement would be permitted although the occupancy of the unit would be restricted to maximum 60 persons. The client has advised an occupancy of 60 persons is suitable in line with client requirements.

2.3.13 In terms of the commercial unit provided on the ground floor of Block D, based on the available floor space of 106m^{2}and a floor space factor of 1m^2/person the theoretical occupancy of commercial unit could be calculated as 106 persons. Two exits are provided to the unit, one measuring 950mm and one measuring 2160mm on plan. Both exits open in the direction of escape and have sufficient width to support the envisioned occupancy.

Means of Escape – Community Use Room – Block F

2.3.14 The direct distance in the community use room located on the ground floor of Block F should be limited to 12m as escape is provided in a single direction but this has been exceeded (c. 14.4m). It is advisable that a reassessment to determine actual travel distances should be carried out once the internal layout is fixed, which is anticipated will be undertaken as part of the fit-out. So long as the actual travel distance measured once internal layout is known is within 18m the situation of a single exit would be considered acceptable with regards to travel distances. If the 18m distance could not be met at this stage, then an additional exit should be provided.

2.3.15 The current arrangement in the community use room would be permitted although the occupancy of the unit would be restricted to maximum 60 persons.

Means of Escape – Residential Common Corridors

Blocks A, B, D and E

2.3.16 The travel distances in the ventilated residential corridors in a sprinklered residential building should be limited to:

- 15m in a single direction; and
- 60m where more than one direction of escape is available (limited to 30m in unventilated sections of corridor).

2.3.17 Smoke ventilation for the corridors will be provided via 1.5m^2 natural smoke shafts. In one location, smoke ventilation will be provided by a 1.5m^2 AOV direct to external. Section 2.6 provides more information on smoke ventilation.

2.3.18 All escape stairs to the blocks should also be provided with 1.0m^2 AOV at the head.

2.3.19 There is a storeroom on the ground floor of Block D which is accessed from the residential lobby. Typically, stores should not be located on the common escape routes from residential accommodation. However, an enhanced fire door to FD60s standard is proposed to the store and the arrangement is considered acceptable on the basis:

- The storeroom is sprinkler protected;
- An automatic opening vent (1.5m^2 geometric free area) is provided to ventilate the protected lobby to protect the residential stair from the adjoining accommodation;
- The storeroom is significantly smaller than an open-plan apartment which would be permitted to open into the protected lobby therefore the potential fire load of the room is not considered to be significantly different (or greater) than the potential fire load within a much larger open plan apartment; and
- The room would be under the control of management such that the risks can be managed/mitigated, and the door would be kept locked shut when not in use.

2.3.20 On the 2nd floor of Block A and the 1st floor of Block E, cleaners cupboards have been provided in the common corridors. As per BS 9991, ancillary accommodation should not connect with any part of the common escape route from a dwelling where a single escape route is provided. However, it is considered that as the cupboards are intended to contain cleaning equipment that the risk posed from the cupboard is low. A full list of the contents of the cupboards, as well as the finishes to the cupboard has been provided by the client as per the below:

- Cleaners sink & tap
- Rainwater pipes (in some, not all)
- Soil vent pipes (in some, not all)
- Hoover
- Dustpan & brush
- Mop & bucket
- Door with access control (push to exit button and green BGU)
- Light fitting with PIR control
- MF ceiling with wipeable emulsion
- Wipeable emulsion to walls
- Tiled floor or anti slip vinyl with cap & cove

2.3.21 In addition to the above, the cupboards will be provided with FD30S fire doors and kept locked shut when not in use. Sprinkler protection will be provided to these cupboards which will limit the growth and spread of a fire should it occur in this location. Given the above provisions, it can be considered that the location of the cupboards is acceptable.

Block F

2.3.22 Block F can be classed as a small building in accordance with section 7.5 of BS 9991 as it does not have a storey at a height greater than 11m, has no more than three storeys above ground and has a single stair. Therefore, escape routes can be provided as in accordance with Figure 8 (a) of BS 9991. The travel distance within the lobby should be limited to 4.5m in accordance with Figure 8 (a). The travel distance within the lobbies is within the 4.5m requirement.

2.3.23 The escape stair to the apartments should be provided with 1.0m^2 AOV at the head. The private amenity area on the roof will be provided with sounders and visual display units. The warning devices should be linked to the detection within the common lobbies and stairs. Detection will also activate the AOV.

Means of Escape – Ancillary areas

2.3.24 The travel distances limitations in all ancillary accommodation have been tabulated below in Table 5. Generally, these have been met in the ancillary accommodation although any instances where the escape distances are exceeded, these have been discussed and justified in the following sections.

Table 5: Travel Distance Limitations

Area	Single Direction (m)	More than one Direction (m)
Residential Foyer	18	45
Cycle Store	18	45
Refuse Store (within room)	9	18
Store not listed above	18	45
Plant Rooms (within room)	9	18
Communal Roof Garden	45	n/a
Roof (Maintenance Only)	60	100

2.3.25 Travel distances in the Block E Tank room should be limited to 9m in single direction or 18m where alternative escape is available in accordance with BS 9991. The room is provided with a single exit and generally the travel distance is within 9m. The only areas where travel distance is extended over 9m is around the periphery of the water tank where at the furthest point the travel distance would be up to 11m. However, this is considered acceptable on the basis the room houses the water tank and sprinkler equipment which is low risk, and the remote areas of the tank will be infrequently accessed for short periods by trained maintenance personnel.

2.3.26 The exit widths provided to the ancillary areas within the development appear to exceed the exit requirements for the envisaged number of occupants as tabulated in Table 6. Note that the widths provided in Table 6 below may be exceeded by the access and circulation requirements of Approved Document M, which are not covered within the scope of this document.

Table 6: Exit Widths

Maximum Number of People	Minimum Width (mm)
60	750
110	850
220	1050
More Than 220	5mm per person*

*5mm/person does not apply to an opening serving fewer than 220 people.

2.3.27 Where a single escape route is provided or the exit opens against the direction of escape, the occupancy will be limited to a maximum of 60 persons through that exit. This is applicable to the communal roof garden of Block B and the private amenity space provided to the roof level of the apartments of Block F as these are provided with a single exit. In addition, the communal roof garden and roof pavilion provided to the roof level Block E should have a combined total occupancy limited to 60 persons as there is a single storey exit provided to this level.

2.3.28 Where communal roof gardens are provided to the blocks, the final exit doors from the blocks should be as wide as the stair they serve and open in the direction of escape. This is appliable to Blocks B and E. Given the shared roof amenity on Block F is for residents only and the block is limited to 4 apartments, door stair final exit is proposed to swing against the direction of escape which is considered reasonable given the limited population within the block.

2.3.29 The occupancies of the commercial unit provided to Block A and the community use room provided to Block F would also be limited to 60 persons as a single exit is provided. This has previously been discussed in sections 2.3.12 and 2.3.15 above.

Means of escape – Podiums

2.3.30 Egress from the north site podium is possible via Block A or Block B and from the south site podium egress is possible via Block D or Block E. Therefore, as two exits are provided, there is no restriction on the travel distance. It is considered that only the occupants of the apartments will access the podium and therefore the exit widths are considered sufficient for the envisioned occupancy. Additional sounders and beacons will be provided on the podium, linked back to the detection in the common corridors to alert occupants of a fire in either block.

2.3.31 If the expected occupancy of the podiums were greater than 60 persons, then the doors into the blocks from the podiums should swing in the direction of escape and the final exit doors from the blocks should be as wide as the stair they serve. The current design of the podiums is based on an expected occupancy of less than 60 persons. For this reason, the final exit door is not required to be as wide as the stair it serves. This is only applicable when considering podium egress solely. Where communal roof gardens are provided to the Blocks, the final exit doors are required to be as wide as the stair they serve (see section 2.3.28). Should there be any one-off events that meant there would be an expected occupancy of more than 60 persons on the podiums at any one time, then such events would be subject to a separate risk assessment.

Inner Rooms

2.3.32 Where inner room arrangement exists (room within a room), additional fire safety provisions need to be considered in order to address the additional risk to occupants within the inner room. At least one of the below recommendations should be adhered to:

- The enclosures (wall or partitions) of the inner room are stopped at least 500mm below the ceiling
- The door or walls of the inner room contain a vision panel (minimum 0.1m^2), to allow occupants to inspect the conditions within the access room
- The access room is fitted with an automatic fire detection and alarm systems

2.3.33 The above recommendations are not applicable to sanitary accommodation, toilets, etc.

2.3.34 There are a number of inner rooms in the ancillary accommodation at the scheme. Inner rooms include the switch room in Block B which is accessed via the cycle store and the essential supply room in Block E that is accessed from the switch room. As plant rooms are generally considered places of higher fire risk, the switch room/essential supply room as inner rooms to the plant room would typically not be considered permissible. There is also an essential supply room accessed from the switch room of Block B thus making this an inner-inner room which is typically not permitted under current guidance as a person should not have to pass through two access rooms to make their escape. However, given the inner rooms, and inner-inner room are all small electrical plant rooms, these spaces will be infrequently accessed by low numbers of trained personnel carrying out ongoing maintenance and repairs. The travel distances within the room and to a place of relative safety remain within the limitations for single direction of travel in accordance with Table 5 and the access rooms are provided with Category L2 automatic detection system thus early warning is still being provided to the occupants of the inner rooms.

2.3.35 There are also rooms which are accessed direct from the undercroft car park including switch room in Block A, water tank room in Block B and a cycle store in Block E. The plant rooms and storeroom within the car parks would be classified as inner rooms to the car park, however the car park would be considered a place of special fire hazard and should not provide access to inner rooms. However, the arrangement is deemed acceptable subject to the following provisions:

- The car park is an undercroft and not fully enclosed, and a high level of permanent natural ventilation is achieved to the majority of the perimeter.
- The inner rooms are transient areas which would only be periodically used and would be of short duration use.
- Travel distance limitations to either open air or a protected escape route are within the limits prescribed in current guidance.

External Walls Adjacent to Escape Routes

2.3.36 External walls either side of escape doors should be fire-resisting for 1.8m horizontally. This is applicable to the external walls adjacent to the escape doors from the Block A and Block B podiums (see Figure 5 and Figure 6 below).

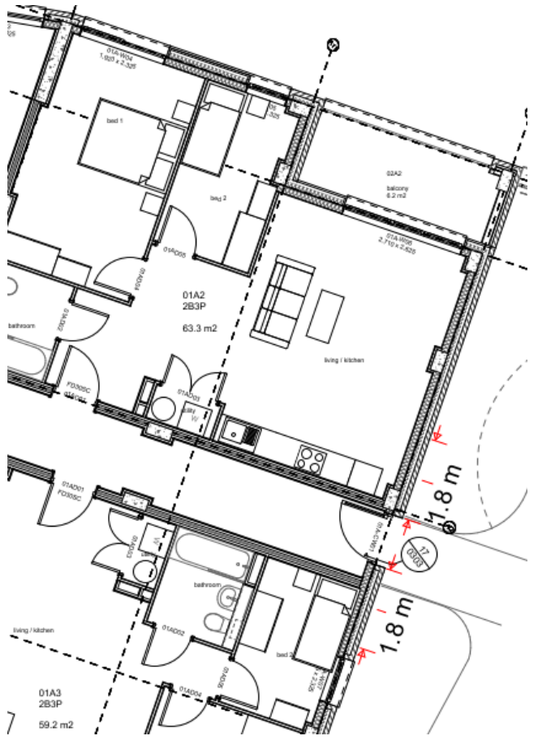


Figure 5: External Walls Adjacent to Escape Routes - Block A – Podium

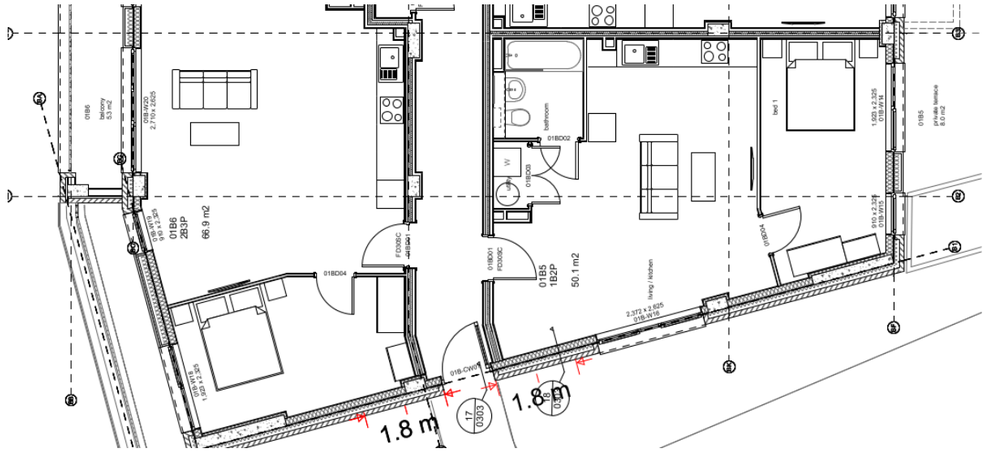


Figure 6: External Walls Adjacent to Escape Routes - Block B – Podium

2.3.37 In Blocks B and E, the escape doors from the communal roof gardens also have a window within the 1.8m distance, see Figure 7 and Figure 8 below. However, technically the accommodation either side of the escape route is all sterile as its part of the corridor occupants would escape into, therefore accommodation within 1.8m is part of the protected sterile corridor and core. For this reason, it is considered acceptable to omit the fire resistance to the external wall to these areas.

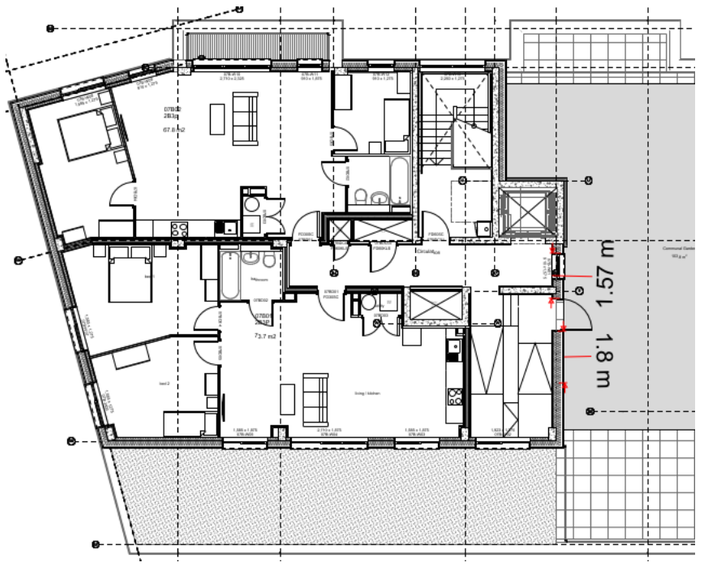


Figure 7: External Walls Adjacent to Escape Routes - Block B - Communal Roof Garden

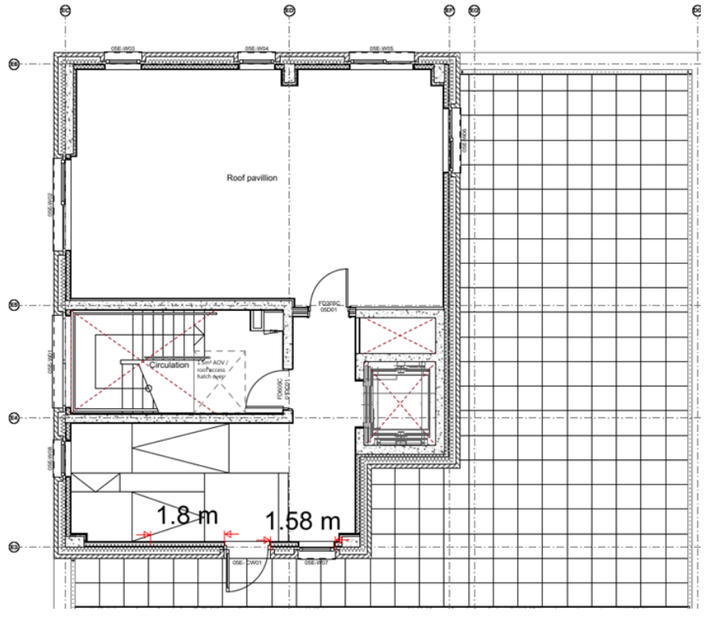


Figure 8: External Walls Adjacent to Escape Routes - Block E - Communal Terrace

Means of Escape – General Requirements

2.3.38 Doors serving more than 60 occupants should swing in the direction of escape. Note: that as the residential levels operate on a stay-put evacuation strategy, the number of occupants expected to use the stair from those levels is limited to a single apartment. The exception to this is areas such as the roof terraces or commercial areas, these are discussed in section 2.3.27.

2.3.39 The minimum clear width for a door acting as an escape door is 750mm. This requirement is exceeded by the access and circulation requirements of Approved Document M, which are not covered within the scope of this document.

2.3.40 Door widths within the scheme should be measured in accordance Figure 9.

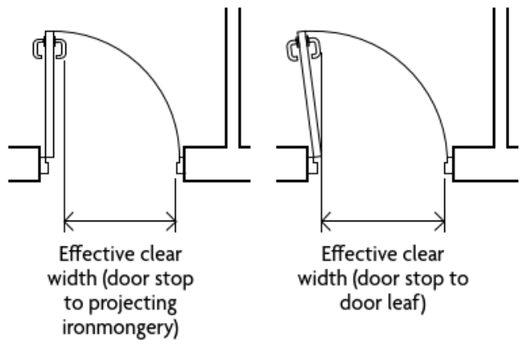


Figure 9: Measurement of Door Widths

2.3.41 Any access control or other door locking mechanisms incorporated within the design of the building should not adversely affect the ability of occupants to escape from the building. Where locking mechanisms are provided to doors on common escape routes they should be simple fastenings that are easy to operate from the escape-side without the use of a key or more than one mechanism.

2.3.42 If electronic locking mechanisms are provided, they should revert to the unlocked position in any of the following situations:

- The fire detection and alarm system operates; or
- There is a loss of power or system error; or
- The security mechanism override, such as a Type A call point in accordance with BS 7273-4 (Green Break Glass) is activated.

2.3.43 Doors should open to an angle of not less than 90°, be provided with vision panels as required by Approved Document K and should be located such that opening the door does not reduce the effective width of any escape route.

2.4 Vertical Means of Escape

Blocks A, B and D

2.4.1 In accordance with BS 9991, in buildings exceeding 18m in height, one or more common stairs should be designed as fire-fighting stairs forming part of a firefighting shaft. Blocks A, B and D all have a top storey over 18m from Fire Service access level and so should be designed with a designated fire-fighting stair. As all Blocks are served by a single stair, they will be required to be designed as a fire-fighting stair. Those stairs designed as fire-fighting stairs should have a minimum clear width of 1100mm. This is achieved on the plans for Blocks A, B and D. Wider stairs may be required from an accessibility standpoint. It should be noted that adherence to Part M requirement is beyond our scope and should be reviewed by the architect.

2.4.2 In accordance with BS 9991 a stair serving residential accommodation should discharge directly to the outside air or via a protected exit corridor. This is achieved on the plans for Blocks A, B and D.

2.4.3 For Block B, the stair also serves as an escape from the communal roof garden. As such, the final exit from the stairs should be at least as wide as the stair they serve and open in the direction of escape. For the fire-fighting stairs, the final exit from the stair should have a minimum clear width of at least 1100mm but may need to be greater if the stair width increases from an accessibility standpoint.

2.4.4 The firefighting stairs should be kept free from fire load and should not provide access to any services/risers other than installations associated with the firefighting stair/shaft. It has been advised by Winvic that the client has confirmed that these areas will in fact be kept sterile. Carpet is proposed to the areas, however it has been confirmed by Winvic that sprinkler coverage will be provided to the full stair landings.

2.4.5 External walls at an internal angle to firefighting shaft should be fire-resisting to 120-minute standard. This applies to the ground floor of Block A, see Figure 10 below.

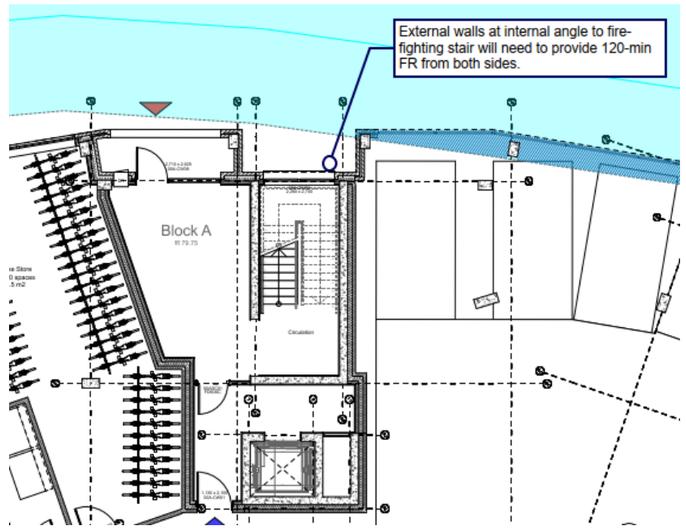


Figure 10: External Walls at an internal angle to Fire-Fighting Shaft

Block E and Block F Apartments

2.4.6 The stair in Block E and the stair provided to the Block F apartments should be protected stairs, enclosed in fire resisting construction achieving no less than 60 minutes and fitted with FD30s fire doors.

2.4.7 As detailed above, in accordance with BS 9991 a stair serving residential accommodation should discharge directly to the outside air or via a protected exit corridor. The stair in Block E is provided with a protected exit passageway which leads to external and the stair to the Block F apartments discharges direct to external. As these areas form part of the protected escape routes, they should be kept sterile.

2.4.8 The clear width of the stairs is measured at approximately 1070mm for Block F apartments and 1100mm for Block E. Provided the stairs are designed to meet the requirements of Part M for general circulation, it is deemed to be sufficient to serve as an escape route for residential accommodation as the blocks operate on a stay-put policy.

2.4.9 As the final exit doors from the stairs serve as an escape route from the communal roof garden areas, the doors should open in the direction of escape. This is applicable to both Blocks E and Block F apartments. For Block E, if it is anticipated that the exit door from the stair is likely to be used by more than 60 persons, then in addition to opening in the direction of escape, the door should be at least as wide as the stair it serves.

Block C and Block F Townhouses

2.4.10 Each townhouse is afforded its own protected stair due to having a floor above 4.5m in height. Townhouse Stairs are to be enclosed in fire resistant construction achieving a minimum of 30 minutes complete with 30-minute fire rated doorways.

2.4.11 The stair widths and final exit widths within the townhouses are deemed acceptable due to the low envisioned occupancy making their escape.

2.5 Evacuation of Non-Ambulant Occupants

Residential Accommodation

2.5.1 There is no approved guidance that provides advice on the evacuation of non-ambulant occupants from residential buildings. This is primarily due to the lack of onsite management in residential buildings in comparison to commercial buildings. As there would be no on-site staff to assist non-ambulant residents in evacuating the building in the event of a fire within their dwelling, residential buildings are designed to facilitate self-evacuation with no reliance on onsite management as far as is reasonably practicable.

2.5.2 The safety features required within residential buildings accommodate this approach via a high degree of compartmentation and the provision of smoke ventilation which should work in tandem to prevent fire spreading from the room of origin, with the smoke ventilation systems clearing any smoke that leaks from the fire room. This is to allow the building to remain in normal operation provided that the fire safety systems within the building operate as designed.

2.5.3 To allow wheelchair users and other non-ambulant residents to make a dignified escape from the building, the lift should only descend to lowest unaffected level in the event of a smoke detector activating within the lift shaft.

Ancillary Accommodation

2.5.4 The responsibility for safe evacuation of any persons needing assistance falls on the management. As part of RR(FS)O, specific fire evacuation policies and procedures should be developed such as Personal Emergency Evacuation Plans, accounting for a wide spectrum of persons who may be present.

2.5.5 It has been confirmed that the communal roof gardens in Blocks B and E and the private amenity space provided on the roof to the Block F apartments are for occupant's use only and as such there is no requirement for disabled refuges to be provided at these levels.

2.5.6 Means for dignified escape need to be provided for all occupants of the building, therefore further consideration with the design team is needed on how to best achieve this for the communal roof gardens of Blocks B, E and Block F apartments. With regards to Block F apartments, Winvic have confirmed that Block F has no disabled access and so it is not expected disabled occupants would use the private amenity space located on the top floor. For Blocks B and E, the lifts are proposed to serve the communal gardens/roof pavilion levels. The roof gardens could be occupied by residents and their guests in a similar way to the occupation within the individual dwellings. As such, it is proposed for the lift to remain in use to allow wheelchair users and other non-ambulant residents to make a dignified escape from the building. The lift should only be recalled in the event of a smoke detector activating within the lift shaft.

2.6 Smoke Ventilation Systems

Summary of Required Systems

Blocks A, B, D and E

2.6.1 The stairs of Blocks A, B, D and E should be provided with an AOV at the head of the stair achieving 1.0m^2 geometric free area, or 0.7m^2 aerodynamic free area, with the top of the AOV being higher than the top of the door into the stair. The AOV at the head of the stair will activate on smoke detection in any of the common parts of the blocks.

2.6.2 Smoke ventilation for the corridors will be provided via 1.5m^2 natural smoke shafts or 1.5m^2 AOV direct to external. Further information on AOVs and natural smoke shafts is provided in section 2.6.4 below.

2.6.3 The lobby/corridor smoke shaft and ventilation provisions for the ground floor and typical upper floors of the blocks have been highlighted in Figure 11 to Figure 18.

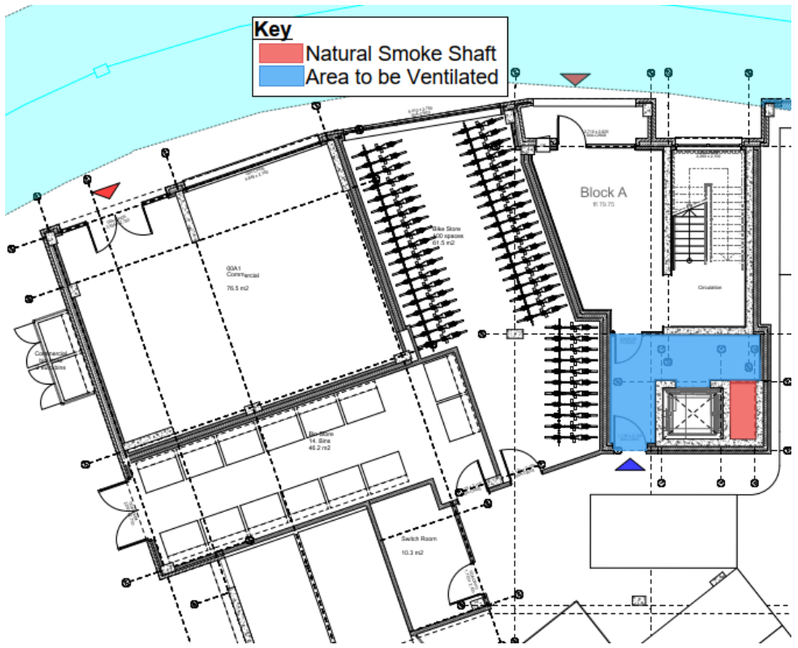


Figure 11: Ground Floor Ventilation Arrangement - Block A

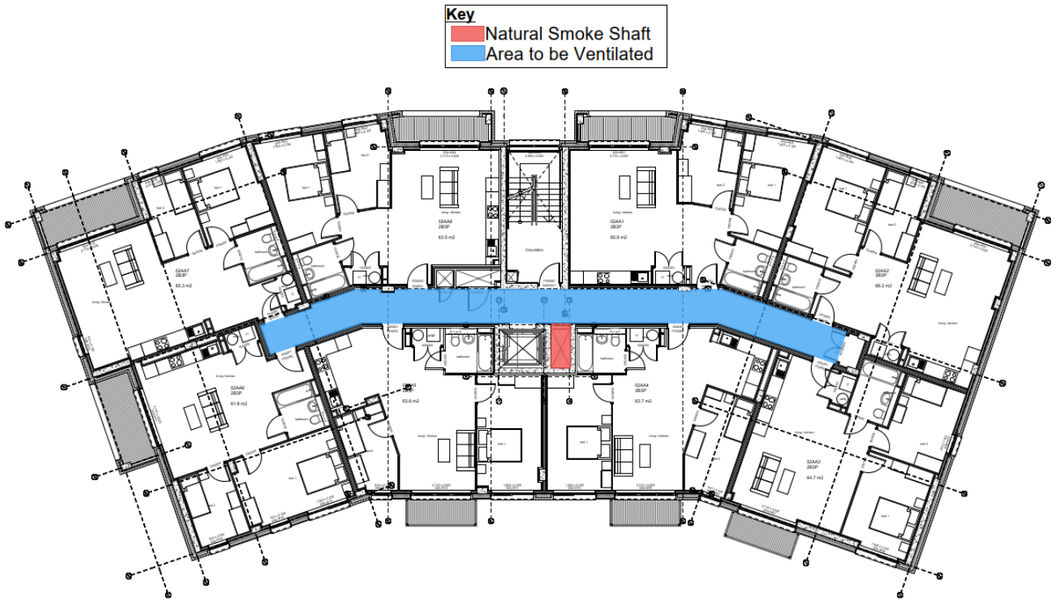


Figure 12: Typical Upper Floor Ventilation Arrangement - Block A

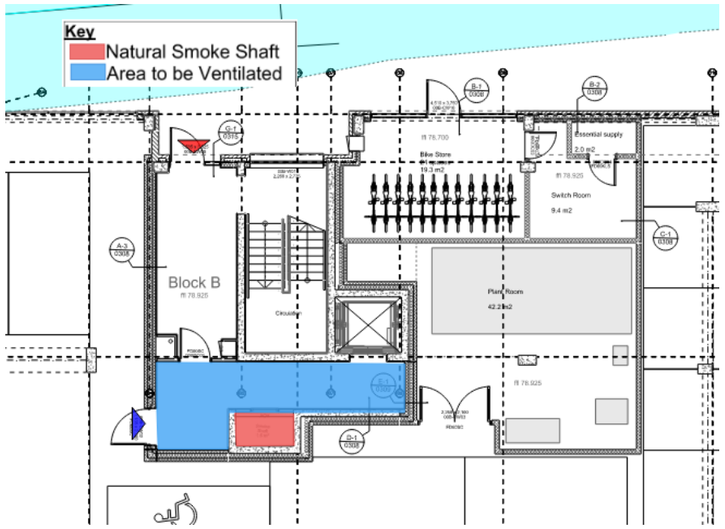


Figure 13: Ground Floor Ventilation Arrangement - Block B

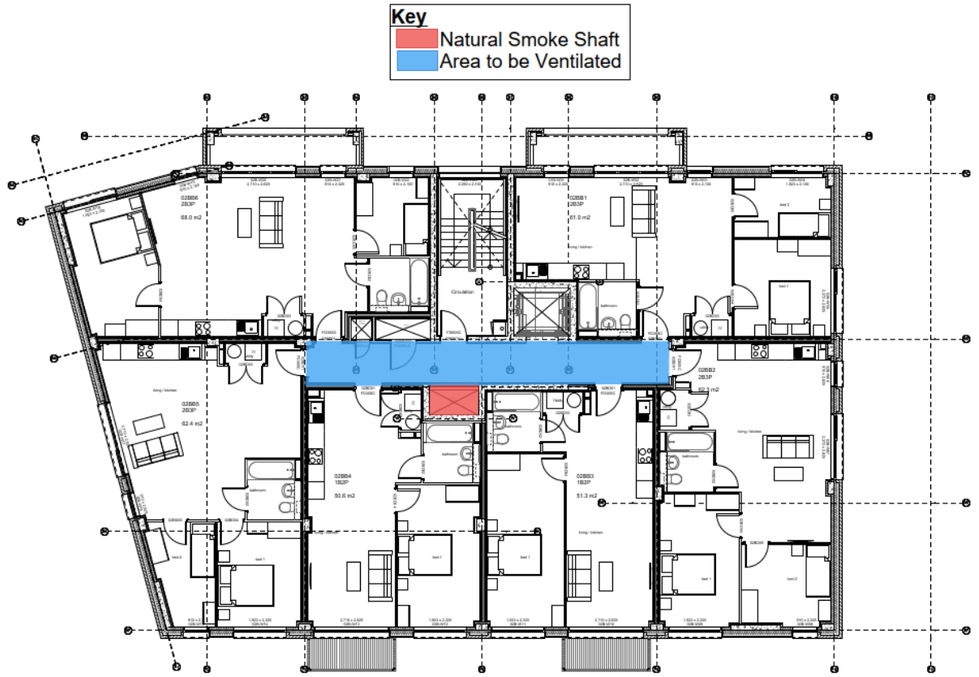


Figure 14: Typical Upper Floor Ventilation Arrangement - Block B

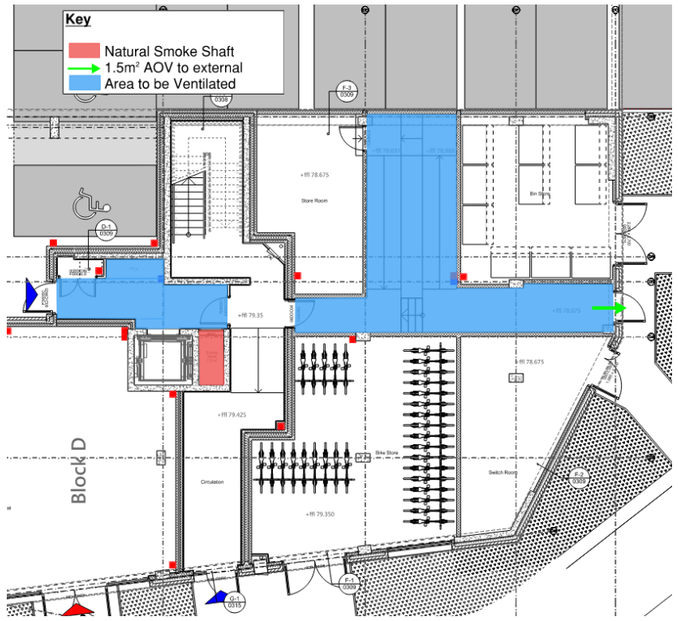


Figure 15: Ground Floor Ventilation Arrangement - Block D

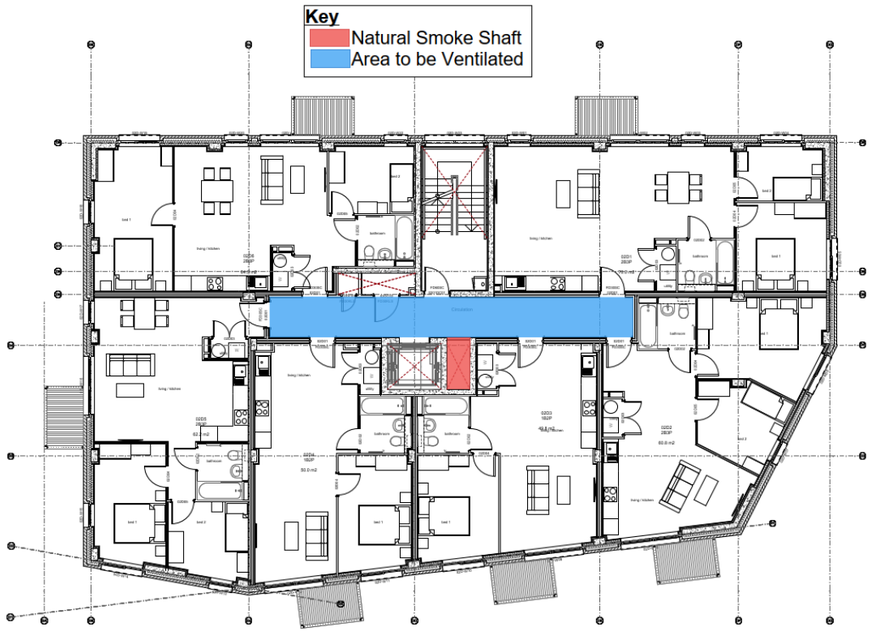


Figure 16: Typical Upper Floor Ventilation Arrangement - Block D

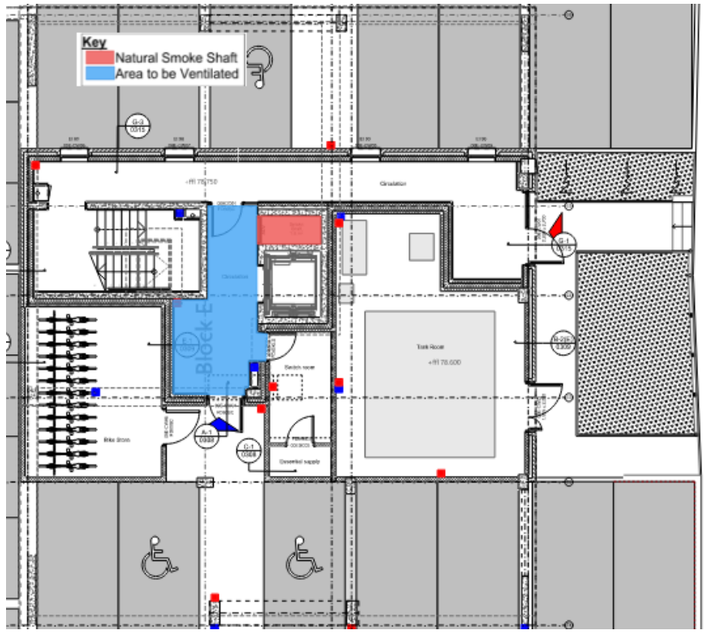


Figure 17: Ground Floor Ventilation Arrangement - Block E

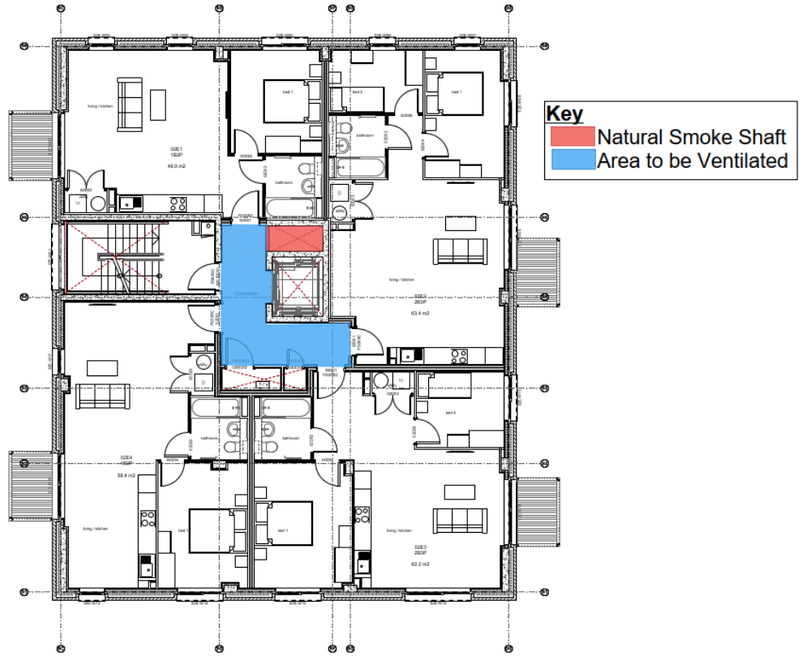


Figure 18: Typical Upper Floor Ventilation Arrangement - Block E

Natural Smoke Shaft

2.6.4 Natural Smoke shafts should meet the following design criteria:

- The smoke shaft should be fully open to the external air at the top and closed at the base.
- The shaft should extend a minimum length of 2.5m above the ceiling of the highest storey which is served by the shaft and 500mm over any structure within 2m horizontally of the shaft at roof level, see Figure 19 below.
- The cross-sectional area (free area) of the smoke shaft should be at least 1.5m^2, with a minimum dimension of 0.85m in any direction. This appears to have been achieved on the plans.
- The lobby or corridor vent, the opening at the head of the shaft and all internal locations (such as safety grilles) within the shaft should have a free area of at least 1.0m^2.
- The top of the lobby vent should be located as close to the ceiling of the lobby as is practicable and should be at least as high as the top of the door connecting the lobby to the stairwell. The lobby vents, in the closed position, should either:
    1. Have a minimum fire fire-resistance equal to the rating of the shaft that they are situated in and a leakage rate no greater than 360 m^3/h/m^2 when tested in accordance with BS EN 1366-2; or
    2. Be in accordance with BS EN 12101-8.

- The smoke shaft should be constructed either of non-combustible materials conforming to BS 476-4 or of any material which, when tested in accordance with BS 476-11, does not flame or cause any rise in the temperature on either the centre of the specimen or the furnace thermocouples. Alternatively, smoke shaft should be constructed out of materials achieving Class A1 to BS EN 13501-1. No GRP or combustible materials (plasterboard rated less than A1) used as grilles to prevent falling are permitted.
- The smoke shaft should run vertically from top to bottom with no more than 4 m of the shaft at an inclined angle (max 30°).
- No services other than those relating to the smoke shaft should be contained within the smoke shaft.
- The smoke shaft should be located at the remote end of the corridor away from the staircase, where possible. This is not the case on the current plans which show the smoke shafts for the stairs in Blocks A, B, D and E located directly opposite to the stair core. However, due to the layout of the floors of the blocks it is considered that it is not possible to locate the smoke shaft remotely such that both sides of the stair core would be beneficially served (i.e. smoke be pulled away from the stair door). In addition, the blocks are to be provided with a sprinkler system so the amount of smoke and heat produced will be relatively low in comparison to a non-sprinkler-protected fire. Based on CFD modelling carried out on a multitude of smoke shaft locations across similar corridors, it was found that natural shafts performed better at protecting the stair from smoke ingress when they were located closer to the stair door. Details of the CFD modelling carried out have been provided in Appendix B *–Natural Shaft Location Study – CFD Analysis.* Although this is contrary to the recommendations of prescriptive codes, the primary objective of a smoke ventilation system in a residential building is to prevent smoke ingress to the stair. Therefore, the locations of the shafts are considered to meet the functional requirements of the Building Regulations. The CFD analysis has been agreed with Salus Building Control.

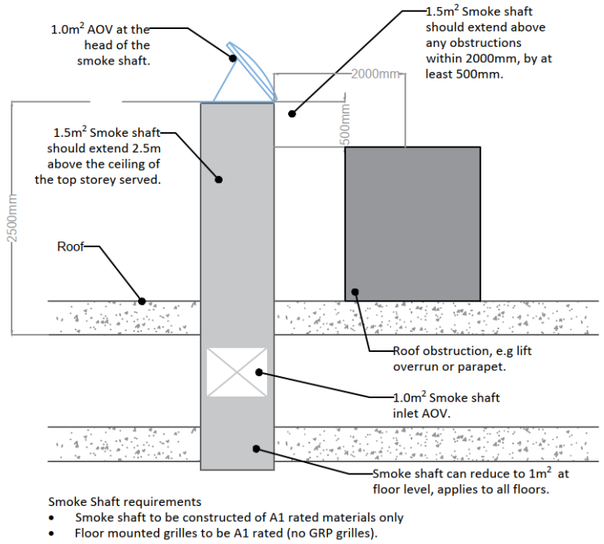


Figure 19: Natural Smoke Shaft

Block F Apartments

2.6.5 The escape stair to the apartments should be provided with 1.0m² AOV at the head. The open air private amenity area on the roof will be provided with sounders and visual display units. The warning devices should be linked to the detection within the common lobbies and stairs. Detection will also activate the AOV. The ventilation provisions for the block have been highlighted in Figure 20 below. The AOV location should be confirmed as a suitable location by others.

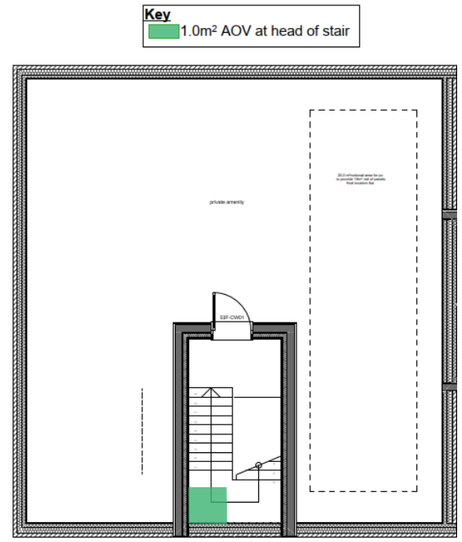


Figure 20: Block F - Ventilation Provisions

Block C and Block F townhouses

2.6.6 No ventilation provisions are required to the townhouses.

Automatic Openable Vents (AOV)

2.6.7 AOV's fitted at the head of a stair should achieve a free area of 1.0m² geometric free area, or 0.7m² aerodynamic free area.

2.6.8 Where AOV's are used as a primary means of ventilation from a common escape route, the vents should:

- Be outward opening
- Not be top hung
- Open a minimum of 30°
- Be clearly identifiable and accessible

2.6.9 AOVs should be located as close to the ceiling of the area served and should be at least as high as the top of the door connecting the corridor/lobby with the stair.

2.6.10 All AOV vents used within this project should be tested to BS EN 12101-2.

Other Ventilation - Car Parks

North Site

2.6.11 Blocks A and B are provided with a shared covered car park having an area from the plans provided of 2133.7m^2. The covering also adjoins to Block C.

2.6.12 In accordance with section 11.2 of ADB Volume 2 in order to be classed as an open sided car park, the aggregate vent area must be a minimum of 1/20 of the floor area, at least half of which is provided equally by two opposite walls (1/160 on each side).

As per the below:

Car park area = 2133.7m^2

1/20 of car park area = 107m^2

1/160 = 27m^2

2.6.13 Therefore, 27m^2 vent area should be provided on opposing walls (each wall achieving 27m^2) and the remaining 54m^2 can be distributed where possible.

2.6.14 The car park ventilation drawing as prepared by the client for the North Site is included in Appendix C –, which shows the extent of the covered car park and the free area available to the car park which is 313m^2. As such, there is sufficient free area available to achieve the requirements above.

South Site

2.6.15 Blocks D and E are provided with a shared covered car park having an area from the plans provided of 799.7m^2.

2.6.16 In accordance with Section 11.2 of ADB Volume 2 in order to be classed as an open sided car park, the aggregate vent area must be a minimum of 1/20 of the floor area, at least half of which is provided equally by two opposite walls (1/160 on each side).

As per the below:

Car park area = 799.7m^2

1/20 of car park area = 40m^2

1/160 = 10m^2

2.6.17 Therefore, 10m^2 vent area should be provided on opposing walls (5m^2 on each wall) and the remaining 20m^2 can be distributed where possible.

2.6.18 The car park ventilation drawing as prepared by the client for the South Site is included in Appendix C –, which shows the extent of the covered car park and the free area available to the car park which is 220m^2. As such, there is sufficient free area available to achieve the requirements above.

Other Ventilation – Lobbies

2.6.19 In accordance with 14.1.6 of BS 9991, 0.4m^2 permanent ventilation to the lobby adjoining car park from stair should be provided. This is applicable to Blocks A, B, D and E. However, for Blocks A and B it is considered that there is sufficient free area to the car parks that the lobby ventilation would be rendered inefficient and therefore it is proposed to omit the 0.4m^2 permanent ventilation. The stair will still be protected from the car park by a protected lobby provided with smoke ventilation equivalent to the corridor levels above, i.e., a 1.5m^2 natural smoke shaft.

2.6.20 With regards to Blocks D and E, the free vent area of the car park significantly exceeds the minimum requirements to be considered open-sided, therefore a single lobby as provided is considered acceptable, which will be provided with smoke ventilation equivalent to the corridor levels above, i.e., a 1.5m^2 natural smoke shaft.

2.6.21 In Block A, due to the undercroft car park arrangement, the refuse store is provided with an internal access point and therefore should be provided with a permanently ventilated lobby. However, as per the justification above, it is considered that there is sufficient free area to the car park that the lobby ventilation would be rendered inefficient and therefore an additional lobby will not be provided.

2.7 Emergency Signage

2.7.1 Emergency escape signage should be provided above every doorway or other exit that provides access to a means of escape, unless that exit is in ordinary use (e.g. the main entrances and primary circulation space). As such, there is generally no Building Regulations requirement to provide emergency escape signage within single stair residential buildings as all residents will be familiar with the escape routes. However, when considering this development, as the building adopts a fire engineered solution for vertical means of escape, emergency signage should be provided.

2.7.2 Note, exit signage should be provided as per recommendations of BS ISO 3864-1 and BS 5499-4 to non-residential ancillary accommodation. The following recommendations are intended to assist evacuating occupants in predicting the location of emergency signage along escape routes:

- Signs above doors or open spaces should be mounted between 2m and 2.5m from floor level, measured to the base of the sign and be sited as close to the centre line of the escape route as practicable.
- Signs sited on walls should be mounted between 1.7m and 2m from floor level to the base of the sign.
- Signs should be sited at the same height throughout the escape route, so far as is reasonably practicable.

2.7.3 Emergency escape signage should be provided above every doorway or other exit that provides access to a means of escape, unless that exit is in ordinary use (e.g. the main entrances and primary circulation space). The following recommendations should be adopted:

- At least one escape route or doorway leading onto another escape roues should be visible from all points within every room or enclosure. If this is not achievable, additional signage should be provided where no direct field of vision onto the escape route is available. Where a single door is provided, no escape signage is required (as there is only one route to use for escape).
- Escape route signage takes precedence over all other signage provided in the building.

- All changes of direction in corridor, stairways and open spaces forming part of an escape route should be marked with intermediate signage. Any intermediate door or junction should also be signed appropriately.
- Exit signage should not be fixed directly to doors or located in a way that its visibility is obstructed by open doors.

2.8 Emergency Lighting

2.8.1 As per the recommendations of BS 9991, emergency escape lighting will need to be provided within main escape routes (stairs, lobbies, common corridors, external escape routes).

2.8.2 All emergency lighting should conform to recommendations of BS 5266-1 and BS EN 1838 which provides further guidance on the provision of emergency lighting. The below list provides recommendations where emergency lighting should be provided:

- Within 2m of each exit door intended to be used in an emergency
- Within 2m of any change in levels including stairs so each flight/level change are adequately illuminated
- Externally illuminated escape route signs, escape route directional signs and other safety signs
- At change of direction of intersection of common escape routes
- Within 2m of each final exit and outside the building to a place of safety
- Within 2m of each MCP
- Within 2m of manual release control units which release electronically operated doors as per recommendations of BS 7273-4

2.8.3 Note, the distance of 2m is an approximation measured horizontally, as stated in BS 5266-1.

2.8.4 Escape stair lighting should be on a separate circuit from the electricity supply to any other part of the escape route.

2.8.5 Emergency lighting needs to be provided with secondary power supply to maintain adequate illumination of an area for no less than 3 hours as per BS 5266-1. It has been advised that this will be achieved through provision of a battery back up to the emergency lighting.

3 Internal Fire Spread (Linings)

3.1 Classification of Wall and Ceiling Linings

3.1.1 To meet the functional requirement of Part B2 of the Building Regulations, the internal linings of a building should adequately resist the spread of flame over their surfaces and if ignited, have a rate of heat release or fire growth which is reasonable for the location in which the lining is. To achieve this requirement, the internal linings of walls and ceilings within the building should meet the classifications given in Table 7.

Table 7: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m^2 (30m^2 for non-residential)	Class D-s3, d2
Other rooms Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

3.1.2 For the purposes of Table 7, the definition of a wall includes glazed screens and the internal surfaces of external glazing, and any part of a ceiling that slopes at an angle greater than 70° to the horizontal. Doors, door frames, frames for glazing (e.g. windows or screens), fitted furniture or narrow members such as architraves, skirtings, coving etc. do not need to achieve the requirements stated in Table 7.

3.1.3 Parts of walls in rooms may be of lower performance that stated in Table 7; however, they should be no worse than Class D-s3,d2. The total area of the lower performance wall lining should be equivalent to less than half the total floor area of the room, up to a maximum of 20m^2. Note that this relaxation is not permitted for ceiling linings.

3.2 Classifications of other Internal Surfaces

3.2.1 The flights and landings of common escape stairs should be constructed of A2-s3,d2 rated materials, as classified to BS EN 13501.

3.2.2 A1 rated materials, as classified to BS EN 13501, should be used in all of the following situations:

- Ladders forming part of an escape route in ancillary accommodation identified as higher fire risk;
- As a sleeving where a pipe penetrates a compartment wall or floor;
- Walls of a flue that penetrates a compartment floor or wall;
- Construction of smoke shafts
- Construction of bin stores
- Construction of stairs

3.3 Service Zones

3.3.1 All cables should be supported via non-combustible materials that can maintain the circuit integrity to the same degree as the cable it supports, i.e. cable fixings should be able to withstand exposure to similar temperatures and durations of fires to that of the cable whilst still providing support.

3.3.2 In accordance with BS 9991, wherever practicable, services should not run within common access corridors or should be run in fire-separating construction or in a secured fire-resisting method. As an alternative to running horizontal services within fire-resisting construction, it is proposed that following control measures provide an acceptable level of protection above common access corridors:

- Electrical connections should not be located within the ceiling void unless essential to the corridor, e.g. lighting.
- All exposed surfaces within the ceiling void (i.e. the top of the ceiling, soffit of the floor above and vertical enclosures to the ceiling) must achieve a Class A2-s3,d2 reaction to fire rating or better; and
- Any pipe insulation within the ceiling void should achieve a Class A2-s3,d2 reaction to fire rating or better; and
- Any other materials within the ceiling void not listed above should achieve a Class A2-s3,d2 reaction to fire rating or better.

4 Internal Fire Spread (Structure)

4.1 Fire Resistance Nomenclature

4.1.1 The periods of fire resistance given within this section may refer to one or more specific performance criteria for fire-resistance. Any period of fire resistance given within this section will be clearly defined with regard to the specific fire resistance criteria it must achieve. A definition of each criterion has been provided below, with the European equivalent letter code given in brackets:

- Loadbearing Capacity (R): The ability to resist collapse due to loss of structural strength caused by exposure to fire.
- Integrity (E): The ability to prevent flames or hot gases from physically passing through the fire-resisting element.
- Insulation (I): The ability to prevent a large rise in temperature on the non-fire-exposed side of the fire-resisting element.
- Radiance (W): The ability to prevent a large degree of thermal radiation being emitted from the non-fire-side of the fire-resisting element.
- Smoke Leakage (Sa): The ability to prevent smoke flowing through the fire-resisting element.

4.2 Structure

4.2.1 Buildings should be designed and constructed such that, in the event of a fire, the building will remain stable for a reasonable period of time. This is achieved by providing an adequate level of fire protection to all loadbearing elements of structure within a building.

4.2.2 It is understood that all Blocks A, B, D and E will comprise of a concrete structure with a mixture of rainscreen cladding and brick outer skin. Blocks C is a mixture of steel and timber structure, with masonry brick/block cavity wall construction. Block F will be of masonry brick/block cavity construction.

Blocks A, B and D

4.2.3 Blocks A, B and D are more than 18m but less than 30m in height when measured from the lowest adjacent ground level to the topmost occupied storey (see Figure 2 for individual block heights), therefore all elements of structure should achieve a fire resistance period of 90 minutes for Loadbearing Capacity (R 90). Note, that elements of structure supporting Firefighting shafts should be provided with an applied fire protection of 120-minutes (R 120).

4.2.4 As the sprinkler system to the building will provide a 60-minute water supply duration, Table 4 of BS 9991 permits a reduction in the level of structural fire resistance from 90-minutes to 60-minutes. Where applicable the reduced level of fire resistance is included in Table 8 of this report below (see section 4.4) based upon the sprinkler protection provided. Structural fire reduction cannot be applied to elements of structure supporting the firefighting shafts so these will remain at R 120.

4.2.5 The period of fire resistance stated refers to the required performance of the structural elements that needs to be achieved, when tested in accordance with appropriate parts of BS 476, depending on the type of structure, for loadbearing members of the building's structure.

4.2.6 Provided that the commercial units are also provided with appropriate sprinkler protection, the reduction in the level of structural fire resistance from 90-minutes to 60-minutes may be applied to the commercial units also. See section 4.3 for further information on the commercial unit sprinkler provisions.

Blocks C, E and F

As the blocks are over 5m in height but less than 18m in height when measured from the lowest adjacent ground level to the topmost occupied storey (see Figure 2 and Table 2 for individual block heights), 60 minutes fire-protection (R 60) will be required to all elements of structure.

4.3 Automatic Water Fire Suppression System (AWFSS)

Blocks A, B and D

4.3.1 Blocks A, B and D all exceed 11m in height (all blocks in excess of 18m in height, see Figure 2 for specific building heights for each block) and should therefore be provided a suitable automatic water fire suppression system (AWFSS) for compliance with Building Regulations.

4.3.2 All parts of the residential accommodation should be provided with a BS 9251:2021 sprinkler system, including the common escape routes. Allowance should be made for a Category 4 system (60-minute water supply, secondary pumps, secondary power supplies, split tank with each tank capable of storing 50% of the required water supply for the sprinkler system).

4.3.3 The residential sprinkler system can be extended to the ancillary areas providing no one protected area exceeds 100m^2, however, these areas will require an uplift as per section 5.4. & 5.5 of BS 9251:2021.

4.3.4 The commercial unit of Block A is less than 100m^2 (measured as 76m^2), and so can be covered by the residential sprinkler system with additional enhancements. The sprinkler connection point shall be extended into and capped in the commercial shell ready for future fitout. The fit-out of the shell will be subject to a separate Building Regulations application and these requirements shall need to be incorporated by the fit-out team as part of the wider building fire strategy. The proposals have been agreed with Building Control.

4.3.5 Where areas or compartments are greater than 100m^2, BS 9251:2021 recommends that a BS EN 12845 system is adopted.

4.3.6 The commercial unit of Block D exceeds 100m^2 (measured as 108m^2). However, due to site constraints and the additional space required to accommodate the commercial sprinkler plant, a commercial system was not considered feasible. Therefore, an alternative approach has been proposed. The commercial unit is currently designed as a shell and is a single un-compartmented volume. Upon fit-out, the commercial unit shall require to be sub-divided by the tenant with a 60-minute fire-resisting partition (and FD60s fire-resisting door) to subdivide the floor space such that no one compartment exceeds 100m^2 to allow the residential sprinkler system to be extended into the Unit. Winvic have confirmed that the residential sprinkler tank, which is located in Block E, has been designed to allow for the residential sprinklers to be extended into the unit and have increased the sprinkler tanks actual/usable capacity to 39,000L. The sprinkler connection point shall be extended into and capped in the commercial shell ready for future fitout. The fit-out of the shell will be subject to a separate Building Regulations application and these requirements shall need to be incorporated by the fit-out team as part of the wider building fire strategy. The proposals have been agreed with Building Control.

Block C Townhouses

4.3.7 There is no requirement for sprinkler protection to be applied to the townhouses. However, it should be noted that the block adjoins the undercroft parking which connects to Blocks A and B. Therefore, without the provision of sprinklers, the party wall will need to achieve 120 minutes fire resistance (based on the results of the analysis for the North Site Car Park – see section 4.3.14).

Block E

4.3.8 Block E exceeds 11m in height (16.22m as per Figure 2) and should therefore be provided a suitable automatic water fire suppression system (AWFSS) for compliance with Building Regulations.

4.3.9 The residential apartments should be provided with a BS 9251:2021 sprinkler system. Allowance should be made for a Category 2 system with a 30-minute water supply duration. The residential ancillary spaces should be provided with a Category 3 system in accordance with BS 9251. The sprinkler system should also be provided in the common escape routes.

4.3.10 The sprinkler designers commissioning certificate confirms that the system to Block E has been designed to Category 3 standard in accordance with BS 9251.

Block F - Apartments

4.3.11 Due to the open plan nature of the apartments, as per section 9.7 of BS 9991, they should be provided with a category 2 sprinkler system in accordance with BS 9251. The system is required in the apartments only, however Winvic have confirmed that the system will be extended throughout Block F to provide a fully sprinklered block. The sprinkler designers commissioning certificate confirms that the system has been designed to Category 3 standard in accordance with BS 9251.

Block F - Townhouses

4.3.12 In accordance with section 6.4 of BS 9991 (Houses with more than one floor higher than 4.5 m above ground level), each floor of the townhouses above 7.5m will also need to be provided with sprinkler protection. The system should be a minimum Category 1 System (BS 9251) with a 10-minute water supply duration. The system has been designed to Category 3 standard in accordance with BS 9251 which exceeds the minimum recommendations. This enhanced system also assists with hose laying distances for the townhouses (refer to section 6.5).

Block F - Community Use Space

4.3.13 As the area is now below 100m^2, the residential system can be extended to cover this space (with enhancements). This will involve following the recommendations of Section 5.5 and 5.6 of BS 9251. Winvic have confirmed that full sprinkler coverage will be provided to the space and the fit-out will be included as part of Winvic works.

North and South Site Car Parks

4.3.14 Due to the height of the developments, the car parks to both sites would require a commercial sprinkler system designed and installed in accordance with BS EN 12845. A time equivalence analysis has been undertaken to ascertain the level of fire resistance rating required to substitute sprinkler protection with enhanced structural fire protection and compartmentation as outlined in PD 6688. The analysis seeks to demonstrate that the same level of safety can be achieved. The full analysis has been provided in Appendix D –*Time Equivalence Analysis*.

4.3.15 Based on the results of the analysis, for the North Site Car Park, using a 240m^2 free ventilation area provided to the car park and a fire load density of 400MJ/m^2, the analysis gave a time equivalence of 42 minutes. Once the fire safety factor was applied to this, a fire resistance rating requirement of 111 minutes was obtained. This results in a 2-hour applied fire resistance rating to the car park structure, which is uplift in the 90 minutes fire resistance required where sprinklers are provided.

4.3.16 From this analysis, it is considered that the omission of sprinklers to the North Site Car Park is acceptable so long as a 2-hour applied fire resistance rating to the car park structure is achieved. This would require the car park to be fire-separated from all areas by 120 minutes fire-resistance and any elements of structure exposed within the car park to be protected to 120 minutes fire-resistance.

4.3.17 For the South Site Car Park, the results of the analysis show that using a 253m^2 free ventilation area provided to the car park and a fire load density of 400MJ/m^2, the analysis gave a time equivalence of 22.30 minutes. Once the fire safety factor was applied to this, a fire resistance rating requirement of 59 minutes was obtained, which would result in a 1-hour applied fire resistance rating to the car park structure. Evidently this is less than the 90 minutes required with the provision of sprinklers and therefore the omission of sprinklers from the South site Car park can be considered acceptable. However, in order to provide the most robust approach, it is advised that the fire resistance period applied to elements separating the car park and any elements of structure exposed within the car park remains at 90 minutes.

4.3.18 Soffit insulation provided within the car parks should be A2-s1,d0 rated to keep the fire load at a minimum as part of the justification for omitting a BS EN 12845 system in the car park.

BS 9251 Sprinkler System - General Requirements

4.3.19 A compliant BS 9251 system should achieve the following requirements:

- Wet-pipe system permanently charged with water
- Quick response sprinkler heads should be used in accordance with BS 9252
- If cPVC pipework is used, it should be ensured that the fire stopping materials applied around the pipe penetrations do not cause corrosive damage of the pipe
- Fire collars or similar proprietary fire stopping systems designed to crush pipework should not be used on sprinkler pipework.

4.3.20 A sprinkler flow switch should be provided for:

- Every dwelling to signal the activation of the sprinkler system within the dwelling; or
- A sprinkler alarm zone, rather than each individual dwelling, provided the following recommendations are met:
    a) The sprinkler alarm zone should cover no more than a single floor ; and
    b) Sprinkler flow switches should be connected to suitable control and indicating equipment so that a signal is sent to management and an emergency action plan is initiated

4.3.21 BS 9251 recommends that all walls are wet by the sprinkler system. It is not proposed to provide sprinkler heads in close proximity to the firefighting lifts as this could result in the 25mm ramps up to the lift being rendered ineffective, and would result in water ingress to the lift shaft. Sprinklers shall be provided to the

remainder of the corridor but far enough away that the spray pattern won't hit the lift landing doors, which will be subject to the sprinkler specialist design. This shall need to be recorded as a variation on the sprinkler commissioning certification. The above proposal has been agreed with the sprinkler designer and Building Control.

4.3.22 Sprinklers will not be extended to the refuse store within the undercroft car park on the North site. Instead, the refuse enclosure will be upgraded to 120-minutes fire resisting construction. This is considered acceptable on the basis that:

- There is already a 120-minute party wall between the bin store and Block C Townhouses, and the remaining walls to the car park shall be upgraded from 60-minutes (& FD30 door) to 120-minutes (& FD60 door). This level of protection would then equal the performance requirements applied to the undercroft car park, which has separately been assessed and sprinklers omitted based on a time equivalence assessment.
- The bin store isn't directly beneath the residential blocks to further mitigate the risk to the residential aspects of the development.

4.3.23 Sprinkler protection can be omitted from the following areas:

- Bathrooms with a floor area of less than 5m^2 where provided with linings conforming to BS EN 13501-1:2018 Class A1, A2-s3,d2 and B-s3,d2 and which are not prepared for white goods, such as washing machines, dryers, electric showers or water heaters
- Enclosed staircases containing only materials conforming to BS EN 13501-1:2018, Class B-s3 or
- better for construction materials and B(fl) or better for flooring, including sub categories such
- as d0, d1, d2 for construction materials and s1 and s2 for flooring, surface spread of flame and
- constructed as a fire-resistant separation
- Ceiling voids
- Enclosed vertical shafts (e.g. lifts or service shafts) containing only materials conforming to BS EN 13501-1:2018, Class B-s3 or better for construction materials and B(fl) or better for flooring (including sub categories such as d0, d1, d2 for construction materials and s1 and s2 for flooring), surface spread of flame and constructed as a fire-resistant separation.
- Cupboards and pantries in dwellings with a floor area of less than 2m^2 or where the least dimension does not exceed 1m and not prepared for consumer units or electrical equipment (excluding a single light). Note, cleaners cupboards on corridors should be provided with sprinkler protection.
- Uninhabited loft/roof voids attached buildings, such as garages and plant rooms without direct access from within the protected building;
- Crawl spaces
- External balconies permanently open to the outside

4.4 Compartmentation

Compartment Walls and Floors

4.4.1 A summary of the compartment wall and floor requirements for the Blocks has been provided in Table 8. As each of the Blocks provide residential accommodation, all floors within the buildings are to be constructed as compartment floors. Note that where one wall falls into more than one of the below categories, the higher rating should be applied.

Table 8: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240	REI 240
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks E and F Apartments)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B, E and D)	60	REI 60
Commercial Unit (Blocks A & D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls < 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing & integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Block C Refuse Store	120	REI 120
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and accommodation (Blocks A, B & C)	120	REI 120
Walls between undercroft and accommodation (Blocks D, E & F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential & non-residential) (Blocks A & D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

**: 'R' rating applies to load-bearing elements only*

4.4.2 Where the risers are fire-stopped at floor level service shafts only need to achieve the fire-resistance of the surrounding walls.

4.4.3 Compartment walls should be continued up to the underside of the floor above or through to the underside of the roof.

Fire Doors

4.4.4 A summary of the fire door requirements has been provided below in Table 9. Fire doors should typically achieve a rating of half of the wall that they are fitted, rounded up to the next largest 30-minute interval. Any access panels fitted in floors/ceilings should achieve the same rating as the floor/ceiling that they penetrate.

4.4.5 Note that where one door falls into more than one of the below categories, the higher rating should be applied.

Table 9: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	As per the rating of the wall it is fitted in		Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	As per the rating of the wall it is fitted in		Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD 30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD 60S	E 60Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 60S	E 60Sa	Self-closing
Block C Refuse Store	FD 60	E 60	Self-closing
Cleaners Cupboard	FD 30S	E 30Sa	Door to be kept locked shut

4.5 Automatic Hold-Open Devices

4.5.1 Where automatic hold-open devices are to be installed in the development, it is essential that these hold-open devices release automatically in activation of the fire detection system and failsafe to release the door in the event of a power failure. These hold open devices should comply with BS 5839 Part 3. Such devices should not be installed to stair doors.

4.6 Protection of Openings and Fire Stopping

4.6.1 Fire stopping is required to prevent the performance of fire-separating elements from being impaired by joints, imperfect fits and openings for services. A variety of fire stopping methods are available for different types of penetrations. This section summarises the standard fire stopping approach for various penetrations.

4.6.2 Pipes passing through fire-separating elements should be provided with a tested proprietary sealing system, such as an intumescent fire collar or sleeve wherever the internal pipe diameter exceeds the dimensions given in Table 10. Where the internal pipe diameter is less than the dimension given in Table 10, the penetration may be fire stopped with an appropriately tested intumescent mastic or cement mortar around the pipe only provided that the annular zone around the pipe is kept as small as possible.

4.6.3 There are two main approaches for fire stopping of vertical service risers within a building:

- Option 1: Risers should be designed with a continuous fire resisting protection when penetrating via a compartment floor, enclosing the riser with adequate fire resistance. The fire resistance of the riser enclosure should be the same or higher to the fire resistance provided to the compartment floors and/or structure it breaches. All penetrations through vertical fire protection of service risers will need to be fire stopped achieving the same fire resistance as the wall they penetrate. Note, no floors are required within encased vertical service risers; however, access grilles or other means to prevent falling may be required; or
- Option 2: Risers should be fire stopped at floor level, achieving the same fire resistance as the compartment floor they penetrate through. All penetrations through horizontal fire protection of service risers will need to be fire stopped achieving the same fire resistance as the wall they penetrate. In this instance the walls of the riser should achieve the fire-resistance requirements of the surrounding walls.

4.6.4 Additional methods of fire-stopping pipes are given within prescriptive guidance, such as sleeving pipes with high melting point metals for 1m either side of the penetration, or enclosing drainage or water supply stack pipes in a separate fire-resisting riser. However, due to the onerous buildability impact that these methods have, Orion Fire Engineering recommend using a proprietary sealing system in any situation where the internal diameter of a pipe exceeds the dimensions given in Table 10.

4.6.5 The client has confirmed that Option 1 is to be adopted, that is that risers will be designed as a continuous shaft with the riser being enclosed with adequate fire resistance.

4.6.6 Examples of typical fire stopping arrangements can be seen in Figure 21 and Figure 22 for compartment walls and floors.

Table 10: Maximum Internal Diameter of Pipes not Fitted with a Proprietary Seal

Situation	Pipe Material and Maximum Internal Diameter (mm)		
	High Melting Point Metal[1]	Lead, aluminium, aluminium alloy, uPVC[2], fibre cement	Any other material
Structure (but not a wall separating buildings) enclosing a protected shaft that is not a stair or a lift shaft	160	110	40
Any other situation	160	40	40

[1] Any metal (such as cast iron, copper or steel) which, if exposed to a temperature of 800°C, will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe

[2] uPVC pipes that comply with either BS 4514 or BS 5255

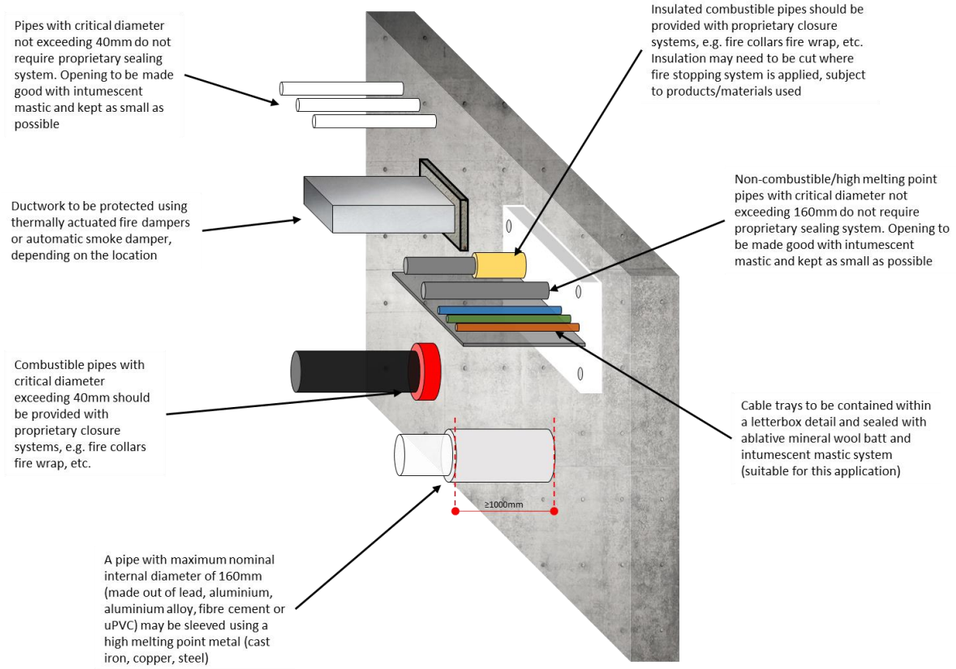


Figure 21: Example of Fire Stopping Methods – Compartment Wall

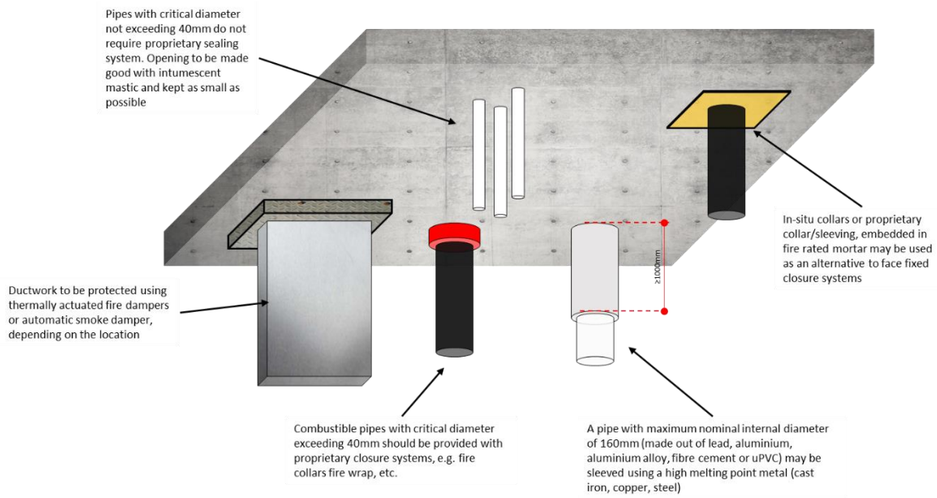


Figure 22: Example of Fire Stopping Methods – Compartment Floor

HVAC Systems

4.6.7 Ductwork should not provide a passage for fire and smoke to bypass compartment boundaries. Wherever ductwork passes through a fire-separating element it should be provided with a fire damper or fire and smoke damper. Table 11 below provides a summary of the required locations for both fire dampers and fire and smoke dampers.

4.6.8 Note that where one location can be categorised as more than one of the situations listed in Table 11, the higher rating should be applied.

Table 11: Fire Damper and Fire and Smoke Damper Locations

Ductwork Route		Thermally Actuated Fire Damper	Automatic Smoke Damper
From	To		
Floor	Floor		X
Apartment	Any other Space		X
Ancillary Room	Ancillary Room	X	
Ancillary Room	Common Escape Route		X

4.6.9 Thermally actuated fire dampers as well as automatic smoke dampers should confirm to BS EN 15650, be tested in accordance with BS EN 1366-2 and classified in accordance with BS EN 13501-3. Thermally actuated fire dampers will need to achieve the same fire resistance as the fire resisting element they are fixed in, subject to a minimum classification of E (integrity) of 60 minutes. Automatic smoke dampers will need to achieve the same fire resistance as the fire resisting element they sit in, subject to a minimum integrity and smoke rating (ES) of 60 minutes.

4.6.10 Smoke/heat/multi detectors and automatic release mechanisms used for activation of fire damper and/or automatic smoke damper, should conform to BS EN 54-7 and BS 5839-3 respectively.

4.6.11 Where ductwork exhausts terminate at an external wall, it should be sited away from any escape routes and final exits. Where the ductwork exhaust point terminates at an external wall/roof or is in close proximity to a final escape route, it should be surrounded by materials achieving a Class A2-s1,d0 or better.

4.6.12 Both thermally actuated and automatic fire dampers should be securely fixed and sited within the thickness of fire-resisting wall/floor. Also, in a fire condition, the damper needs to be sited so that in the event of ductwork expansion due to heat, the damper stays in its designated position.

4.6.13 Where dampers are concealed within the internal fabric of the building, adequate maintenance access to the damper needs to be provided for inspection, testing and maintenance.

4.7 Cavities

4.7.1 Concealed cavities within a building provide an unseen passage for the spread of fire and smoke. Additional protection, such as the provision of cavity barriers, is required in some situations to maintain the compartmentation provided to a building.

4.7.2 Cavity barriers as referred to within this section should achieve a fire-resistance rating of 30 minutes to Integrity and 15 minutes to Insulation (E30, EI 15). This is independent of the rating of any compartment wall or floor that they are adjacent to. Please refer to Section 4.6 for further information on fire-stopping.

4.7.3 Cavity barriers should be provided in all of the following locations:

- At the edges of cavities, including around openings (such as windows, doors and service penetrations);
- At the junction between an external cavity wall and every compartment floor and 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.

4.7.4 Cavity barriers within a stud wall or partition, or formed around openings (such as windows, doors and service penetrations) need not necessarily be a proprietary tested fire barrier system, and can instead be formed of any of the following materials:

- 0.5mm thick steel;
- Polythene-sleeved mineral wool, or mineral wool slab, under compression when installed in the cavity;
- 12mm thick calcium silicate, cement-based or gypsum based boards.

4.7.5 Where any external walls are constructed of two leaves of brick or concrete at least 75mm thick, cavities should be closed around openings (such as windows, doors and service penetrations) and at the head of the wall. It is not necessary to close the cavity at the head of the wall if the cavity is totally filled with insulation). This applies in Block C and F townhouse and the architect has confirmed the cavity walls are fully filled with Class A1 insulation.

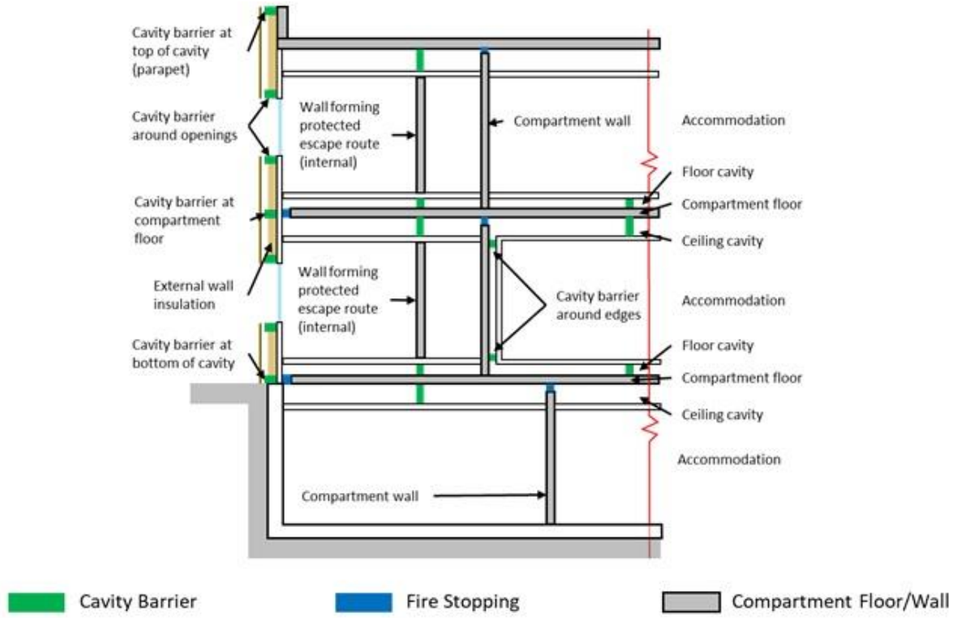


Figure 23: Provisions for Cavity Barriers

4.7.6 Cavity barriers should be tightly fitted to rigid construction and mechanically fixed in position in such a way that their performance is unlikely to be made ineffective by any of the following:

- Movement of the building due to subsidence, shrinkage or temperature change, and movement of the external envelope due to wind;
- During a fire, collapse of services penetrating the cavity barriers, either by the failure of the supporting system of through degradation of the service itself;
- During a fire, failure of the cavity barrier fixings;
- During a fire, failure of any material or construction to which cavity barrier abut.

4.7.7 Cavity barriers should be supported by materials that achieve an equivalent fire-resistance rating to the cavity barrier i.e. fire rated cavity barriers at floors and party wall junctions need to be fixed to equally fire-rated construction, but cavity barriers around a window opening (e.g. 12mm board/0.5mm steel) so the external wall wouldn't necessarily have to be fire rated if the floor barriers are fixed back to the slab and the party wall barriers are supported by studs in the party wall.

5 External Fire Spread

5.1 Space Separation

5.1.1 The external fire spread boundary for the development has been illustrated below in Figure 24. The relevant boundary for external fire spread is typically the site boundary; however, it may be extended past the site boundary where the adjacent land is an area unlikely to be developed upon, such as a road or canal.

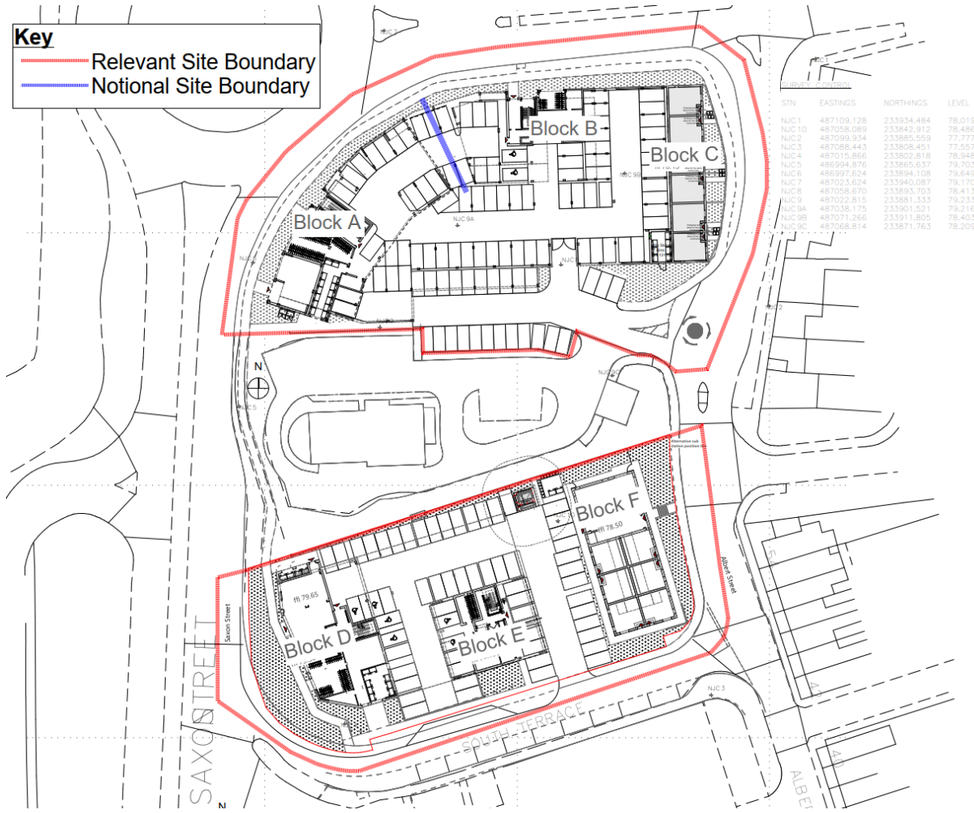


Figure 24: Relevant External Fire Spread Boundary

5.1.2 As part of External Fire Spread assessment, space separation between the building and its relevant boundaries has been evaluated to minimise the risk significant radiation affecting buildings on neighbouring sites. The main aspect of the assessment is calculating the required protected areas, to limit non-fire rated elements on the external envelope of the building. The external fire spread assessment is benchmarked against minimum requirements stated in BR 187 – *External Fire Spread, Building Separation and Boundary Distances,* using calculation methods outlined in Annex A of the first edition (now 2.2.4 & 2.2.5 in the 2nd edition). An example of the calculation performed for each compartment can be seen below.

$$u = \frac{(d/f)^2}{(wh)}$$

Where:

u = maximum permitted unprotected area

d = distance to boundary

h= height of compartment

w = width of compartment

f = factor from Table 3 (in BR 187)

5.1.3 The results for each compartment from the external fire spread analysis for the scheme have been calculated and tabulated in Table 12. While not all floors/compartments have been assessed, the results of the analysis may be transferred for the remaining floors or similar compartments.

5.1.4 Protected stairs and lobbies where no fire load is present are not required to be provided with protected areas on the external façade.

5.1.5 Where the distance from the relevant boundary is more than 1000mm to the external face of the building, protected areas will need to be applied from internal face only and achieve 60 minutes fire resistance in terms of loadbearing capacity and integrity, with insulation rating reduced to 15 minutes (E60, EI15).

Table 12: External Fire Spread Analysis Results

Area	Floor	Use	Panel Width (m)	Panel height (m)	Boundary Distance (m)	Sprinklered?	Unprotected Area (%)	Protected Area (%)
Block A South façade	Ground	Residential Bin Store	5	3	1.6	Yes	90%	10%
Block A South façade	Ground	Commercial Unit Bin Store	8.04	3	2.65	No	37%.	63%
Block D North façade	Ground	Bin Store	4.94	3	2.49	Yes	92%	8%

5.1.6 For a residential development, it is required to check the external fire spread between buildings on the same site. For this reason, the external fire spread requirements between the North facade of Block A and the South facade of Block B have been considered, using the notional boundary between the two as specified in Figure 24. That analysis shows that the distances from the notional boundary, coupled with the presence of sprinklers means that 100% unprotected area is permitted to the elevations.

5.1.7 The distance between all other blocks on site is sufficient such that 100% unprotected area is permitted. The exception to this is for Block C where there is a connection to Blocks A and B via the undercroft car park. As mentioned in section 4.3.7, without the provision of sprinklers to Block C the party wall will need to achieve 120 minutes fire resistance (based on the results of the analysis for the North Site Car Park – see section 4.3.14).

5.2 External Wall Construction

5.2.1 The external envelope of the building should not contribute to excessive smoke and fire spread from one part of the building to another or to another building.

5.2.2 External walls are defined as the full external wall build up from the external surface of the wall to the internal surface (excluding any internal decorative finish).

5.2.3 As per section 4.2.2, Blocks A, B, D and E will comprise of a concrete structure with a mixture of rainscreen cladding and brick outer skin. Blocks C and F will be of masonry/block cavity wall construction.

Blocks A, B and D

5.2.4 Blocks A, B and D are over 18m in height and are therefore classed as relevant buildings and will be subject to Regulation 7(2) and 7(3) of the Building (Amendment) Regulations 2018. All external wall materials and specific attachments used must achieve an A2-s1,d0 rating with the exception of items listed as exempt in Regulation 7(3) (see section 5.3).

5.2.5 Approved Document B recommends that membranes used on residential buildings >18m in height should achieve a Class B-s3,d0 rating. In the case of the concrete inset balconies on the project, a membrane is required to be applied to the horizontal surface of the concrete balconies. It has been confirmed by MAC Roofing that a Class B membrane used on a horizontal balcony surface is not feasible. Instead, the subcontractor has proposed Sealoflex Ultima Premium system with the following justification for its selection:

"*MAC and other parties involved with this project have looked to identify an alternative product that is suitable for the balcony areas at Bletchley View, that would also give the required rating (min class B-s3-do), to meet current regulation 7, however to date, despite our best endeavours and engagement with industry leading manufacturers/suppliers this product has not be able to be identified, that carries this rating or certification for waterproofing to horizontal surfaces, and therefore we must assume that such a product is currently not available.*

The product we have put forward, with the supporting technical information & guidance from our trade bodies, poses low risk and is fit for purpose in Mac's view, as it carries BBA certification for use on flat roofs, as well as having been tested to classification BS EN 13501-1 and BS EN 13501-5."

5.2.6 The membrane will be encapsulated to the extent that it will not be able to contribute to a fire (i.e., it is applied on concrete and covered with paving slabs).

Blocks C, E and F

5.2.7 Where a building is less than 18m in height and has no external walls located within 1m of the boundary Figure 17 (b) of BS 9991 details that no provisions to the external walls are required.

5.2.8 However, as previously mentioned Block C has a connection to Blocks A and B via the undercroft car park. For this reason, as best practice it is advised all external wall materials and specific attachments used must achieve an A2-s1,d0 rating with the exception of items listed as exempt in Regulation 7(3). This is also applicable to Block E, which connects to Block D via the undercroft car park.

5.2.9 Although Blocks C, E and F are under 18m in height and therefore not classified as a Relevant Building under Regulation 7 of the Building Regulations, it is generally recommended that the primary external wall materials i.e. insulation, filler material, cladding etc used in construction of the external façades on residential buildings should achieve Class A2-s1, d0 or better. The client has advised that the construction of these blocks under 18m will follow the principles of the other blocks, that is A2-s1,d0 or better performance for the external wall materials, unless exempt under Regulation 7(3).

5.3 Regulation 7 Requirements

5.3.1 All materials used within the external walls of the building should achieve an A2-s1,d0 rating unless listed as an exemption in Table 13**.**

Table 13: Exception from Regulation 7(2)

Product	Definitions
Cavity Trays	Only where cavity trays are installed within two leaves of masonry construction.
Roofing Materials	Any part of a roof, or its components that extended to the junction of external walls.
Door Frames and Doors	Any door leaves, door frames and door sets located within the external wall construction, including glazing, features, fixings and ironmongery.
Electrical Installations	Defined in Building Regulations as "fixed electrical cables or electrical equipment, located on the consumer side of the electricity supply meter".
Below Ground Insulation and Waterproofing	Materials used for insulation and/or waterproofing of below ground levels.
Intumescent Materials and Fire Stopping	All intumescent materials and fire stopping used to protect life safety of occupants within the building, including (but not limited to) fire sleeves, fire collars, open state cavity barriers, High Expansion Mastic, etc.
Membranes	Any vapour control layers, EDPMs, and other membranes commonly used in the construction industry. *Must still achieve a Class B-S3,d0 rating to BS EN 13501*
Seals, Gaskets, Fixings, Sealants and Backer Rods	Ancillary construction components used for sealing, bonding, fixing of two or more materials. Note, adhesives in general are not excluded from Regulation 7(2), unless: • Meet Class A2-s1,d0 or better; • Are part of a product/system which meets A2-s1,d0 or better rating; or • Are used in situation in which one of the other listed exclusions would apply.
Thermal Breaks	Materials and systems used in construction of external envelope of the building, preventing thermal bridging and meet requirements of Schedule 1 Paragraph L.
Window Frames and Glass	Any glass, windows or glazing panels (including laminated, toughened and hardened) contained within a frame. Where Curtain Walling is used, transom and mullions are also excluded from Regulation 7(2). *Note that the exemption only applies to glazing that is acting as a window, i.e. if an occupant within the building cannot see the glazing or see through the glazing, e.g. in a glazed spandrel panel, it is not exempt and must achieve a Class A2-s1,d0 rating.*

5.3.2 Products classified as non-combustible (Class A1) without the need for testing may be used, as identified by the European Commission. A full list of materials can be found in Commission Decision 96/603/EC (OJ L 297 19.10.1966 p23) as amended by 2000/605/EC (OJ L 258 12.10.2000 p36) and 2003/424/EC (OJ L 144 12.6.2003 p9).

5.4 Roofs

Definitions

5.4.1 Part of a roof is defined as having a slope less than 70° to the horizontal plane. Any part of a roof greater than 70° to the horizontal plane, will be classified as forming part of the wall. For example, parapets on external walls are classified as part of the wall.

5.4.2 The term "roof covering" is used to describe constructions which may consist of one or more layers of material however, it does not describe the entirety of roof structure. The provisions of this section are mainly concerned with the performance specification of roofs when exposed to a fire from outside. This is measured in terms of penetration through the roof and the spread of flame over its surface. Roof classification should be in accordance with BS EN 13501-5.

5.4.3 The client has confirmed that the roof construction for Blocks A, B, D, E & F are concrete frame with hot melt on top. Areas of sedum roofing are provided on Blocks B, E and F, refer to Section 5.4.7.

Roof Coverings Relative to Distance to the Boundary

5.4.4 As the blocks provide residential accommodation and will require multiple compartment walls to be extended to the underside of the roof, the roof should achieve a rating of $B_{ROOF}t(4)$ as tested to BS EN 13501-5, regardless of the boundary distance.

Roof Photovoltaic (PV) Panels

5.4.5 Parts of the roof on Block A will incorporate PV panel installations. There is currently no guidance within the approved documents or British Standards relating to fire safety for PV installations. The RISC Authority guidance document RC62 provides guidance on the design, installation and maintenance of PV panels. This guidance is not statutory guidance or standard practice within the industry. The following building design features and safety features have been considered in relation to fire safety of the PV system following discussions with Winvic.

- A switch shall be provided at in the main entry point to the building to isolate the DC side of the PV system that is easily identifiable and accessible to the fire and rescue service.
- The roof where the PV panels are located will be constructed on a concrete deck that achieves 60 minutes fire-resistance to prevent a fire on the roof from penetrating downwards into the building below. Any services passing through the roof slabs should be suitably fire stopped from the underside to maintain the fire separation.
- Any roof access points should be separated by a distance of 2.5m from any PV panels such that any firefighters accessing the roof to fight a fire in the PV array are separated from the potential fire location.

5.4.6 A roof plan showing the extent of the PV array should be located within the premises information box. The ground floor plan located within the premises information box should include the location of the PV isolation switch.

Fire Performance Green Roofs

5.4.7 Green roofs are proposed on the roofs of Blocks B, E and F as well as the North and South 1st floor podiums. Fire performance of Green Roofs should be in accordance with recommendations outlined in The Green Roof Organisation – *GRO fire risk guidance document* and in the Ministry of Housing, Communities and Local Government (MHCLG) guidance document "*Fire Performance of Green Roof and Walls*".

5.4.8 The guidance reviewed generally states that green roofs should be designed to provide the necessary resistance to the external spread of fire by the following measures:

- increasing the non-combustible content of the growing medium
- decreasing the organic content of the growing medium
- preventing the system from drying out.

5.4.9 General advice includes:

- Compartment walls should meet the underside of a roof deck they should be fire–stopped and a zone of the roof 1500mm wide on either side of the wall should have a covering designation $B_{ROOF}(t4)$ on a substrate or deck of a material of limited combustibility
- Fire breaks around all openings and vertical elements at least 500mm wide, such as paving slabs or non-vegetated strips of pebbles, should be included in the following locations:
    - Around the perimeter of the roof
    - Around any openings through the roof construction
    - To sub-divide extensive areas of organic materials
- Firebreaks should be maintained to prevent overgrowth rendering them ineffective and breaks should be provided in 1m strips every 40m across extensive green roofs
- Plants should be regularly maintained to reduce the volume of organic materials increasing over time
- Growing mediums should contain no more than 20% organic matter
- Due consideration should be given to method of irrigation of green roofs to prevent plants from drying out and significantly increasing their fire risk. This should include contingencies in the event of water shortages such as temporary hosepipe bans.

6 Access and Facilities for the Fire Service

6.1 Firefighting Access to the Blocks

6.1.1 Access to the site should be designed in such a way that the Fire Service can easily access the site during a fire situation. Provisions should be made at the design stage to ensure that the scheme is provided with adequate and sufficient means for the Fire Service to enter and manoeuvre around the site.

6.1.2 Fire Appliance access to the development should be in accordance with Table 14.

Table 14: Fire Appliance Access Route Specification

Appliance Type	Minimum Width of Road Between Kerbs (m)	Minimum Width of Gateways (m)	Minimum Turning Circle Between Kerbs (m)	Minimum Turning Circle Between Walls (m)	Minimum Clearance Height (m)	Minimum Carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	12.5

6.1.3 The Fire Service access and provisions for the North and South Sites of the Bletchley View Development are provided in Appendix E –*Fire Service Access Plans*.

6.1.4 The maximum reversing distance of a fire appliance is 20m. Turning facilities should be provided such that an appliance does not have to reverse more than 20m. It is not expected that fire appliances will enter the undercroft car parks.

6.1.5 Any access routes to the life safety plant and equipment (generator, sprinkler pumps set etc.) need to be protected by 120-minute fire resisting construction due to them being required for life safety purposes.

6.1.6 All internal areas of the ancillary accommodation at Ground Floor are either within 45m of a fire appliance parking location, on a route suitable for laying a hose, or are within 60m of a fire main outlet within a firefighting stair.

6.1.7 For the commercial units in Blocks A and D and the Community Room in Block F, as per section 15.1 of ADB Volume 2, vehicle access for a pump appliance should be provided to 15% of the perimeter or within 45m of every point of the footprint of the building, whichever is the less onerous. The perimeter of the building is considered as the external walls not sharing a common wall with an adjacent building.

6.1.8 The perimeter of the Block A commercial unit is approximately 18m. The client has confirmed that the access from Saxon Street provides access to 55% of the perimeter, therefore it is considered that the perimeter access condition here is satisfied.

6.1.9 The perimeter of the Block D commercial unit is approximately 33.4m. Vehicle access for Block D is via the adjacent roads, Saxon Street and South Terrace. The client has confirmed that the roads provide access to 44% of the perimeter, therefore it is considered that the perimeter access condition here is satisfied.

6.1.10 Access to the Block F community space for a pump appliance is via Albert Street. There is only entry point to the building to which perimeter access and hose laying distances are achieved.

6.1.11 All areas of the undercroft car parks are within 45m of dry riser landing valves on a route suitable for laying hose or vehicle access for a pump appliance is possible within 45m to all parts of the car park.

6.2 Firefighting Shaft

6.2.1 Blocks A, B and D exceed 18m in height to the topmost occupied storey from the fire service access level and so should be provided with firefighting shafts containing a firefighter's lift.

6.2.2 Firefighting shafts should be provided with the following:

- A minimum clear width 1100mm wide stair, enclosed in 120 minutes fire resisting construction (REI 120) provided from outside to inside. The internal lining of the firefighting stair may be reduced to 60 minutes fire resisting construction (EI60)
- A protected ventilated lobby adjoining the stair (see section 2.6 for further details)
- 1.0m^2 AOV at the head of the stair
- A firefighters lift within 7.5m of the stair door
- A dry rising fire main

6.2.3 Where a firefighting stair is sited against an external wall, if any glazed area of opening in the exterior wall of the stair is less than 500mm from the junction of the external wall with the firefighting stair, the fire resistance of the wall immediately adjacent to the glazed area or opening should be no less than 60-minutes fire resistance (EI 60) from both sides for a horizontal distance of 500mm.

6.2.4 Flooring and floor coverings within the firefighting shaft are to be provided in accordance with the recommendations of BS 9999. All floorings and floor coverings should be chosen so as to minimise loss of traction when wet, as resilient floor surfaces should be maintained in accordance with BS 6263-2, with only emulsion-based polishes used. Typically, a slip-resistance of R13, when tested to DIN 51130, is adequate to meet the requirements for firefighting shafts.

6.2.5 It is to be noted as the slip resistance of resilient floor surfaces is reduced by contamination by dust or materials such as oils or grease, it is essential that they are cleaned frequently. The flammability of any textile floor coverings needs to be low.

6.2.6 Textile floor coverings should:

- When tested together with any underlay, in accordance with BS 4790, using the test procedure reflecting the method used for securing the floorcovering to the floor, either:
  - Not ignite; or
  - Have effects of ignition on both the use-and-under surfaces not exceeding beyond a circle of radius 35mm centred on the central point of application of the nut.
- Be firmly secured to the floor, with any adhesive being used non-water soluble; and
- Be interruptible at all doors to and within the firefighting shaft along the line of the threshold of the doorway with a metal or other non-combustible strip not less than 50mm in wide.

6.3 Firefighters Lifts

6.3.1 Where firefighters' lifts are provided, these should be designed and installed in accordance with BS EN 81-20 and BS EN 81-72. Absolute minimum dimensions and specification of the firefighters' lift should be no less than 1100mm wide by 1400mm deep with a rated load of 630kg. The clear entrance to the lift car should achieve at least 800mm.

6.3.2 Means to protect firefighters lifts and associated plant from water damage will need to be provided. As per recommendations of BS EN 81-72, permanent means of preventing water ingress are preferred. The firefighter's lift, and any lifts sitting within the same lift bank as the firefighters lift, should be protected by water ingress via a 25mm ramp threshold in front of the lift at an incline of no less than 1:100.

6.3.3 The firefighters lift should be provided with the following features, not listed above (the list is not exhaustive and intended as guidelines only, listing out primary components):

- Ground floor manual override mechanism (BS EN 81-20);
- Secondary power use indicator in proximity to the lift entrance at Fire Service access level;
- Internal communication system;
- Manual controls within the lift;
- Interface with AFDA for the building.

6.4 Fire Mains

6.4.1 Residential buildings having areas of the floor plate not within 45m of fire service appliance access, will need to be provided with a dry riser in accordance with BS 9990, serving all floors of the building. This is applicable to Block E and Block F apartments as the hose laying distance from the possible parking position for the pump appliance to the furthest point on the topmost occupied storey of the apartments exceeds 45m.

6.4.2 The hose laying distances, between the outlet in the stair and a furthest point on the floorplate, should not exceed 45m. This has been achieved on the plans.

6.4.3 Blocks A, B and D will be provided with a dry rising main as part of the requirements for a fire-fighting shaft detailed in section 6.2 above. Hose laying distance between the outlet in the stair to the furthest point on floor plate should not exceed 60m. This is achieved on the current drawings.

6.4.4 The fire main inlet point should be located within 18m of the fire service access point to the site and sited on the external façade of the building, visible from fire service access point. A freestanding cabinet may also be utilised subject to discussion with local Fire Authority. Floor-mounted inlet positions are not deemed suitable for majority of fire main applications.

6.4.5 Landing valves should be free of any potential obstructions and should not be mounted in areas where they are likely to reduce the overall effective escape width. For residential buildings, landing valves should be installed within the protected stair enclosure, at each full landing. The outlet valve should be installed with its lowest point around 750mm above floor level and should be flanged rather than threaded for ease of maintenance. Outlet valves for dry risers should conform to recommendations of BS 5041-1.

6.4.6 Fire mains should have a minimum nominal bore of 100mm and be capable of withstanding operating pressures of up to 20 bar. The material used for construction of the fire mains risers should be of heavy quality steel material including galvanizing where necessary.

6.4.7 The dry fire main should be fitted with a two-way inlet breeching for 100 mm mains. Each breeching should conform to BS 5041-3. Such breeching should be accommodated in an inlet box conforming to BS 5041-5, the box being positioned with its lower edge between 400 mm and 600 mm above ground level.

6.5 Specific Fire Main Requirements

Block A

6.5.1 There is a pedestrian barrier running between the pavement and road which could prevent Fire Brigade personnel access having a direct route to Block A primary entrance. Whilst a pump appliance will be able to park within 18m of the building facades and dry riser inlet in accordance with BS 9991, the pedestrian barrier may obstruct the direct access route for firefighters who will need to navigate an extended distance around the barrier on the corner of the junction. To mitigate this, an additional dry riser inlet shall be provided to the rear entrance to Block A. Both inlets are within 18m of a pump appliance parking location as indicated in Appendix E –*Fire Service Access Plans,* and shall connect to the same single vertical rising main. This provides two alternative directions of access for the Fire Service and whilst the rear inlet is located within the undercroft parking area, Orion do not consider it a significant risk on the basis there wouldn't be a single point of failure that could prevent the Fire Brigade from gaining access to the Block and connecting their water supplies to one of the inlets. This has been agreed with Building Control.

Block B

6.5.2 Access for a fire appliance for Block B is direct from the main road (Princes Way). The dry riser is within 18m of and is visible from this location.

Block C

6.5.3 Access for a fire appliance to Block C is via the adjacent main road, Albert Street.

Block D

6.5.4 Vehicle access for Block D is via the adjacent road, Saxon Street and South Terrace. The dry riser is located within 18m of this parking point.

Block E

6.5.5 Access for a fire appliance for Block E is direct from the main road (South Terrace). The dry riser is within 18m of and is visible from the appliance parking location.

Block F - Townhouses

6.5.6 Vehicle access to the townhouses for a pump appliance is either via Albert Street or via the open air car park between Blocks E and F, dependent on where the townhouses are entered. The hose laying distance from the parking point to the to the furthest point on the topmost occupied storey is exceeded in some of the townhouses. However, in accordance with section 50.1.2 (b) of BS 9991, where sprinklers are provided in accordance with BS 9251 (minimum Category 2, 30-minute supply duration) the distance between the Fire and Rescue Service pumping appliance and any point within the house or flat may be up to 75m. As per Section 4.3, the townhouses will be provided with Category 3sprinklers therefore the hose laying distance from a pumping appliance can be increased to 75m.

Block F - Apartments

6.5.7 Vehicle access to the apartments will be via the open-air car park between Blocks E and F. The dry riser is within 18m of and is visible from the appliance parking location.

6.6 Hydrants

6.6.1 A fire hydrant should be located within 90m of each fire main inlet position. A fire hydrant should also be located within 90m of an entry point to the townhouses, commercial units and community room. Note that this distance should be as measured on a route suitable for laying hose and not as the crow flies.

6.6.2 The location of existing fire hydrants have been included on the fire service access drawings for the North and South Site provided in Appendix E –*Fire Service Access Plans*. Buckinghamshire Fire and Rescue Service have confirmed that the fire hydrants located on Princes Way, Saxon Street and Baron Close are all operational and regularly serviced. There is an additional fire hydrant present on South Terrace which Winvic confirmed is also operational.

6.6.3 Fire hydrants should ideally provide a minimum flow rate of between 20-35L/s, based upon the recommendations of the National Guidance Document on the Provision of Water for Firefighting 3rd Edition. The Water Company should inform the Fire and Rescue Service where they estimate sufficient flows cannot be met under normal demand conditions and a joint agreement reached as per the principles outlined in the National guidance document on the provision of water for firefighting.

6.7 Evacuation Alert Control & Indicating Equipment (EACIE)

6.7.1 An evacuation alert system is to be designed and installed in accordance with BS 8629 to Blocks A, B, D and E. A compliant BS 8629 system should not be regarded as a fire detection and alarm system, and it is recommended that it should be a completely separate system from the AFDA's. As a minimum, it is recommended this is provided to all blocks with a top storey over 18m above external ground level.

6.7.2 The evacuation alert system is for sole use by the Fire and Rescue Service, and it is to act as a means to assist in the initiation of either a partial or full evacuation of a high-rise residential building.

6.7.3 The system should be simple to use but designed in a way to prompt the incident commander of the fire and rescue service to follow a structured procedure in activating the system. Separate controls and indicators are to be provided for each floor/section-of-floor so that the operator can activate/cancel the sounders to each floor separately. The indicators are provided to show that the sounders on each floor are operating/faulting on a specific floor which would alert the fire and rescue personnel to manually alert the residents within the development.

6.7.4 It is recommended that audible sounders are specified for each apartment that appropriate visual/tactile devices are provided for people who may be deaf or hard of hearing. They should achieve 85dB at a minimum within all rooms. It is also recommended that an interconnection with a social alarm system is provided for residents who may require assistance to evacuate the building.

6.8 Onsite Information Box

6.8.1 In order to assist the attending fire crews in obtaining the correct information efficiently upon arrival on site, it is advisable that the end-user/responsible person provides a Fire Service Information Box within the apartment block. This should be located adjacent or in close proximity to the entrance of the building most likely used by the attending fire crews. Location is to be discussed and agreed with local Fire Service. It should be ensured that the following crucial information is provided:

- Operational contingency plans
- Evacuation plans and procedures
- Simple schematics and/or line drawings representing the building layout, key locations for firefighting equipment/installations and relevant information for firefighting facilities provided within the building (fire resistance of structure, key access areas, firefighting facilities, services, hazards, etc.)
- Information about the nature of any lifts for use by the Fire Service
- Basic operating instructions for fire protection and fixed firefighting systems

6.8.2 The fire safety/operational systems indicated on any of these plans should be labelled. Where plan symbols are to be used they should follow the system outlined by the local Area Fire Safety Team and include a key with a suitable description alongside. When one or more of the same type of system is installed they should be individually identified. For example where two different alarm systems are installed to BS 5839-1, these should be designated with different symbols.

6.8.3 The responsible person on occupation should liaise further with the local Area Fire Safety Team and Fire Station(s) with regards to the preferred format and content of the information to be provided within this.

6.8.4 The contents of the box should be kept up to date and kept under regular review.

6.9 Wayfinding Signage

6.9.1 To assist the fire service to identify each floor in a block of flats with a top storey more than 11m above ground level, floor identification signs and flat indicator signs should be provided. The floor identification signs should meet all of the following conditions.

- The signs should be located on every landing of a protected stairway and every protected corridor/lobby (or open access balcony) into which a firefighting lift opens.
- The text should be in sans serif typeface with a letter height of at least 50mm. The height of the numeral that designates the floor number should be at least 75mm.
- The signs should be visible from the top step of a firefighting stair and, where possible, from inside a firefighting lift when the lift car doors open.
- The signs should be mounted between 1.7m and 2m above floor level and, as far as practicable, all the signs should be mounted at the same height. The text should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

6.9.2 The wording used on each floor identification sign should take the form Floor X, with X designating the number of the storey, as intended for reference by residents. The floor number designations should meet all of the following conditions.

- The floor closest to the mean ground level should be designated as either Floor 0 or Ground Floor.
- Each floor above the ground floor should be numbered sequentially beginning with Floor 1.
- A lower ground floor should be designated as either Floor –1 or Lower Ground Floor.
- Each floor below the ground floor should be numbered sequentially beginning with Floor –1 or Basement 1.

6.9.3 All floor identification signs should be supplemented by flat indicator signs, which provide information relating to the flats accessed on each storey. The flat indicator signs should meet all of the following conditions.

- The signs should be sited immediately below the floor identification signs, such that the top edge of the sign is no more than 50mm below the bottom edge of the floor identification sign.
- The wording should take the form Flats X–Y, with the lowest flat number first.
- The text should be in sans serif typeface with a letter height of at least half that of the floor indicator sign.
- The wording should be supplemented by arrows when flats are in more than one direction.
- The text and arrows should be on a contrasting background, easily legible and readable in low level lighting conditions or when illuminated with a torch.

7 Secondary Power

7.1 General Requirements

7.1.1 It is crucial that all life safety systems provided within the building are capable of normal operation in any condition, including loss of primary power supply to the area/building. Since it is not possible to determine where a fire may occur, the power supplies provided to the life safety systems of the building will need to be adequately protected and additional resilience will need to be provided, in the form of secondary power supply, in order to maintain an acceptable level of safety and operation of all life safety systems in the building, regardless of the conditions present at a time of an emergency.

7.1.2 Recommendations of BS 9991 will be followed to provide detail and information on the performance specification of power supplies for life safety systems.

7.1.3 The electrical power supply to life safety and fire protection systems provided in the building should be separate from all other electrical circuits so that in the event of failure of non-life safety equipment, does not render the installation inoperative. The secondary power supply should be capable of providing emergency power to all life safety systems for at least 3 hours.

7.1.4 The following life safety systems have been installed in the building and therefore will require provision of primary and secondary power supplies:

- Automatic Fire Alarm and Detection Systems (AFDA)
- Smoke ventilation system to common corridors and stairs
- Emergency Lighting
- Fire/Fire and smoke dampers
- Electrically operated doors (including magnetic hold open devices, and access control)
- Firefighters Lifts
- AWFSS
- EACIE systems

7.1.5 Primary power supply should be taken from the incoming public feed while secondary power supply should be provided by either:

- Batteries
- An uninterruptable power supply (UPS)
- A generator located within the building

7.1.6 A number of life safety systems may be already installed with an integrated back up supply, such as AFDA, emergency lighting, electrically operated doors, etc. These should be in accordance with their respective British and/or European Standards.

7.1.7 Where an integrated back up supply cannot be provided, the secondary power proposals should be in accordance with BS 8519:2020. The secondary power supply should be of sufficient capacity and resilience to maintain the life safety and fire-fighting systems.

7.1.8 The client has confirmed that the secondary power supplies will be provided by generators. The North and South sites are provided with separate dedicated generators located externally from the building. For locations of the generators, refer to the specific site plans. Winvic confirmed the external generator enclosures will consist of brick/block walls to all sides achieving 120-minutes fire resistance. A 90-minute integrity only (FD 90) steel fire door set will be provided. Due to their open-air location, no roof will be provided to the enclosures.

8 Conclusion

8.1 Report Summary

8.1.1 This summary acts as a main conclusion to the report and as a summary of Regulation 38 requirements for Building Management and will outline the approval status at the time of report issue.

8.1.2 The layout of the building, based on the drawings listed in Table 1 is considered sufficient to meet the functional requirements of the Building Regulations, provided that the recommendations made throughout this report are incorporated in full.

8.1.3 The design of the building is not in full accordance with prescriptive codes; however, it is considered that the alternative solutions presented in this report demonstrate that the proposed design provides an equal or greater level of safety than a code-compliant design.

8.2 Approvals Correspondence

8.2.1 The fire strategy has been updated to address the Part B comments on the Plan Appraisal Tracker Report dated 27/02/2023 (ref: 501428, Issue 10) by Salus Building Control. Salus previously consulted with Buckinghamshire & Milton Keynes Fire Authority but note that as of 19/08/2024 no response had been received and the statutory response period has now passed.

8.2.2 This report has been updated to capture minor layout alterations during the construction phase and fire strategy alterations that have been agreed in principle over emails with Salus Building Control. Salus Building Control issued a final certificate (ref 501428) on 6th September 2024.

8.3 Key Fire Safety Information

8.3.1 Under Regulation 38 of the Building Regulations, the Responsible Person for the building should be provided with all essential fire safety information either when the project is complete, or when the building is first occupied. This section summarises the fire strategy to provide the key information that will be required by the Responsible Person to allow them to:

- Understand and implement the fire safety strategy of the building.
- Maintain any fire safety provided in the building.
- Carry out an effective fire risk assessment of the building.

8.3.2 The information required to achieve this is provided within a collated O&M Manual, which incorporates information produced by various consultants, and contractors. The fire strategy provides a performance specification for the building during the design phase, and acts as a summary of the systems that should be in place within the building post-completion. The fire strategy alone is not sufficient to act as the package of fire safety information handed over the Responsible Person under Regulation 38.

8.3.3 A summary of the key fire safety features of the building has been provided in Table 15. The summary table is not intended to replace the fire strategy; however, it provides an aide-mémoire of the key information presented within this fire strategy, as well as a reference to the relevant section of this report that provides a detailed summary of the system/information. This summary table is intended to assist either the Responsible Person or their appointed Competent Person in producing and maintaining the fire risk assessment for the building.

Table 15: Key Fire Safety Features of the Fire Strategy

Key Feature	Summary	Section/ Reference
General Features		
Building Heights	Heights as below when measured to the topmost occupied storey from the lowest adjacent ground floor level: Block A – 26.56m Block B – 22.5m Block C – 6.15m Block D - 21.37m Block E -16.22m Block F – 9.29m	Section 1.4 and Figure 2
Escape Strategy	Stay-put in residential areas. Simultaneous in ancillary areas. Simultaneous for the townhouses whereby in the event of a fire all occupants will be required to evacuate the Townhouse of fire origin. Commercial units in Blocks A and D and community use room in Bock F will operate a simultaneous evacuation procedure.	Section 2.1
Travel Distances	Travel distances are: - Open plan apartments: 20m from furthest point in apartment to entrance door - Common corridors: 15m single direction, 60m in two or more directions (limited to 30m in unventilated sections of corridor) - Block F Common lobbies – 4.5m - Ancillary areas – as per Table 5 Townhouses – 9m from dwelling to protected stair Commercial units/ community use room – 18m in a single direction, 45m in multiple directions (actual distances).	Section 2.3
Disabled Evacuation	<u>Residential Accommodation</u> Residential buildings are designed to facilitate self-evacuation with no reliance on onsite management as far as is reasonably practicable. The safety features required within residential buildings accommodate this approach via a high degree of compartmentation and the provision of smoke ventilation. <u>Amenity Areas – residents only</u> A disabled evacuation management plan will need to be developed by the end user. Firefighters lifts are intended to remain in-use in the event of a fire unless recalled manually by the Fire Service or a detector in the lift shaft is activated. A similar approach will be adopted for the communal roof terraces which would be occupied by residents and their guests in a similar way to the occupation within the apartments. <u>Commercial Units</u>	Section 2.5

Key Feature	Summary	Section/ Reference
	Subject to fit-out, although disabled refuges not required where level access is provided.	
Structure and External Wall Materials	As per the information provided, Blocks A, B, D and E will comprise of a concrete structure with a mixture of rainscreen cladding and brick outer skin. Blocks C is a mixture of steel and timber structure, with masonry brick/block cavity wall construction. Block F will be of masonry brick/block cavity construction. All components used in construction of external walls shall achieve Class A2-s1, d0 or A1, classified in accordance with BS EN 13501-1 unless listed as a permitted exemption in Table 13.	Section 4.2 and Section 5.2
Passive Fire Safety Measures		
Compartmentation	60 minutes compartment floors. 60 minutes compartmentation between apartments. 120 minutes fire resistance where any walls and floors adjoin under croft (Blocks A, B and C). 90 minutes fire resistance where any walls and floors adjoin under croft (for Blocks D, E and F). 120 minutes to firefighting shaft, firefighters lift and other life safety plant. Full details in Section 4.4.	Section 4.4 Table 8
Cavity Barriers	Cavity barriers to be provided around openings, windows and junction of fire resisting walls and floors with external walls. Additionally cavity barriers are required at the top of the cavity. For masonry cavity walls, cavity barriers only required to openings into the external wall where cavity is fully filled with A1 insulation.	Section 4.7
Fire Doors	All doors on fire-resisting wall lines should achieve a minimum half the rating of the wall, subject to the next rounded up interval of 30 minutes. Full details in Section 4.4.	Section 4.4 Table 9
Fire Dampers	Any ductwork crossing a compartment line should be fitted with either a fire damper or fire and smoke damper as appropriate. A summary of the required locations for fire dampers has been provided in Table 11.	Section 4.6 Table 11
Escape Signage	Emergency escape signage is generally not required on the main circulation spaces in residential buildings as residents are considered to be familiar with the route. In ancillary and non-residential areas, emergency escape signage should be provided above every doorway or other exit that provides access to a means of escape.	Section 2.7

Key Feature	Summary	Section/ Reference
Internal Linings	Class B-s3,d2 within common circulation spaces. Class D-s3,d2 in small rooms less than 4m^2. Class C-s3,d2 within apartment circulation spaces and rooms larger than 4m^2	Section 3.1
Structural Fire Protection	All elements of structure for the blocks should achieve 60 minutes fire-resistance for loadbearing capacity, with the exception of elements of structure supporting the fire fighting shaft/fire fighters lifts which should achieve 120 minutes fire-resistance for loadbearing capacity. Any elements supporting the under croft car parks which should achieve 120 minutes fire-resistance for loadbearing capacity for Blocks A, B and C and 90 minutes fire resistance for loadbearing capacity for Blocks D, E and F.	Section 4.2
Fire Stopping	Any penetrations through a fire-resisting wall should be fire-stopped using one of the methods described in Section 4.6.	Section 4.6
Active Fire Safety Measures		
Fire Alarm	- Open Plan Apartments - Grade D1 Category LD1 (BS 5839-6) - Residential Corridors, Stairs and Lobbies – Category L5 (BS 5839-1) Sounders and beacons should be provided in the common terraces and be linked to the detection within the ancillary areas, common lobbies and stairs. - Ancillary accommodation – Category L2 (BS 5839-1) - Townhouses - Grade D1, Category LD1 (BS 5839-6) - Commercial units – subject to fit-out.	Section 2.2
AWFSS	<u>Blocks A, B and D:</u> Category 4 Residential System (BS 9251) – 60-minute water supply (Apartments and ancillary spaces) <u>Block E:</u> Category 3 Residential System (BS 9251)- 60-minute water supply (Apartments) Residential Ancillary Spaces -Category 3 (BS 9251) <u>Block F Apartments:</u> Category 3 Residential System (BS 9251) (see 4.3.12 for further details) <u>Block F Townhouses:</u> Category 3 sprinkler system (BS 9251) with a 60-minute supply duration (see sections 4.3.12 and 6.5 for further details) <u>Block F community use room</u> Compartment limited to 100m^2 such that it can be covered by the residential system (with enhancements). Category 3 Residential System (BS 9251).	Section 4.3

Key Feature	Summary	Section/ Reference
	Block A – commercial space. Sprinkler connection point shall be extended into and capped in the commercial shell ready for future fitout. Sprinklers to be provided on fit out. Block D – commercial space – residential sprinklers to be provided on fit out. Compartment requires sub-dividing with 60-minutes fire resisting construction by tenant such that no one compartment exceeds 100m^2. See section 4.3.6. A time equivalence analysis has shown that for the North Site Car Park sprinklers may be omitted on the provision of an uplift in the fire resistance period for separation between the car park and adjoining areas and any elements of structure in the car park from 90 minutes to 120 minutes. For the South Site Car Park, a time equivalence analysis has shown that 90 minutes fire resistance with regards to separation and applied to elements of structure supporting the car park is sufficient to enable the omission of sprinklers.	4.3.6 Appendix D
Emergency Lighting	Emergency lighting should be provided within all common escape routes. In the residential ancillary areas, emergency lighting should also be provided in all windowless accommodation, open plan areas greater than 60m^2 in area, toilet accommodation greater than 8m^2 and plant rooms.	Section 2.8
Smoke Control	<u>Blocks A, B, D and E:</u> 1.0m^2 AOV at the head of the stair Corridor ventilation proposed by 1.5m^2 natural smoke shaft. Ground floor lobby in Block D also provided with 1.5m^2 AOV to external. <u>Block F:</u> 1.0m^2 AOV at the head of the stair. Detection in common corridors will activate the corridor AOVs on the floor of initial activation only, and the stair AOV.	Section 2.6
Smoke Dampers	Any ductwork crossing a compartment line should be fitted with either a fire damper or fire and smoke damper as appropriate. A summary of the required locations for fire dampers has been provided in Table 11.	Section 4.6 Table 11
Secondary Power Supplies	To be provided to all life safety equipment. Secondary power supply will be provided by generators.	Section 7

Key Feature	Summary	Section/ Reference
Firefighting Equipment and Features		
Firefighting Access	As per fire service access drawings provided in Appendix E –*Fire Service Access Drawings*.	Section 6 & Appendix E
Dry Riser	Dry riser inlet valve to be located within 18m of fire appliance access point. Designed and installed in accordance with BS 9990.	Section 6.4 & 6.5
Fire Hydrants	Fire hydrants to be within 90m of dry riser inlet position for apartment blocks, and within 90m of building entry point to townhouses and commercial units.	Section 6.6
Evacuation Alert System	Blocks A, B, D and E. EACIE system is to be provided for use by the Fire and Rescue Service for manually alerting individual or multiple floors to evacuate should the need arise during firefighting operations. The EACIE system is not to be confused with a common fire alarm system and such systems should be separate from any common fire detection system.	Section 6.7

Appendix A – Summary Cause and Effect Matrix

Cause \ Effect		System Notification	Alert Systems					Lifts		Access Provision			Smoke Control			Plant Shut Down
		Signal Sent to Detection Control Panel	Sounders and Flashing strobes in fire affected apartment only	Sounders and Flashing strobes in all Ancillary Areas only	Sounders and Flashing strobes on accessible roofs and podium	Sounders and Flashing strobes in Retail Unit Activate	Sounders and Flashing strobes in Car Park Activate	Lift to return to the lowest adjacent ground floor level not affected by a fire	Lift to return to alternative designated landing (floor above exit level)	Hold open devices on escape routes - release	Electronically operated doors to failsafe open	Other Access control provisions to open/deactivate	Smoke Damper Activation (locations as identified in the fire strategy)	AOV on fire floor activates	AOV at head of stair activates	Non-Life Safety Plant to Shut Down
System Type/Location	Activation Type															
Category LD1 (Apartment) BS 5839-6	Any		X													
Category L2 (Ancillary Areas) BS 5839-1	Any	X		X	X					X	X	X	X			X
Category L5 (Common Corridor) BS 5839-1	Smoke Detector	X			X					X	X	X	X	X	X	X
Category L5 (Stair) BS 5839-1	Smoke Detector	X			X					X	X	X	X		X	X
Category L5 (Lift Shaft) BS 5839-1	Smoke Detector	X			X			X		X	X	X	X		X	X
Category L5 (Ground Floor lobby/corridor outside lift entrance, Blocks A, B, D and E) BS 5839-1	Smoke Detector	X			X				X	X	X	X	X	X	X	X
Sprinkler Activation (Anywhere)	Sprinkler head/flow switch	X			X											
Category LD2 (Townhouses - Blocks C & F only) BS 5839-6	Any		X													
Category M (Car Park) BS 5839-1	Manual Call Point	X			X		X			X	X	X				
Category M (Commerical) BS 5839-1	Manual Call Point	X				X				X	X	X				

Note 1: This is a summary C&E of the main system types/locations to assist the fire alarm sub-contractor in developing the detailed Cause and effect for each block as part of their design. This C&E should not be used for programming purposes and is only intended as a guide for the specialist subcontractor to develop their own detailed C&E matrix's.

Appendix B – Natural Shaft Location Study – CFD Analysis

B1 Introduction

B1.1 Purpose & Scope

B1.1.1 Orion Fire Engineering has produced the following technical bulletin to compare the effectiveness of the smoke ventilation system within code compliant common residential corridors. The purpose of this document is to address the specific area of the prescriptive guidance in BS 9991, Section 14.2.3.2 which states that smoke shaft should be positioned remotely from the stair door. It is appreciated however, that this may not be achievable on some projects due to layout constraints and/or efficiency of the design for smoke ventilation arrangements. As such, Orion Fire has prepared a wide range of common residential corridor arrangements where the natural smoke shaft position moves towards the stair door, assessing various fire locations in the process. The intended outcome of this report is to demonstrate that the ultimate positioning of the natural smoke shaft, does not impact on the efficacy of the smoke ventilation and the system itself, performs equivalent to or better than recommended arrangement in the prescriptive guidance.

B1.1.2 This report will detail the Computational Fluid Dynamics modelling, and general fire engineering principles, which were used to evaluate the effectiveness of the alternative shaft locations within a code compliant design. The mode of analysis undertaken is to carry out a quantitative comparative analysis, whereby the results of the modelling are compared against the benchmark of the recommended shaft locations within a code compliant design, in this case BS 9991 and the SCA Guide. Provided that the results of the alternative smoke shaft positions are equal to or better than the recommended arrangements in the prescriptive guidance, the designs will be deemed to be satisfactory to meet functional requirements of Part B of the Building Regulations.

B1.1.3 The proposed method of analysis is in accordance with the guidance of PD 7974. This document states that:

"Where there are limited departures from the prescriptive code, the acceptability of a particular design may be evaluated by comparing the level of performance achieved in a notional code compliant building with that of the non-compliant building under consideration."

"Essentially if it is explicitly demonstrated by logical deduction or calculation that the proposed design provides an equivalent or superior level of fire safety to a building complying with an appropriate prescriptive code, the comparative criteria will be met."

B1.1.4 This mode of comparative analysis is stated as being suitable for one or two significant departures or several minor deviations from prescriptive codes. The deviation assessed in this analysis is the positioning of the natural shaft, relative to the stair entrance door. As the smoke shaft positioning and corridor shape/arrangement is the only variable assumed to change across the modelling environments and the control benchmark, it is considered that a comparative analysis is appropriate for this single departure from the code.

B1.2 CFD Software

B1.2.1 The software that has been used to complete the analysis consists of two main elements; these are the Computational Fluid Dynamics (CFD) Modelling Software 'Fire Dynamics Simulator' (FDS) which was developed by the National Institute of Standards and Technology (NIST), and the visualisation software Smokeview also developed by NIST. Both FDS and Smokeview are the most extensively used and validated fire related software across the globe and therefore it is considered that their use on this project is justified.

B1.2.2 The CFD model FDS allows the user to define a variety of parameters relating to the compartment geometry and materials of which the building is constructed; the model allow user to visualise and numerically analyse the effect that air movement will have in a building.

B1.3 Fire Engineering Analysis Approach

B1.3.1 The analysis and hence the conditions within the models are structured to replicate the chain of events that are deemed to occur when a fire starts within an apartment, albeit in an exaggerated fashion, in an attempt to test the design under the worst credible scenario. The design is tested during the escape phase and the firefighting phase in order to compare conditions at both of these critical times.

B1.3.2 The analysis has incorporated a comparative study between alternative designs and the recommended design described within BS 9991 and will demonstrate that the alternative smoke shaft positioning does not affect the efficiency and effectiveness of the smoke ventilation system provided in the common residential corridor. The analysis will demonstrate that the natural ventilation system will perform equal to or better in the alternative design when compared to the recommended design.

B1.3.3 The following functional requirements will need to be fulfilled;

- B1-Means of Warning and Escape – *"The building shall be designed and constructed so that there are appropriate provisions for the early warning of fire, and appropriate means of escape from fire from the building to a place of safety outside the building capable of being used at all material times".*
- B5-Access and facilities for the fire service – *"(1) The building shall be designed and constructed so as to provide reasonable facilities to assist firefighters in the protection of life - (2) Reasonable provision shall be made within the site of the building to enable fire appliances to gain access to the building".*

B2 CFD Models

B2.1 Design

B2.1.1 To assess the alternative solutions, CFD models have been produced to simulate the conditions present during a fire scenario, allowing evaluation and comparison of the alternative solutions to the recommended code compliant arrangement.

B2.1.2 For consistency, as many key variables as possible will remain constant and identical in all scenarios, such as fire location and fuel type.

B2.2 Modelled Scenarios

B2.2.1 Two corridor arrangements have been modelled, one with the stair core at the end of the corridor (hereafter referred to as C1) and the other with the stair core in the middle of the corridor (hereafter referred to as C2). The first arrangement with the stair at the end of the corridor has two scenarios and the second arrangement with the stair in the middle of the corridor has four scenarios.

B2.2.2 The first arrangement (C1) consists of the following scenarios:

- Shaft location 1 (SL1) with an alternative design for the natural shaft location (adjacent to the stair).
- Shaft location 2 (SL2) with the recommended BS 9991 design for the natural shaft location (remote for the stair)

B2.2.3 The second arrangement (C2) consists of the following scenarios:

- Shaft location 1 (SL1) with an alternative design for the natural shaft location (adjacent to the stair)
- Shaft location 2 (SL2) with the recommended BS 9991 design for the natural shaft location (remote for the stair)
- Shaft location 3 (SL3) with an alternative design for the natural shaft location (adjacent for the stair)
- Shaft location 4 (SL4) with the recommended BS 9991 design for the natural shaft location (remote for the stair)

B2.2.4 Each of the above scenarios has had four different fire cases (hereafter referred to as FC) modelled to represent how each of the scenarios are affected when the fire is close to the stair and further away. These locations have been chosen based of travel distance from apartment door to stair door ranging from 0m to 15m. the following distances have been chosen:

- FC 0m
- FC 5m
- FC 10m
- FC 15m

B2.3 Smoke Ventilation Overview

B2.3.1 The smoke ventilation within both corridor arrangements will be the same. The system will consist of a 1.5m^2 natural shaft with a 1.0m^2 AOV into the shaft, which will open upon smoke detection within the corridor.

B2.3.2 All vents in the corridor should be located as high as practically possible, at least in line with the top of the doors. Note, for the purposes of the modelling these have been positioned 0.2m from the ceiling.

B2.3.3 The stair is to be provided with a 1m^2 AOV at the head to act as an additional replacement air for the system.

B2.4 BS 9991 Compliant Designs

B2.4.1 In accordance with BS 9991, a travel distance from the furthest apartment shouldn't exceed 15m (when building is sprinklered) and a 1.5m^2 natural shaft should be provided for ventilation purposes. The natural smoke shaft serving storeys above ground level should meet the following recommendations:

- The smoke shaft should be fully open to the external air at the top and closed at the base.
- The opening at the top of the smoke shaft should be located at least 0.5m above any surrounding structures that fall within a 2m radius on a horizontal plane so that it is not subject to adverse wind effects (i.e., it should always have negative wind pressure coefficients).
- The shaft should extend a minimum length of 2.5m above the ceiling of the highest storey which is served by the shaft.
- The cross-sectional area (free area) of the smoke shaft should be at least 1.5m^2, with a minimum dimension of 0.85m in any direction.
- The lobby or corridor vent, the opening at the head of the shaft and all internal locations (such as safety grilles) within the shaft should have a fee area of at least 1.0m^2.
- The top of the lobby or corridor vent should be located as close to the ceiling of the lobby or corridor as is practicable and should be at least as high as the top of the door connecting the lobby or corridor to the stairwell.
- The lobby or corridor vents, in the closed position, should have a minimum fire and smoke resistance performance of 30min and integrity (leakage) no greater than 360m^3/h/m^2 when tested in accordance with BS EN 1366-2.
- The smoke shaft should be constructed either of non-combustible materials conforming to BS 476-4 or of any material which, when tested in accordance with BS 476-11, does not flame or cause any rise in the temperature on either the centre of the specimen or the furnace thermocouples. The smoke shaft should run vertically from top to bottom with no more than 4m of the shaft at an inclined angle (max 30°).
- No services other than those relating to the relating to the smoke shaft should be contained within the smoke shaft.
- The smoke shaft should be located at the remote end of the corridor away from the staircase.

B2.4.2 Such scenarios were used to compare against the alternative fire engineered designs, see figures Figure 25 & Figure 26.

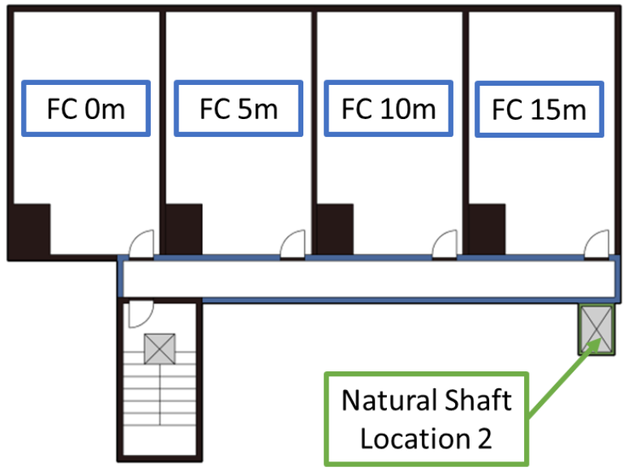


Figure 25: C1 Floor Plan and Ventilation Mark-up

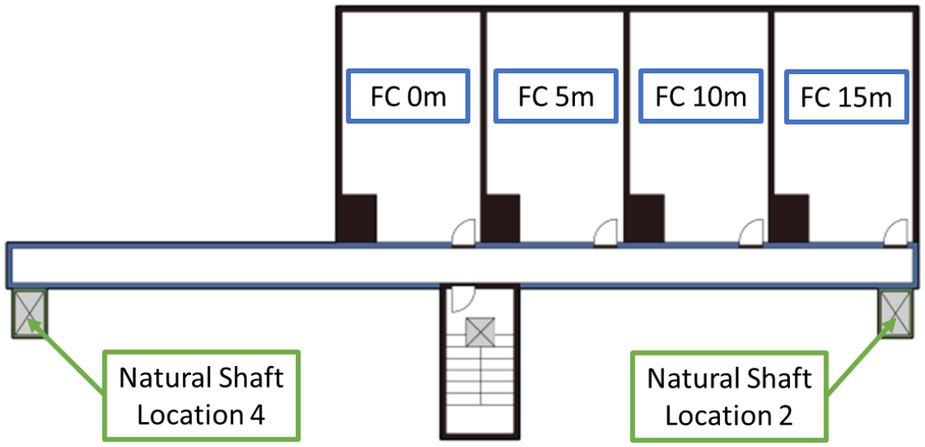


Figure 26: C2 Floor Plan and Ventilation Mark-up

B2.5 Alternative Designs

B2.5.1 The alternative design will be identical to the BS 9991 compliant designs and meet all of the recommendations mentioned above in section (2.4), except the positioning of the smoke shaft relative to the stair door. The smoke shaft should be located at the remote end of the corridor away from the staircase however, it will be located adjacent to or in close proximity to the staircase. Such scenarios were used to compare against the recommended BS 9991 designs, see figures Figure 27 & Figure 28.

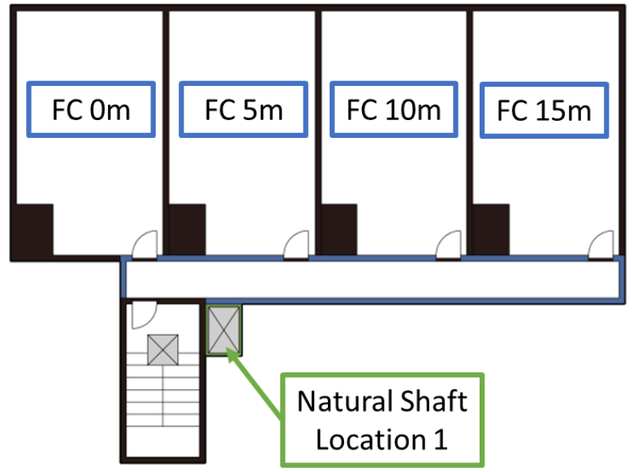


Figure 27: C1 Floor Plan and Ventilation Mark-up

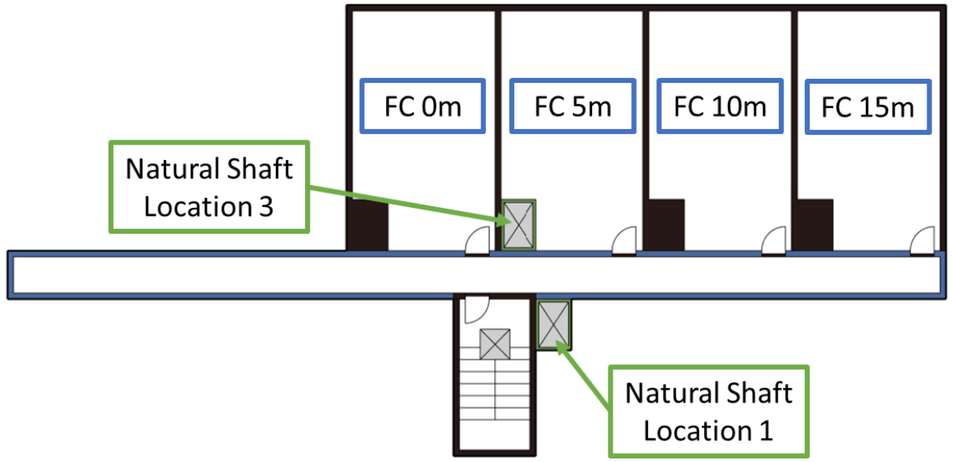


Figure 28: C2 Floor Plan and Ventilation Mark-up

B2.6 Comparison Criteria

B2.6.1 The primarily assessment will be via comparison of the cases.

B2.6.2 The benchmark for all models will follow the recommendations of the SCA Guide, based on the following principles, however these don't need to be achieved due to the compliant travel distances:

- Visibility returns to above 10m along the escape route 2 minutes after fire door closure.
- Temperature returns to below 60°C along the escape route 2 minutes after fire door closure.
- Temperature does not peak above 235°C within 1m of the fire room door during firefighting operations.

- The SCA guide states it is generally recognised that for the exposure time during the escape phase, the toxicity levels associated with the smoke are likely to be acceptable if visibility is acceptable.

B2.6.3 The stair should be kept free of any significant amounts of smoke which could hinder escape for an extended period of time. Small amounts of smoke which enter the stair when initially opened is not considered to result in failure of the system. This is the primary aim of the smoke ventilation system.

B2.6.4 It should be noted that there is no requirement for the corridor to remain clear of smoke in the firefighting phase; the intent is to demonstrate protection to the stair with the conservative assumptions that the apartment door is fully open and stair door is partially open.

B2.6.5 The proposed tenable conditions stated in the paragraphs above are to be used as benchmark criteria for the comparison purposes to measure the time the failure of tenable conditions occurs.

B3 Modelling Parameters

B3.1 General

B3.1.1 The analysis has been caried out using Fire Dynamics Simulator (FDS v6.7.5) developed by NIST. FDS is a widely used tool in the industry, that allows simulations of movement of smoke and heat from fires.

B3.1.2 The FDS software works by discretising the computational domain into finite grids, the programme numerically solves a form of the Navier Stokes equation for each grid and calculates the smoke and heat transfer from each cell. Generally the finer the grid the more accurate the results, although a balance has to be determined between the grid size used and the computational demands of the model. For simulations involving buoyant plumes a measure of how well the flow field can be resolved is given by the non-dimensional expression D*/δx where D* is the characteristic dimension of the fire (calculated as shown in Equation 1 below) and δx is the nominal size of a mesh cell.

$$D^* = \left(\frac{\dot{Q}}{\rho_\infty C_p T_\infty \sqrt{g}}\right)^{\frac{2}{5}}$$

B3.1.3 The FDS user guide recommends a D*/ δx ratio between 4 and 16, generally the finer mesh is used around the fire and primary areas of interest, whilst areas further from the fire or outside the zone of interest can employ a coarser mesh. The following **Table 16** illustrates the grid sizes used in the modelling. A mesh size of 0.1m has been used throughout the models except for the staircase where a cell size of 0.2m has been used.

Table 16: Grid Size Ratio

	Category	Grid Size Recommended	Grid Size Used
D*/4	Coarse	0.24	0.2
D*/10	Moderate	0.096	0.1
D*/16	Fine	0.06	0.1

B3.1.4 The purpose of slightly increased grid size used is to reduce the processing time and computational power; while, the results will be very similar/identical, the time and processing power needed to complete the CFD modelling will be essentially halved, with marginal impact on the accuracy of the model.

B3.1.5 The ambient temperature set for each of the Scenarios is at 20°C.

B3.2 Design Fire

B3.2.1 The fire compartment has been provided with sprinklers. The peak fire size used in the calculations was a 1.0MW fire which is considered to be conservative for residential type dwellings and is in line with the peak fire size recommended in the SCA guidance. A fast fire growth rate was used in each scenario.

- The fire has been considered as a polyurethane fire with a soot yield 10%, this is considered to be appropriate for the significant items of fuel load located within a fire compartment, such as chairs, sofas and beds.
- The design fire used in the model is a t^2 fast growing fire.
- It should be noted that for comparison reasons, the fire growth rate has been kept the same for all models.

B3.3 2D Slices & Devices

B3.3.1 Both 2D slices and devices have been used to measure the visibility and temperature within all the models. The output data from these have been used as a visual representation to compare the results of the effect of the different shaft locations has on the conditions within the corridor and stair.

B3.3.2 The 2D planar slices have been included within all the models, measuring Visibility and Temperature. These slice files are used to measure visibility and temperature within the models and show an animated visual representation of the results within Smokeview.

B3.3.3 The slices have been set horizontally and vertically, the horizontal slices are set at 1m, 1.5m & 2m above floor level and the vertical slice have been set throughout the building going through the stair, corridor, and fire compartment.

B3.3.4 Visibility devices have been used in all the models to measure the visibility within the stair core. These devices have been set at 2m above the floor level and 1m away from the stair door on each floor within the stair core. The output data of these devices has been graphed to compare the results between the models.

B3.4 CFD Analysis Assumptions

B3.4.1 The timeline of events is as follows, see Table 17:

Table 17: CFD Simulation Timeline

Time	Event
0s	Simulation start, fire ignites
150s	MOE - Door to fire room opens simulating escaping occupants.
170s	Door closes.
150s + Xs	Stair door opens based on the travel distance from fire room door (see **Table 18**) and closes after 20s.
350s	FF – Doors to fire room and stairs open simultaneously simulating fire service operations. Ground Floor stair door opens.
650s	Door to fire room closes
800s	End of Simulation

Table 18: Stair Door Times

Scenario	Distance travelled	Time taken (based on 1.2m/s as per BS 7974-2 rounded up)
FC 0m	0m	1s
FC 5m	5m	5s
FC 10m	10m	9s
FC 15m	15m	13s

B3.4.2 All vents are to be linked to detection in the common corridors.

B4 Modelling Results – Corridor 1 (C1)

B4.1 FC 0m Cases

B4.1.1 During means of escape phase, the common corridor in both the alternative and the recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See **Figure 29** for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 30** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

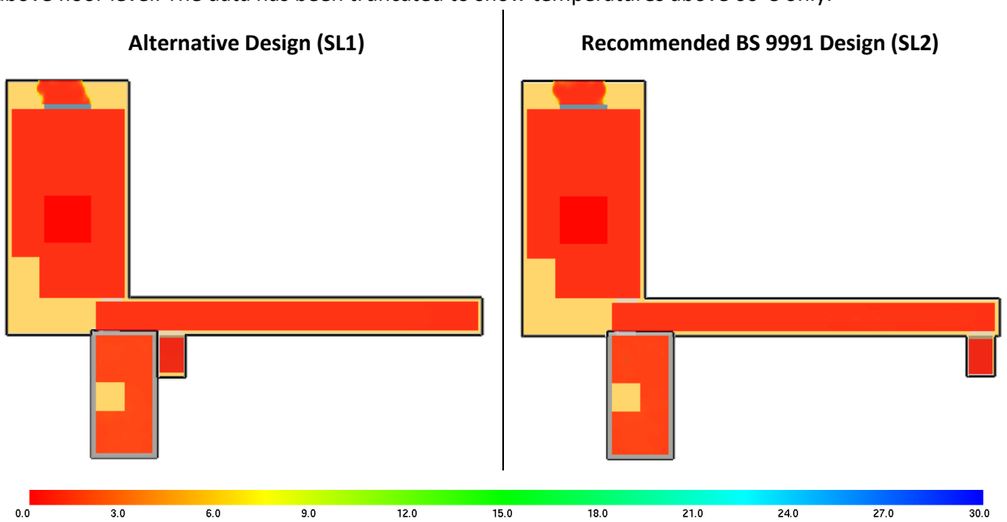


Figure 29: Means of Escape Phase – Visibility (290s)

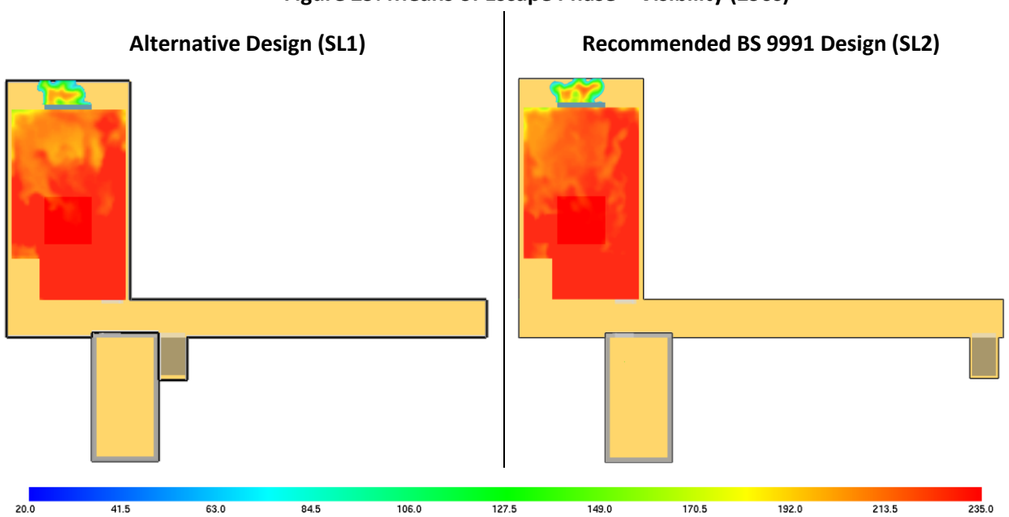


Figure 30: Means of Escape Phase – Temperature (290s)

B4.1.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in both designs, however in the recommended design there are slightly elevated temperature across the entire corridor albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to Figure 31 for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

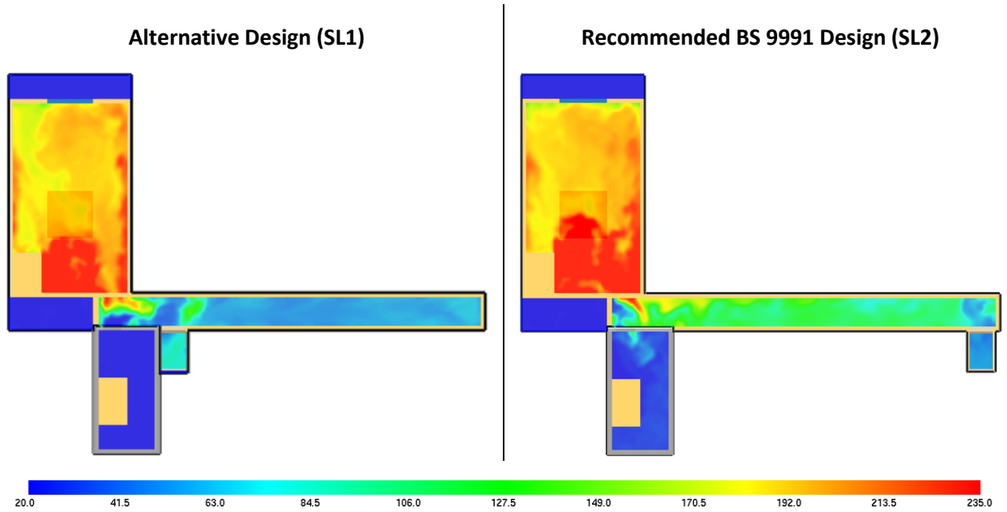


Figure 31: Firefighting Phase – Temperature (650s)

B4.1.3 During the means of escape phase, a significant amount smoke enters the stair in both designs and remains in the stairs at the end of the means of escape phase. In both cases the average visibility in the stair drops below the tenability limit of 10m.

B4.1.4 During the firefighting phase some more smoke enters the stairs in both models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in the alternative design and has become tenable. In the recommended design some smoke remains in the stair but has been reduce slightly and the average visibility in the stair has risen above the tenability limit of 10m.

B4.1.5 See Figure 32 showing a graph comparing the average visibility within the stairs of both designs.

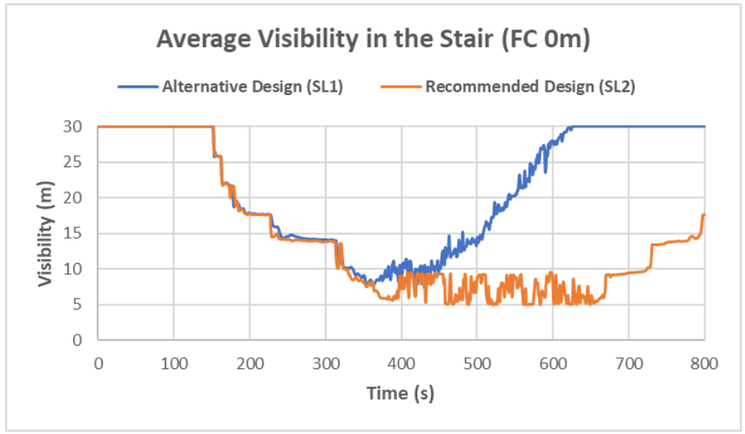


Figure 32: Average visibility within the stairs

B4.1.6 The tables below summarise the performance of the proposed smoke ventilation system.

Table 19

C1		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 0m	SL1	Yes	Yes	Yes	Equal	Yes	Yes
	SL2	Yes	Yes	No	N/A		N/A

B4.1.7 From the results above the alternative design performs just as good as the recommended BS 9991 design during the means of escape phase but during the firefighting phase it performs significantly better.

B4.2 FC 5m Cases

B4.2.1 During means of escape phase, the common corridor in both the alternative and the recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See **Figure 33** for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 34** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

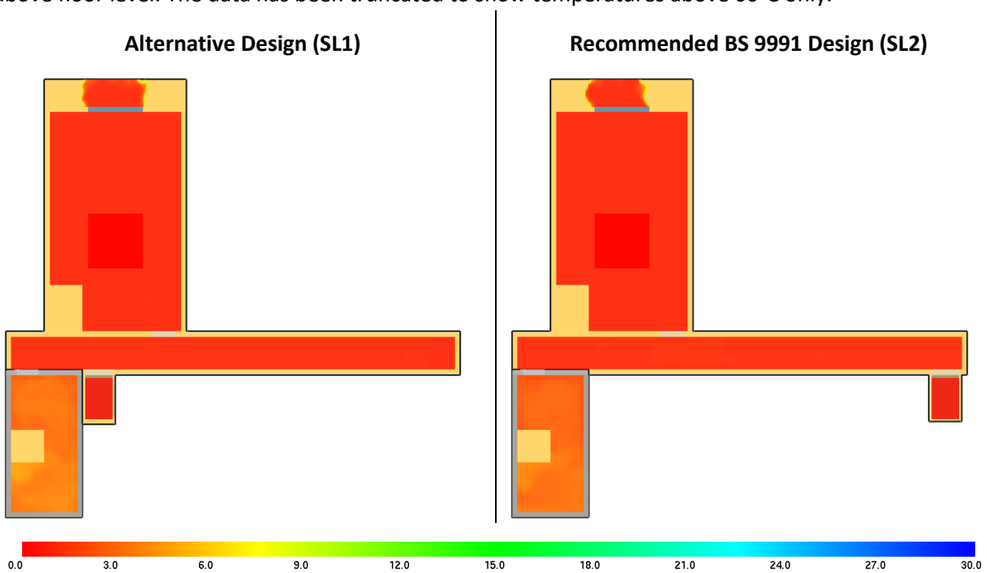


Figure 33: Means of Escape Phase – Visibility (290s)

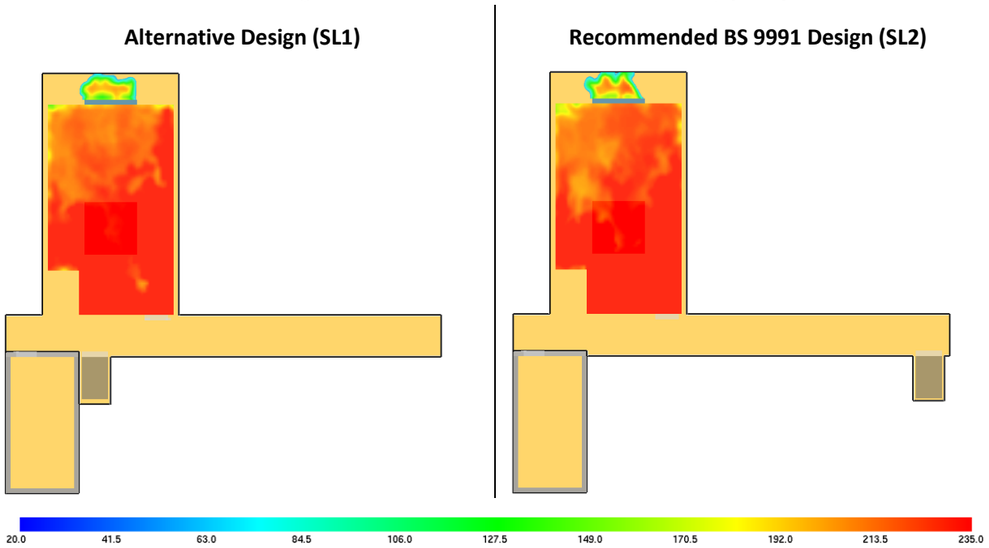


Figure 34: Means of Escape Phase – Temperature (290s)

B4.2.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in both designs, however in both design there are slightly elevated temperature across the entire corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to **Figure 35** for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

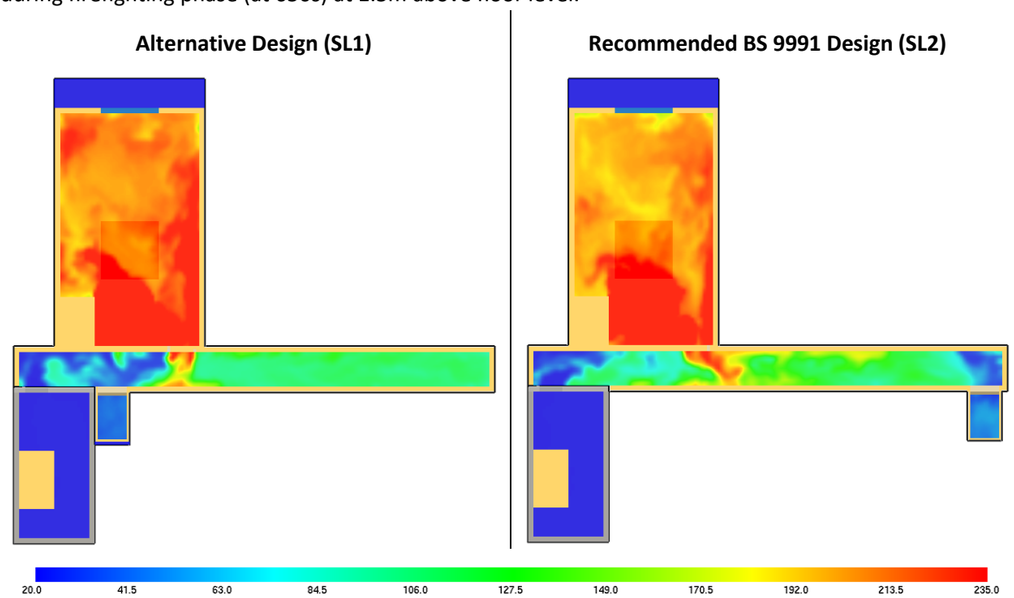


Figure 35: Firefighting Phase – Temperature (650s)

B4.2.3 During the means of escape phase, a significant amount smoke enters the stair in both designs and remains in the stair at the end of the means of escape phase. However, the average visibility in the stair never dropped below the tenability limit of 10m in both cases.

B4.2.4 During the firefighting phase some more smoke enters the stairs in both models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in both the alternative and recommended design and the average visibility in the stair remained above the tenability limit in both cases.

B4.2.5 See **Figure 36** showing a graph comparing the average visibility within the stairs of both designs.

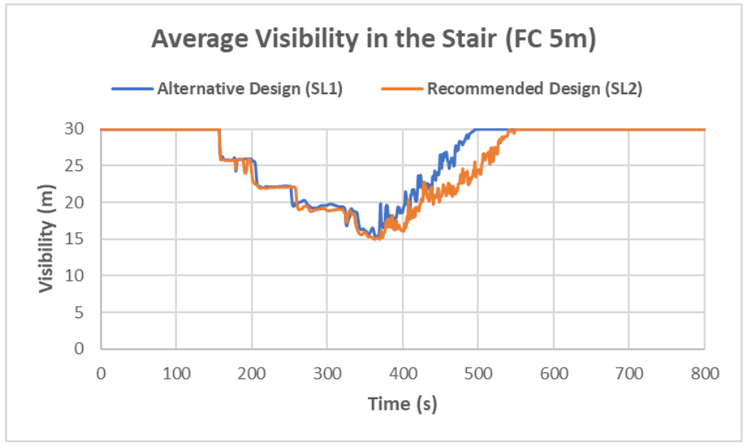


Figure 36: Average visibility within the stairs

B4.2.6 The tables below summarise the performance of the proposed smoke ventilation system.

Table 20

C1		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 5m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A

B4.2.7 From the results above the alternative design performs just as good as the recommended BS 9991 design during the means of escape phase but during the firefighting phase it performs slightly better.

B4.3 FC 10m Cases

B4.3.1 During means of escape phase the common corridor in both the alternative and the recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See Figure 37 for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See Figure 38 for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

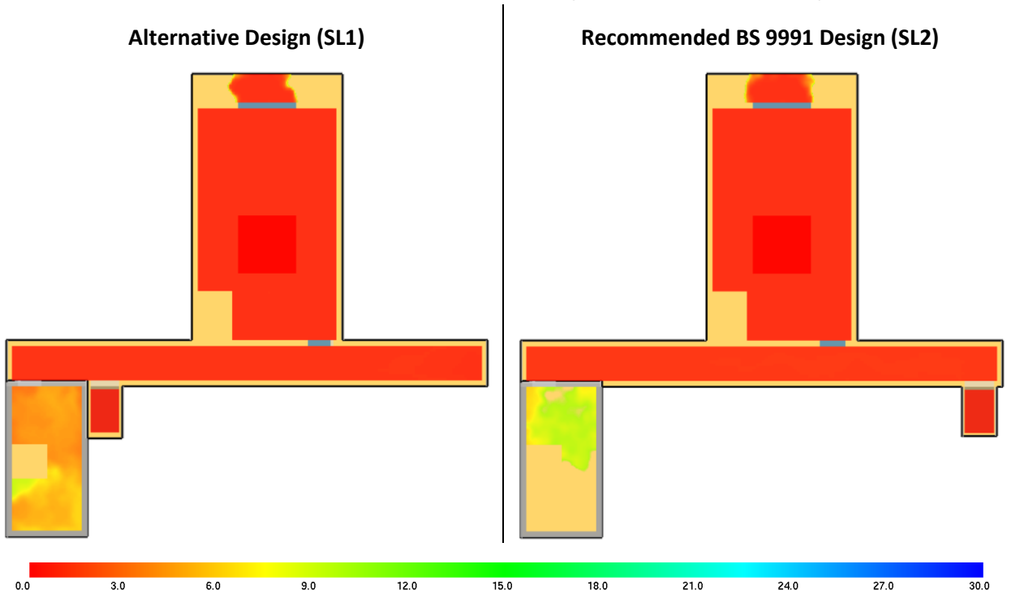


Figure 37: Means of Escape Phase – Visibility (290s)

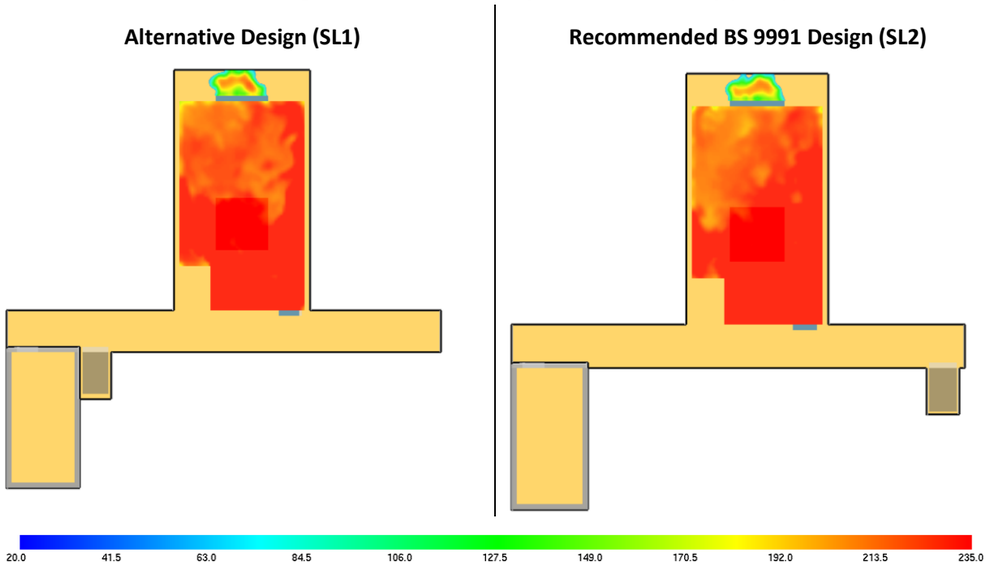


Figure 38: Means of Escape Phase – Temperature (290s)

B4.3.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in both designs, however in both design there are slightly elevated temperature across the entire corridor albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to Figure 39 for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

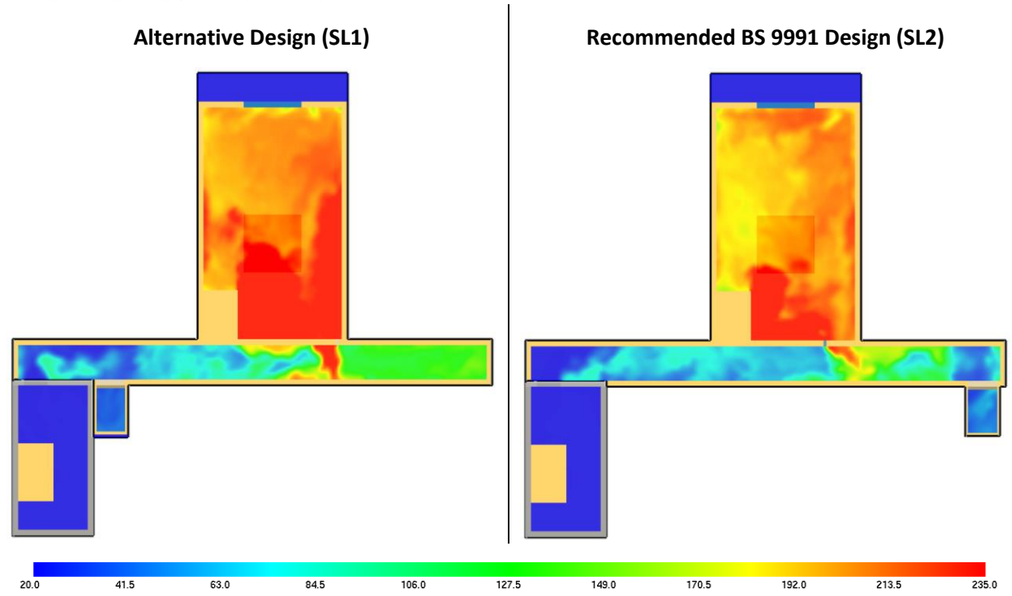


Figure 39: Firefighting Phase – Temperature (650s)

B4.3.3 During the means of escape phase, a significant amount smoke enters the stair in both designs and remains in the stair at the end of the means of escape phase. However, the average visibility in the stair never dropped below the tenability limit of 10m in both cases.

B4.3.4 During the firefighting phase some more smoke enters the stairs in both models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in both the alternative and recommended design and the average visibility in the stair remained above the tenability limit in both cases.

B4.3.5 See Figure 40 showing a graph comparing the average visibility within the stairs of both designs.

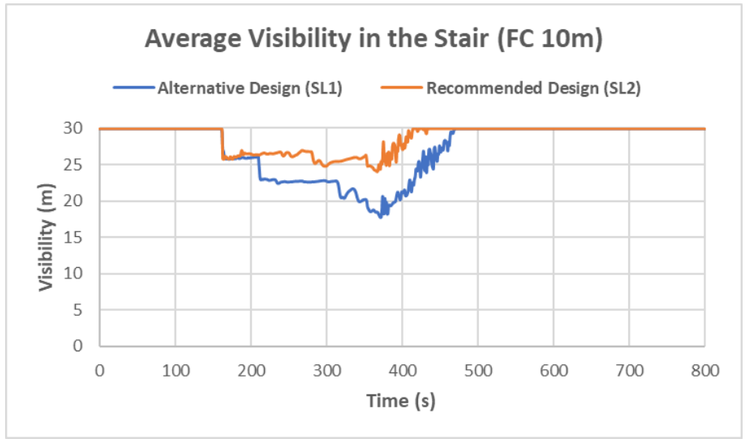


Figure 40: Average visibility within the stairs

B4.3.6 The tables below summarise the performance of the proposed smoke ventilation system.

Table 21

C1		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 10m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A

B4.3.7 From the results above the alternative design performs slightly worse than the recommended design but still performs better than the benchmark criteria set out above so is considered to perform just as good as the recommended BS 9991 design.

B4.4 FC 15m Cases

B4.4.1 During means of escape phase, the common corridor in both the alternative and the recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See **Figure 41** for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 42** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

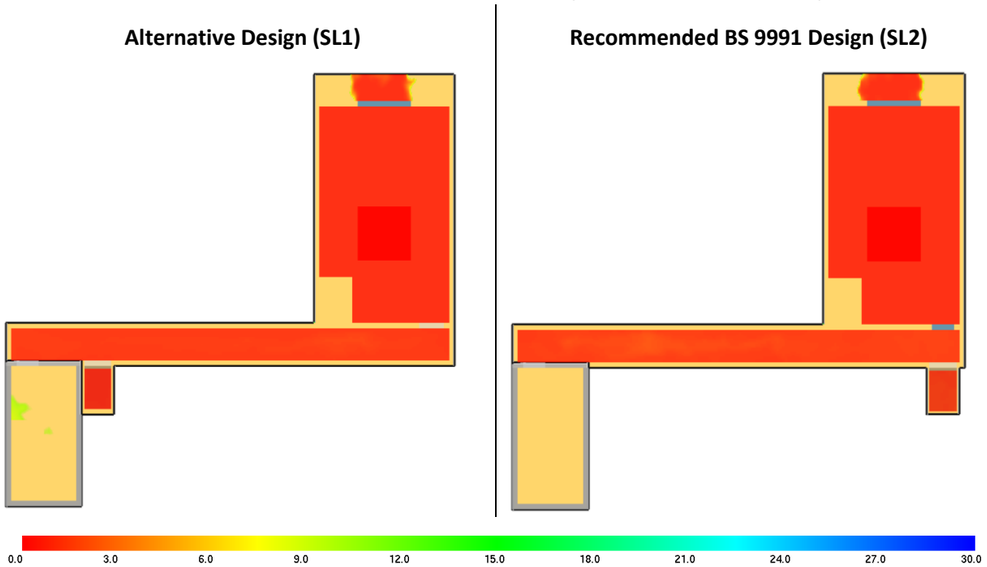


Figure 41: Means of Escape Phase – Visibility (290s)

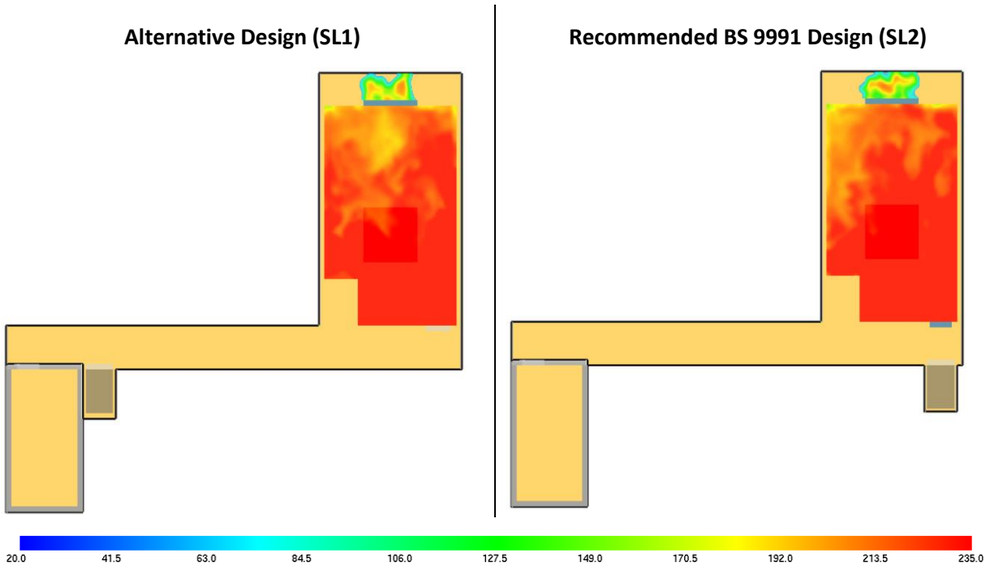


Figure 42: Means of Escape Phase – Temperature (290s)

B4.4.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in both designs, however in alternative design there are slightly elevated temperature across the entire corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to **Figure 43** for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

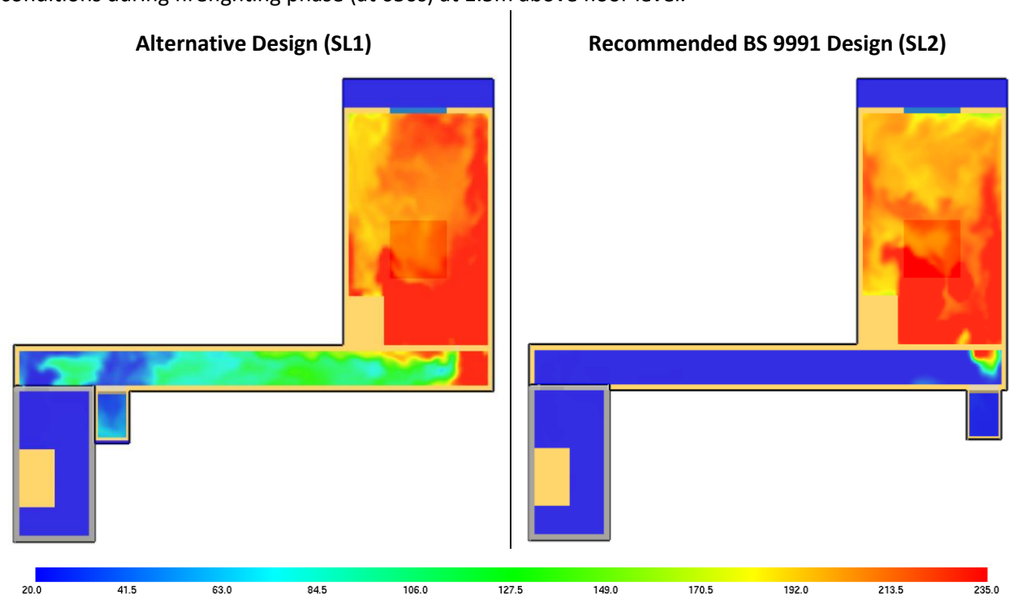


Figure 43: Firefighting Phase – Temperature (650s)

B4.4.3 During the means of escape phase, a small amount of smoke enters the stair in the alternative design and remains in the stair at the end of the means of escape phase, however the average visibility in the stair never dropped below the tenability limit of 10m. In the recommended design no smoke enters the stair during this phase.

B4.4.4 During the firefighting phase some smoke enters the stairs in both designs at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in both the alternative and recommended design and the average visibility in the stair remained above the tenability limit in both cases.

B4.4.5 See Figure 44 showing a graph comparing the average visibility within the stairs of both designs.

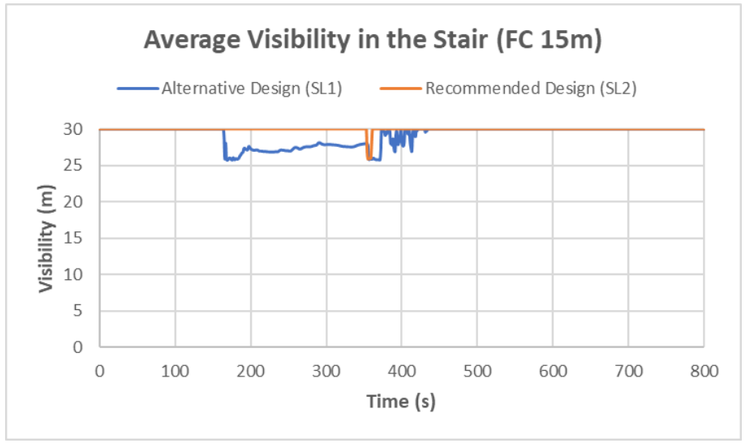


Figure 44: Average visibility within the stairs

B4.4.6 The tables below summarise the performance of the proposed smoke ventilation system.

Table 22

C1		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 15m	SL1	Yes	Yes	Yes	Equal	Equal	Equal
	SL2	No	Yes	Yes	N/A		N/A

B4.4.7 From the results above the alternative design performs slightly worse than the recommended design but still performs better than the benchmark criteria set out above so is considered to perform just as good as the recommended BS 9991 design.

B5 Modelling Results – Corridor 2 (C2)

B5.1 FC 0m Cases

B5.1.1 During means of escape phase, the common corridor in both alternative and both recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See Figure 45 for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See Figure 46 for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

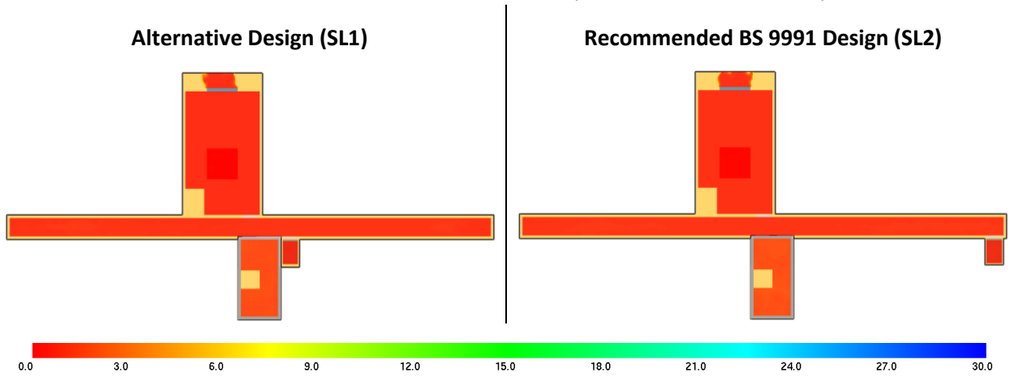


Figure 45: Means of Escape Phase – Visibility (290s)

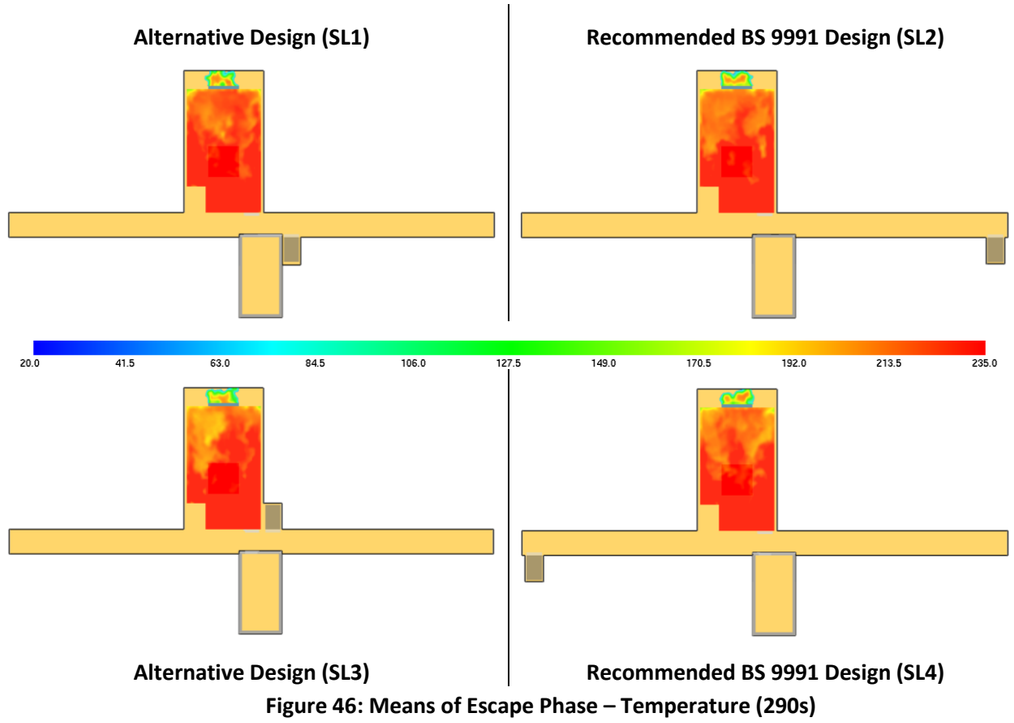


Figure 46: Means of Escape Phase – Temperature (290s)

B5.1.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in all designs, however in both recommend designs there are slightly elevated temperature across the entire corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to Figure 47 for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

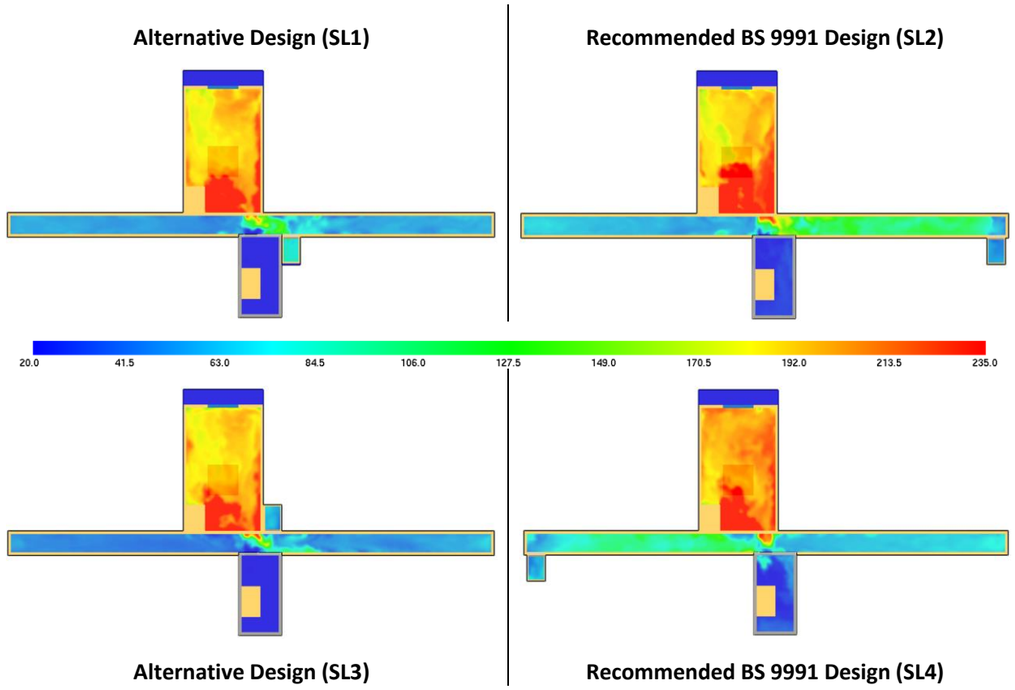


Figure 47: Firefighting Phase – Temperature (650s)

B5.1.3 During the means of escape phase, a significant amount smoke enters the stair in all the designs and remains in the stair at the end of the means of escape phase. In most of the cases the average visibility in the stair doesn't drop below the tenability limit of 10m, except in the recommended design (SL4) which does drop below 10m.

B5.1.4 During the firefighting phase some more smoke enters the stairs in all the models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in both the alternative design and has become tenable. In both the recommended designs some smoke remains in the stair but has been reduce slightly and the average visibility in the stair has risen above the tenability limit of 10m.

B5.1.5 See Figure 48 show a graph comparing the average visibility within the stairs of all the designs.

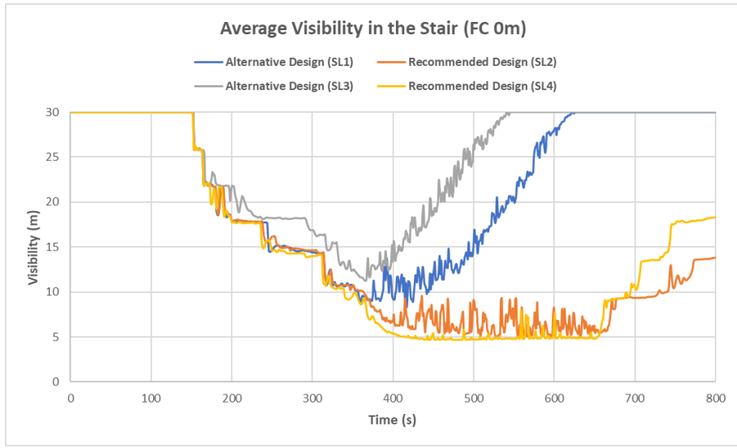


Figure 48: Average visibility within the stairs

B5.1.6 The tables below summarise the performance of the proposed smoke ventilation systems.

Table 23

C2		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 0m	SL1	Yes	Yes	Yes	Equal	Yes	Yes
	SL2	Yes	Yes	No	N/A		N/A
	SL3	Yes	Yes	Yes	Equal	Yes	yes
	SL4	Yes	Yes	No	N/A		N/A

B5.1.7 From the results above the alternative designs performs just as good as the recommended BS 9991 designs during the means of escape phase however during the firefighting phase they perform significantly better.

B5.2 FC 5m Cases

B5.2.1 During means of escape phase, the common corridor in both alternative and both recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See Figure 49 for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 50** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

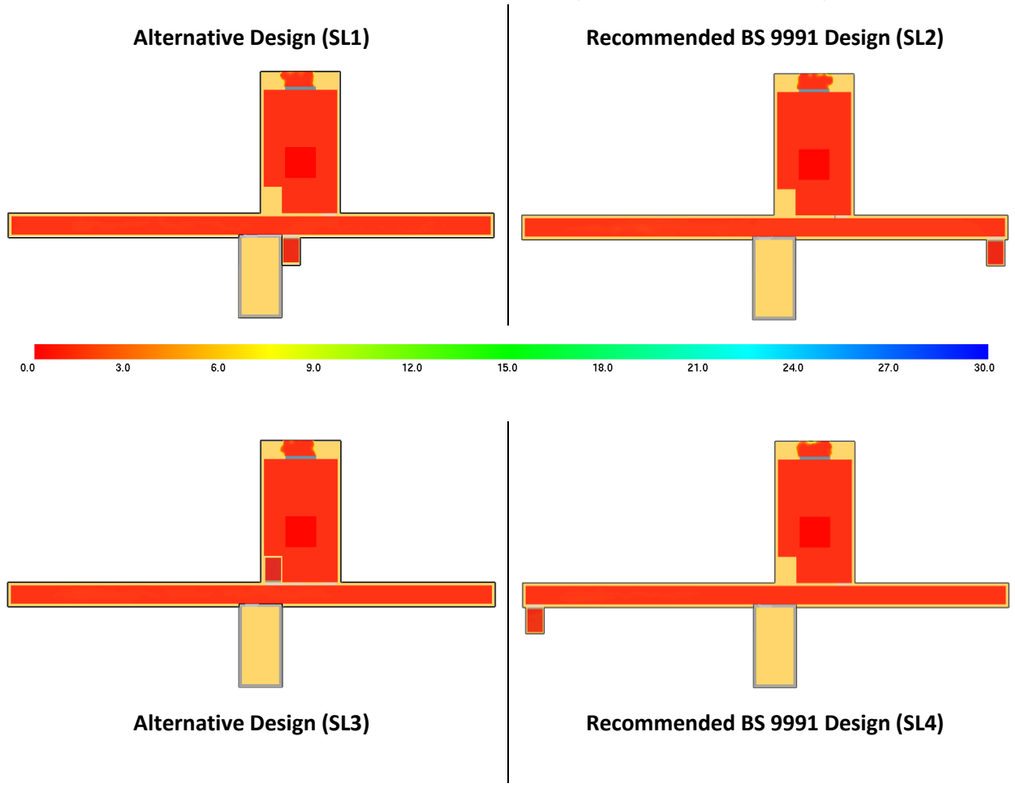


Figure 49: Means of Escape Phase – Visibility (290s)

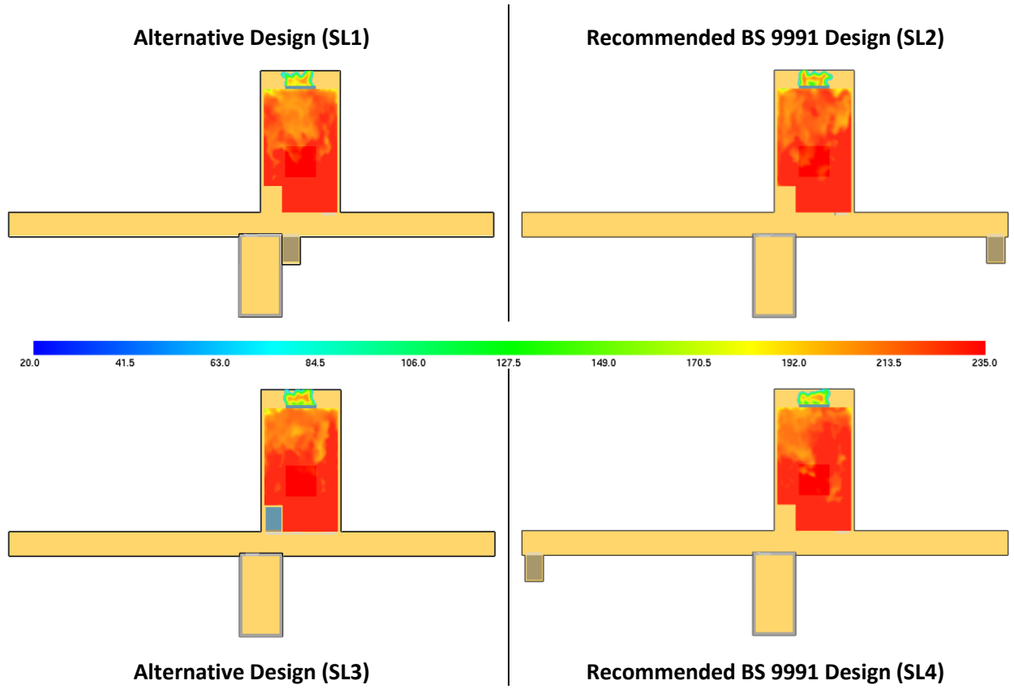
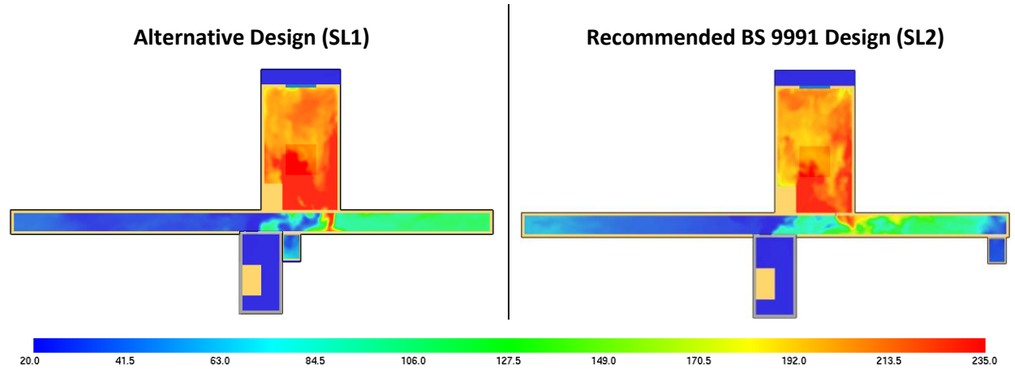
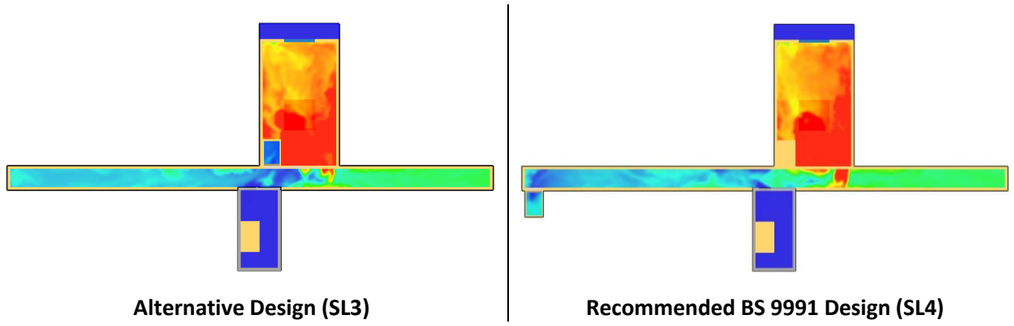


Figure 50: Means of Escape Phase – Temperature (290s)

B5.2.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in all designs, however in all designs there are slightly elevated temperature in areas of the corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to **Figure 51** for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.





Alternative Design (SL3) **Recommended BS 9991 Design (SL4)**

Figure 51: Firefighting Phase – Temperature (650s)

B5.2.3 During the means of escape phase, a small amount smoke enters the stair in all the designs and remains in the stair at the end of the means of escape phase. However, the average visibility in the stair never dropped below the tenability limit of 10m in all cases.

B5.2.4 During the firefighting phase a small amount of more smoke enters the stairs in all the models at the start of the firefighting phase (except in the SL4 case a larger amount of smoke entered the stair than in the other cases), towards the end of the models the smoke has completely been removed in all the designs and the average visibility in the stair remained above the tenability limit in all cases.

B5.2.5 See Figure 52 show a graph comparing the average visibility within the stairs of all the designs.

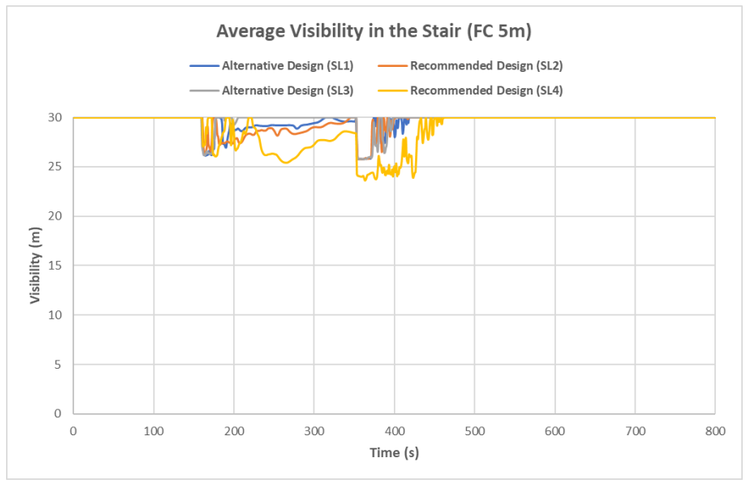


Figure 52: Average visibility within the stairs

B5.2.6 The tables below summarise the performance of the proposed smoke ventilation systems.

Table 24

C2		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 5m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Equal		Equal
	SL4	Yes	Yes	Yes	N/A		N/A

B5.2.7 From the results above the alternative design performs just as good as the recommended design (SL2) case throughout the simulation, however they perform slightly better the recommended design (SL4) case throughout the simulation. Overall, they are deemed to perform just as good as, the recommended BS 9991 designs.

B5.3 FC 10m Cases

B5.3.1 During means of escape phase, the common corridor in both alternative and both recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See Figure 53 for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 54** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

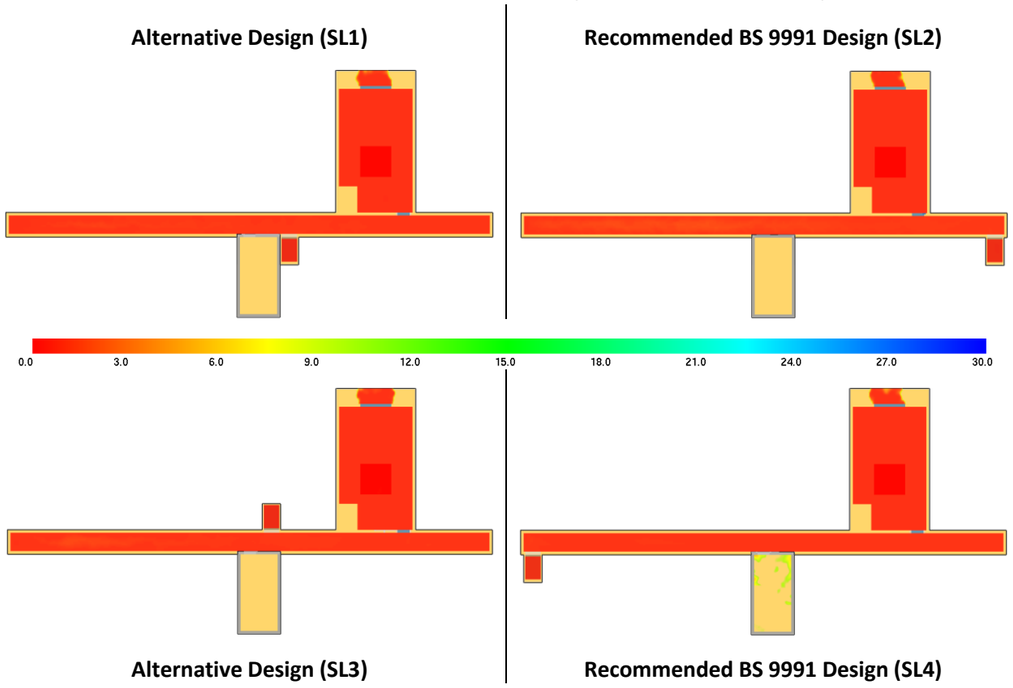


Figure 53: Means of Escape Phase – Visibility (290s)

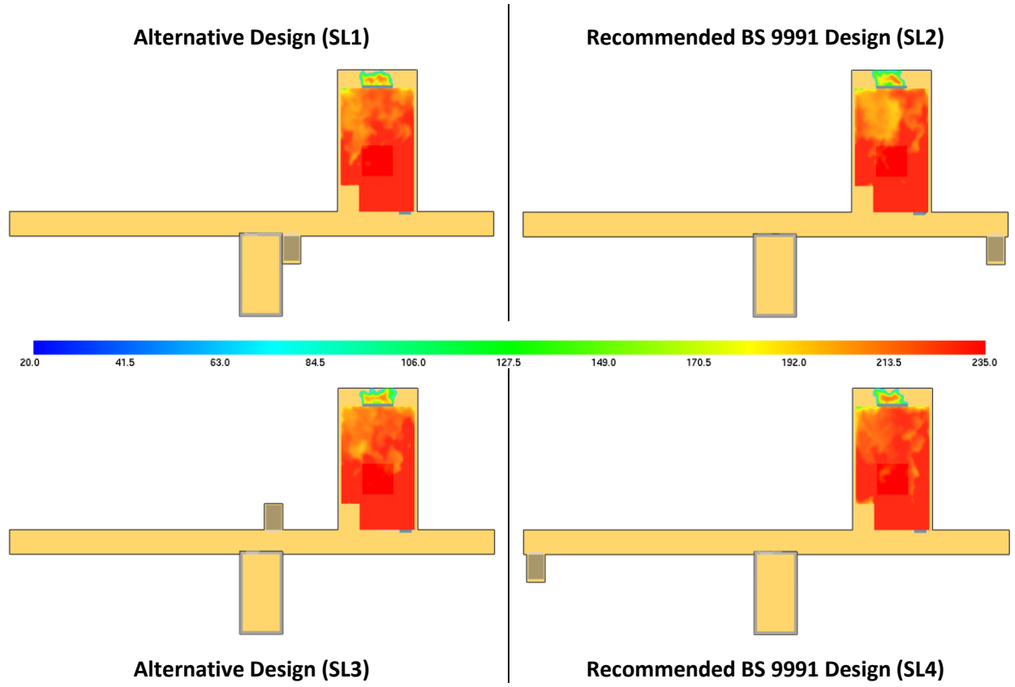


Figure 54: Means of Escape Phase – Temperature (290s)

B5.3.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in all designs, however in all designs there are slightly elevated temperature in areas of the corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to **Figure 55** for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

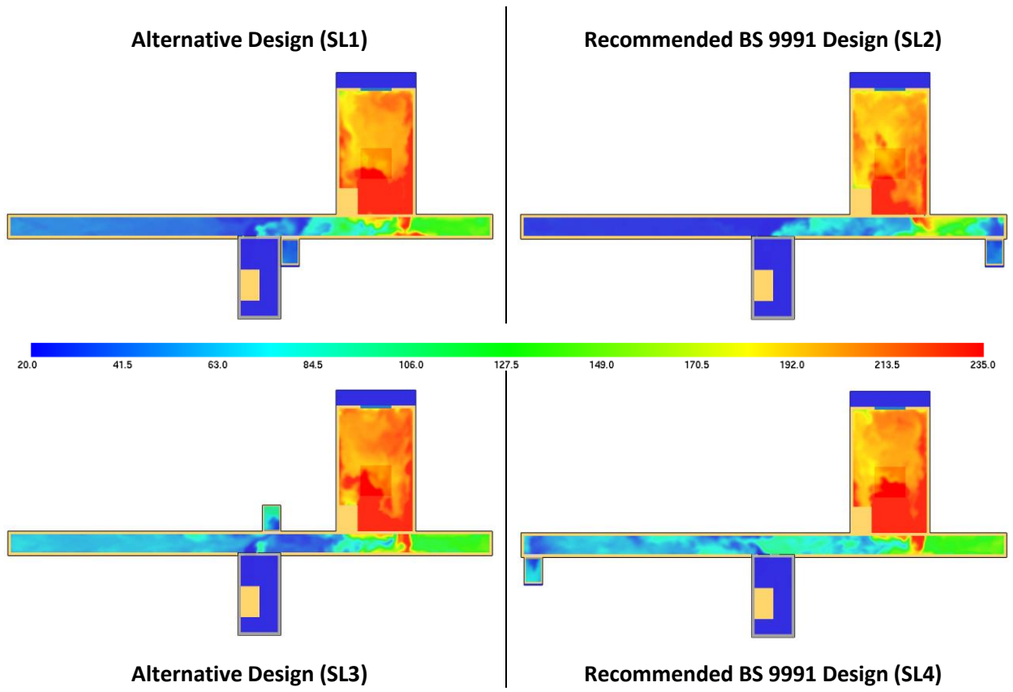


Figure 55: Firefighting Phase – Temperature (650s)

B5.3.3 During the means of escape phase, a small amount smoke enters the stair in both the alternative designs, and some remains in the stair at the end of the means of escape phase. In the recommended designs less smoke enters the stair during this phase in the SL2 case, but more smoke enters in the SL4 case than in the alternative cases. In the SL2 case the smoke is cleared from the stair by the end of this phase but in the SL4 case the smoke remains in the stair at the end the phase. However, the average visibility in the stair never dropped below the tenability limit of 10m in all cases.

B5.3.4 During the firefighting phase some more smoke enters the stairs in all the models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in all the designs and the average visibility in the stair remained above the tenability limit in all cases.

B5.3.5 See Figure 56 show a graph comparing the average visibility within the stairs of all the designs.

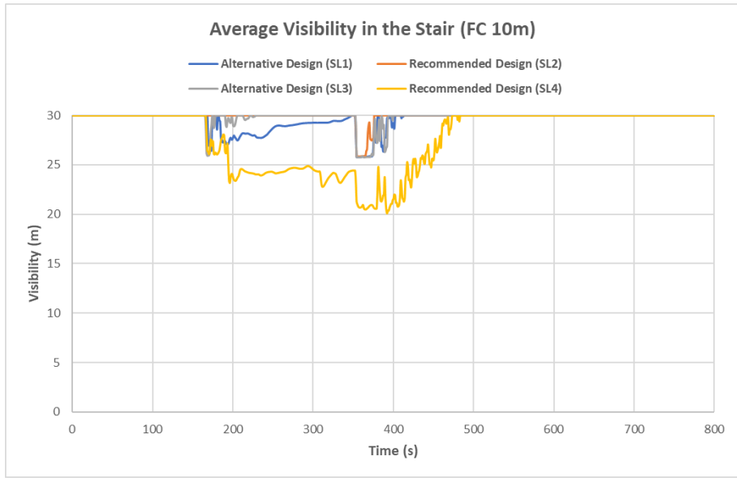


Figure 56: Average visibility within the stairs

B5.3.6 The tables below summarise the performance of the proposed smoke ventilation systems.

Table 25

C2		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 10m	SL1	Yes	Yes	Yes	Yes		Yes
	SL2	Yes	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Yes		Yes
	SL4	Yes	Yes	Yes	N/A		N/A

B5.3.7 From the results above the alternative design performs just as good as the recommended design (SL2) case throughout the simulation, however they perform slightly better the recommended design (SL4) case throughout the simulation. Overall, they are deemed performs just as good as if not slightly better than, the recommended BS 9991 designs.

B5.3.8 It should be noted that if the fire compartment was on the other side of the stair with the same travel distance as this simulation (10m) that the alternative designs would perform just as good as the SL4 recommended design and they would perform better than the SL2 recommended design, as this would be a reversal of the results for the recommended BS 9991 designs.

B5.4 FC 15m Cases

B5.4.1 During means of escape phase, the common corridor in both alternative and both recommended models doesn't clear within 2 minutes of fire room door closure (at 290s). See Figure 57 for a visual representation of the visibility conditions at 290s at 2m above floor level. The data has been truncated to show visibility below 10m only. See **Figure 58** for a visual representation of the temperature conditions at 290s at 2m above floor level. The data has been truncated to show temperatures above 60°C only.

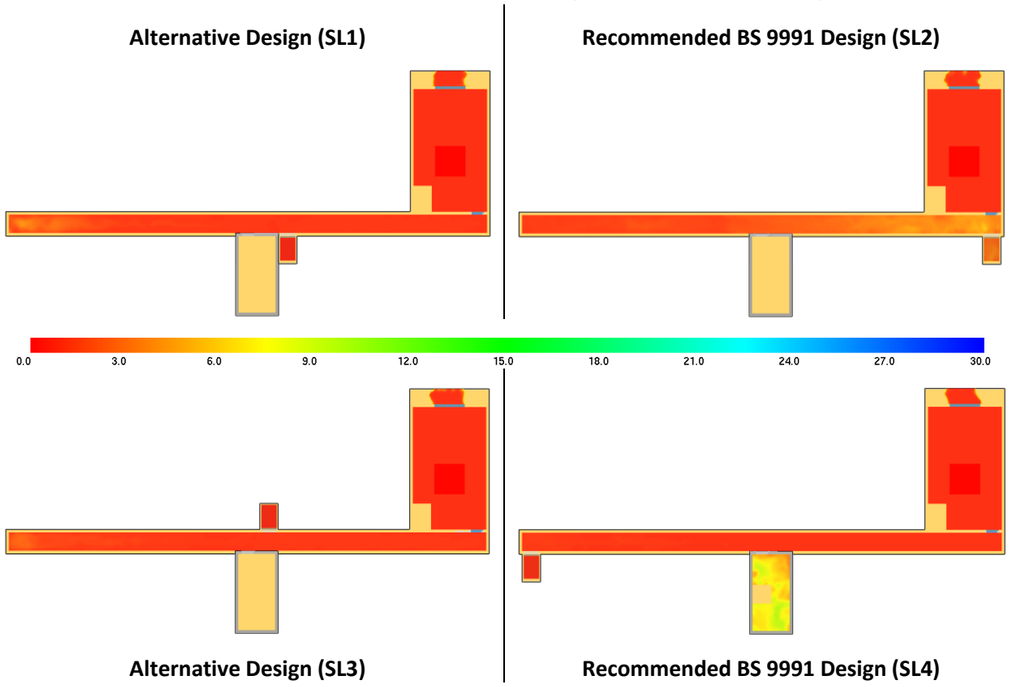


Figure 57: Means of Escape Phase – Visibility (290s)

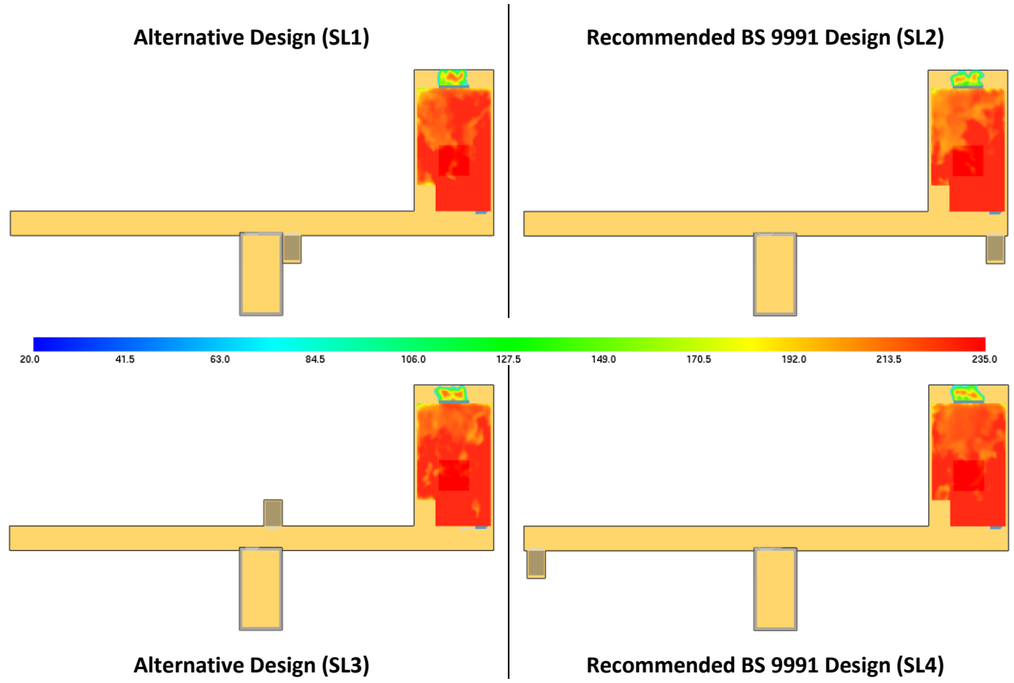


Figure 58: Means of Escape Phase – Temperature (290s)

B5.4.2 During firefighting phase, the temperature does not peak above 235°C more than 1m away from the fire room door during firefighting operations in all designs, however in both alternative designs and the recommend (SL4) design there are slightly elevated temperature in areas of the corridors albeit not in excess of the recommendations/acceptance criteria noted in Section 2.6. Please refer to **Figure 59** for a visual representation of the temperature conditions during firefighting phase (at 650s) at 1.5m above floor level.

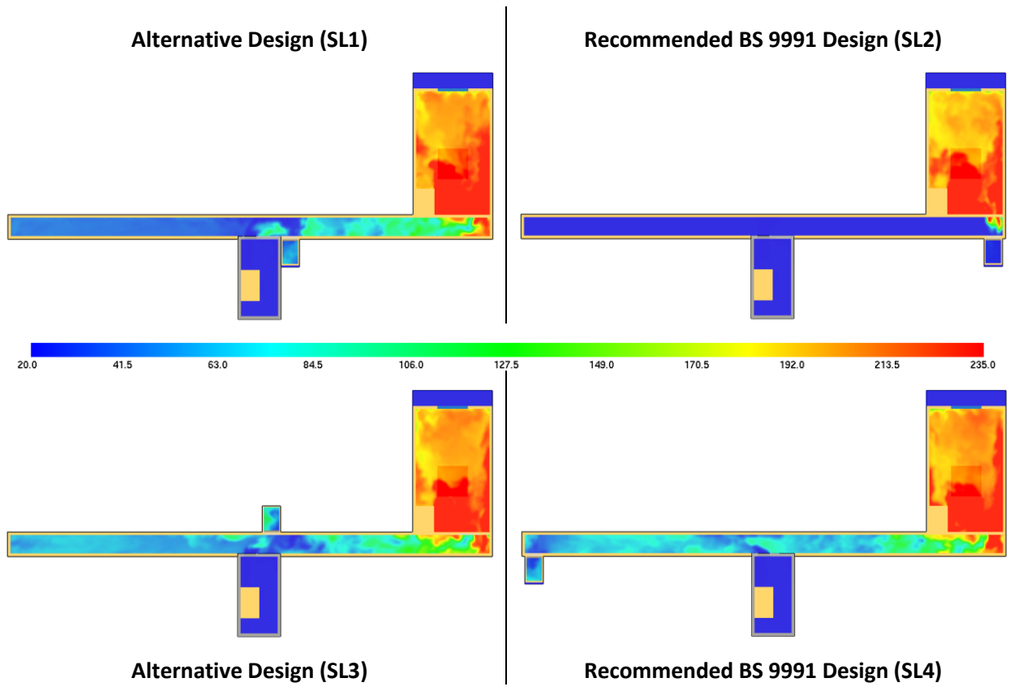


Figure 59: Firefighting Phase – Temperature (650s)

B5.4.3 During the means of escape phase, a small amount smoke enters the stair in both the alternative designs and is cleared from within the stair at the end of the means of escape phase. In the recommended designs, no smoke enters the stair during this phase in the SL2 case, but more smoke enters in the SL4 case than in the alternative cases, the smoke also remains in the stair at the end the phase. However, the average visibility in the stair never dropped below the tenability limit of 10m in all cases.

B5.4.4 During the firefighting phase some more smoke enters the stairs in all the models at the start of the firefighting phase, towards the end of the models the smoke has completely been removed in all the designs and the average visibility in the stair remained above the tenability limit in all cases.

B5.4.5 See Figure 60 show a graph comparing the average visibility within the stairs of all the designs.

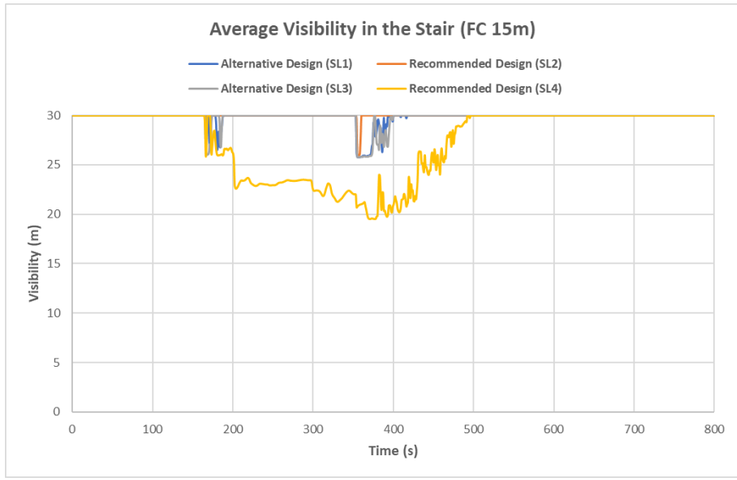


Figure 60: Average visibility within the stairs

B5.4.6 The tables below summarise the performance of the proposed smoke ventilation systems.

Table 26

C2		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 15m	SL1	Yes	Yes	Yes	Yes		Yes
	SL2	No	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Yes		Yes
	SL4	Yes	Yes	Yes	N/A		N/A

B5.4.7 From the results above the alternative design performs just as good as the recommended design (SL2) case throughout the simulation, however they perform slightly better the recommended design (SL4) case throughout the simulation. Overall, they are deemed performs just as good as if not slightly better than, the recommended BS 9991 designs.

B5.4.8 It should be noted that if the fire compartment was on the other side of the stair with the same travel distance as this simulation (15m) that the alternative designs would perform just as good as the SL4 recommended design and they would perform better than the SL2 recommended design, as this would be a reversal of the results for the recommended BS 9991 designs.

B6 Conclusion

B6.1 Report Summary

B6.1.1 The purpose of the CFD analysis was to demonstrate that the performance of the alternative natural shaft locations being adjacent to the stair perform equal to or better than the recommended locations, remote from the stair. A comparative analysis of the means of escape phase and firefighting phase through at the most onerous fire locations was adopted to test the proposed system against a worst-case scenario.

B6.1.2 The tables below summarise the performance of the proposed smoke ventilation systems for each case.

Table 27

C1		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 0m	SL1	Yes	Yes	Yes	Equal	Yes	Yes
	SL2	Yes	Yes	No	N/A		N/A
FC 5m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A
FC 10m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A
FC 15m	SL1	Yes	Yes	Yes	Equal	Equal	Equal
	SL2	No	Yes	Yes	N/A		N/A

Table 28

C2		Did smoke enter the stair during the simulation?		Did smoke clear from within the stair by the end of simulation?	Did the alternative design perform better than the recommended design during the simulation?		Did the alternative design perform better than the recommended design overall?
		MOE	FF		MOE	FF	
FC 0m	SL1	Yes	Yes	Yes	Equal	Yes	Yes
	SL2	Yes	Yes	No	N/A		N/A
	SL3	Yes	Yes	Yes	Equal	Yes	yes
	SL4	Yes	Yes	No	N/A		N/A
FC 5m	SL1	Yes	Yes	Yes	Equal		Equal
	SL2	Yes	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Equal		Equal
	SL4	Yes	Yes	Yes	N/A		N/A
FC 10m	SL1	Yes	Yes	Yes	Yes		Yes
	SL2	Yes	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Yes		Yes
	SL4	Yes	Yes	Yes	N/A		N/A
FC 15m	SL1	Yes	Yes	Yes	Yes		Yes
	SL2	No	Yes	Yes	N/A		N/A
	SL3	Yes	Yes	Yes	Yes		Yes
	SL4	Yes	Yes	Yes	N/A		N/A

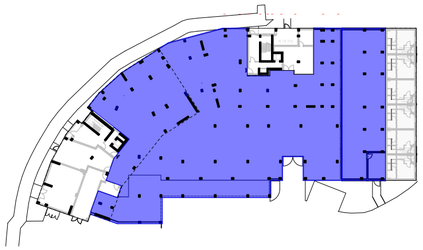
B6.1.3 Based on the findings of the CFD analysis it is deemed that the alternative designs perform equally if not better than the recommended BS 9991 designs.

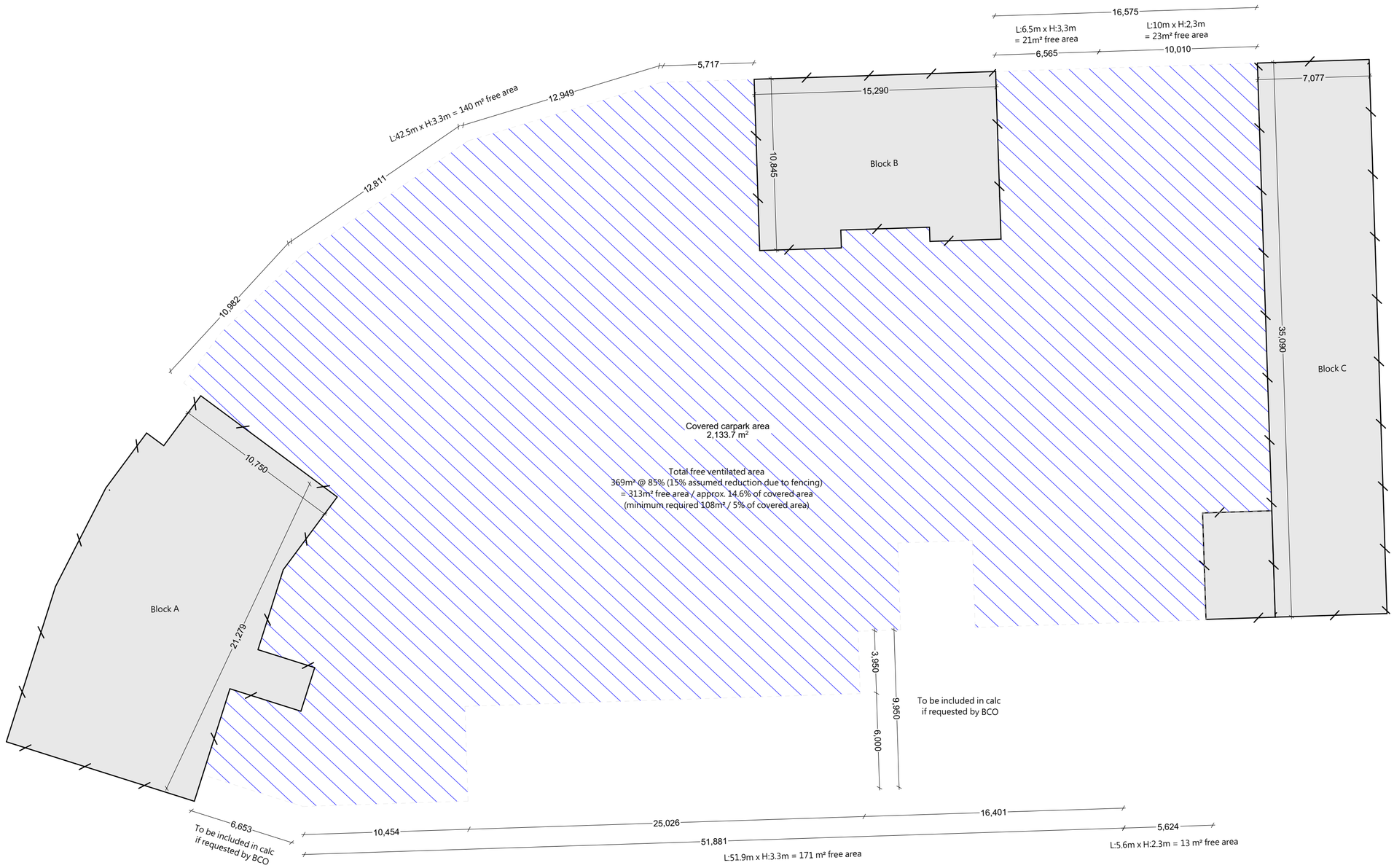
B6.1.4 Note that the performance of the proposed smoke ventilation system as shown in the CFD analysis is representative of a reasonable worst-case scenario considering the limitations of the software. The performance of the system on site will be dependent on the quality of installation and maintenance of the system and general construction of the building.

B6.2 Approvals Correspondence

B6.2.1 The CFD analysis contained in this report has been agreed with Salus Building Control as noted on the Plan Appraisal Tracker Report dated 27/02/2023 (ref: 501428, Issue 10).

Appendix C – Car Park Ventilation Drawings





Total free ventilated area
369m² @ 85% (15% assumed reduction due to fencing)
= 313m² free area / approx. 14.6% of covered area
(minimum required 108m² / 5% of covered area and min 54m² on each opposite side)

X.Xm² Extent of covered car park area

Extent of covered car park area

Open-sided car park to meet criteria outlined in ADBv2 11.2.

Car park to be ventilated naturally. Free ventilation area to be calculated as described in ADBv2 11.2a and to be minimum 1/20 of the total floor area.

Revision: Date: Drawn: Check:

FOR COMMENT

winvic

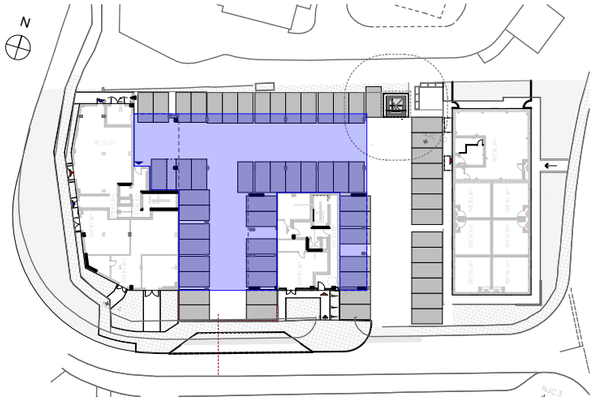
rg+p

Project:	Bletchley View North 100-331
Status:	Preliminary
Client:	Winvic Construction Ltd
Sheet title:	**Car park ventilation - Site plan north**
Scale:	**1:200, 1:1000@A2**
Date:	May 2022
Drawn:	THR
Checked:	SJD
Ref:	E21062-RGP-SW-00-DR-A-0203-P01

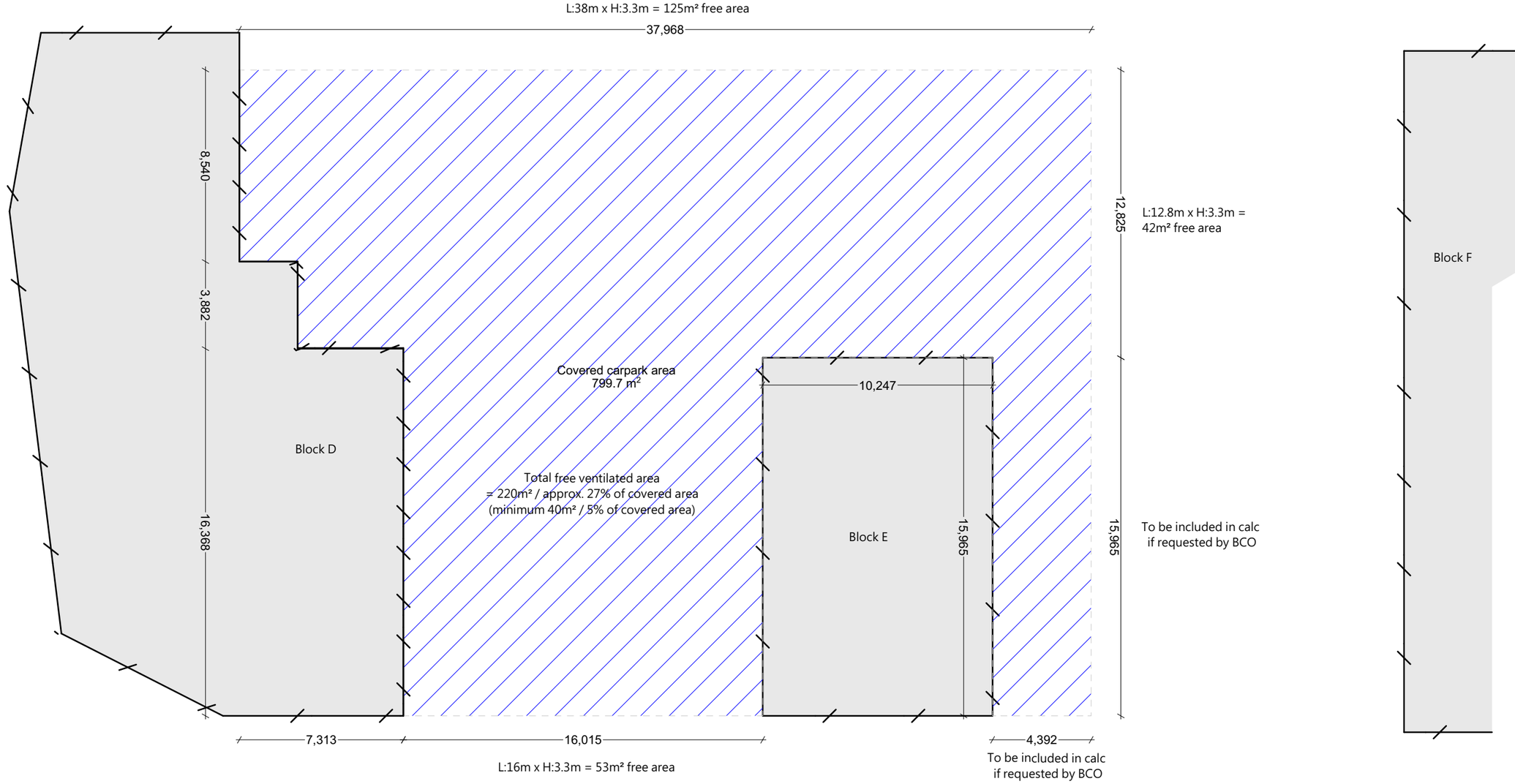
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0203 327 0381 | 0121 309 0071 | 0116 204 5800
rg-p.co.uk · design@rg-p.co.uk

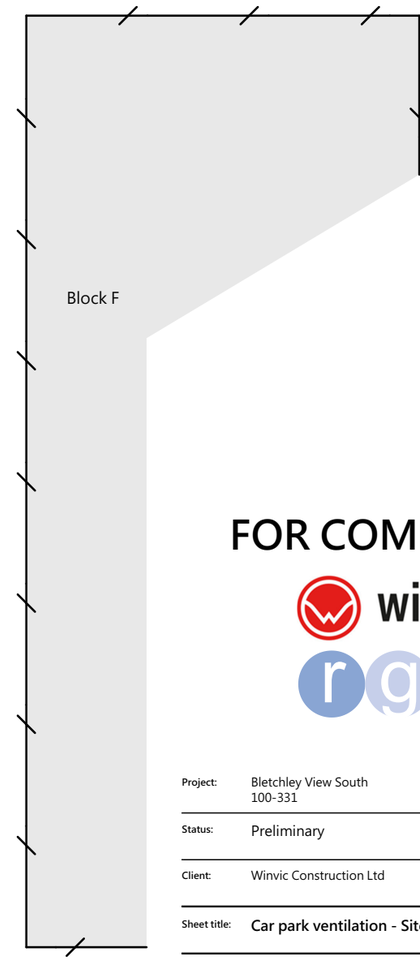
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

All dimensions to be checked on site. Do not scale off this drawing for construction purposes.
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Total free ventilated area
= 220m² / approx. 27% of covered area
(required min. 40m² / 5% of covered area
and min 20m² on each opposite side)

X.Xm² Extent of covered car park area

Extent of covered car park area

Open-sided car park to meet criteria outlined in ADBv2 11.2.

Car park to be ventilated naturally. Free ventilation area to be calculated as described in ADBv2 11.2a and to be minimum 1/20 of the total floor area.

FOR COMMENT

winvic

rg+p

Project:	Bletchley View South 100-331
Status:	Preliminary
Client:	Winvic Construction Ltd
Sheet title:	**Car park ventilation - Site plan south**
Scale:	**1:1000, 1:200@A3**
Date:	May 2022
Drawn:	THR
Checked:	SJD
Ref:	E21062-RGP-SW-00-DR-A-0204-P01

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Appendix D – Time Equivalence Analysis

D1 Introduction

D1.1.1 Time equivalent analysis allows the calculation of the severity of a fire in a compartment in terms of the standard fire time-temperature relationship. For example, if a time equivalent analysis showed the time equivalent in a compartment was 45 minutes, this would mean that a fire in that compartment would be equivalent in severity to exposure to the standard fire test for that period of time. Time equivalent analysis assesses each compartment based on the actual geometry of the compartment, fire load, risk factors, potential ventilation available through glazing failure etc. (or open ventilation when considering a car park). This approach allows the fire resistance applied to be more accurate to the scenario than a recommendation in a prescriptive code that has to be suitable for a wide range of building types.

D1.1.2 Many methods of calculation of time equivalency exist, although the most commonly used is PD 6688-1-2, which is the basis of the analysis used in this report. PD 6688 determines the severity of a fire in a compartment considering parameters such as ventilation, fire load density and wall composition. Time equivalent analysis can be used to demonstrate that standard periods of fire resistance as specified in ADB, BS 9999, BS 9991 or other guidance documents are overly conservative and may be able to be reduced.

D1.1.3 It should be highlighted that there are limitations of a time equivalent analysis, for example it is only applicable to buildings with steel, concrete, or composite structures.

D1.1.4 Equivalent time of fire exposure is analysed through the guidance given in Annex B of PD 6688, which replaced BS EN 1991-1:2002, Annex F.

D1.1.5 The equivalent time of standard fire exposure is calculated by;

$$t_{e,d} = q_{f,d} * k_b * w_f$$

Where:

qf,d is the design fire load density

kb is the conversion factor

wf is the ventilation factor

D2 Scope

D2.1.1 Due to the height of the developments, the car parks for both sites would require a sprinkler system designed and installed in accordance with BS EN 12845. A time equivalence analysis has been undertaken to ascertain the level of fire resistance rating required to substitute sprinkler protection with enhanced structural fire protection and compartmentation as outlined in PD 6688. The analysis seeks to demonstrate that the same level of safety can be achieved.

D3 Fire Load Energy Density - $q_{f,d}$

D3.1.1 The time equivalence equation above requires a fixed value for the fire load density in the form of MJ per m^2. The fire load energy density is dependent on many factors including number and type of cars present within a car park. A study entitled; Fire load energy densities for risk-based design of car parking buildings, was undertaken by M.J.Spearpoint, M.Z.M.Tohir, A.K.Abu and P.Xie. The results of this study recommend 260MJ per m^2 as an 80% fractile, as an appropriate design value in car park buildings.

D3.1.2 To allow for a greater safety factor and to provide a conservative approach, a fire load density of 400 MJ/m^2 has been used.

D4 Conversion Factor - k_b

D4.1.1 The conversion factor, k_b determines the contribution of the enclosure materials to the fire. Where no detailed assessment of the thermal properties of the enclosure is made, the conversion factor k_b (in min·m^2/MJ) may:

- be taken as 0,09 when q_d is given in MJ/m^2
- be related to the thermal property of the enclosure according to $b = \sqrt{(pc\lambda)}$ according to
- Table **29** below:

Note in the equation above:

p is the density of the boundary enclosure (kg/m^3)

c is the specific heat (J/kg K)

λ is the thermal conductivity (W/mK)

Table 29: Table B.1 of PD 6688 - Conversion factor k_b depending on thermal properties of the enclosure

$b = \sqrt{(pc\lambda)}$ (J/$m^2s^{1/2}$K)	k_b (min.m^2/MJ)
b > 2 500	0.055
720 ≤ b ≤ 2 500	0.07
b < 720	0.09

D4.1.2 The conversion factor can be calculated as per the method detailed in PD 6688/BS EN 1991-1-2 Annex A. However, due to the differing mix ratios and aggregates that may be used in the formation of concrete, a conversion factor of 0.07 has been used, which is considered onerous for the thermal properties of concrete.

D5 Ventilation Factor - w_f

D5.1.1 The ventilation factor determines the oxygen available to the fire, openings include louvered panels and openings such as windows and doors that would fail under fire conditions. The ventilation factor can be calculated by;

$$w_f = \frac{6}{H}^{0.3} * (0.62 + \frac{90 * (0.4 - a_v)^4}{1 + b_v * a_h})$$

Where;

α v = Av /Af is the area of vertical openings in the façade (Av) related to the floor area of the compartment (Af). Limits of 0,025 ≤ αv ≤ 0,25 should be observed.

α h = Ah /Af is the area of horizontal openings in the roof (Ah) related to the floor area of the compartment (Af)

bv = 12,5 (1 + 10 αv - αv 2) ≥ 10,0

H is the height of the fire compartment [m]

D5.1.2 The analysis presented in this report has been based on an area of 240m^2 permanent ventilation for the North Site Car Park and 253m^2 for the South Site Car Park (see section D7 below).

D6 Safety Factors

D6.1.1 The risk factor represents a safety factor based on the building height derived from table B.2 of PD 6688. The results of the time equivalence analysis are multiplied by the risk factor to gain a design time equivalence period. As the car parks are not classed as a dwelling, a manufacturing occupancy type has been used in when determining the risk factor as this is considered the most onerous approach. When considering the height of the car parks, the height of the tallest Block on each site has been used, due to the connection between the buildings and the under-croft car park. This gives a height for both car parks of between 20m and 30m. Taking this into consideration a risk factor of 2.65 has been determined and it is this factor that has been used in the analysis.

D7 Parameters for Analysis

D7.1.1 In order to perform the time equivalence analysis, it was required to determine several parameters such as compartment height, floor area and the area of the ventilation provided. The measurements taken are summarised in the sections D7.1.2 - D7.1.8 below.

North Site Car Park

D7.1.2 The height of the compartment for the North Site Car Park was determined as 3.15m, as can be seen in Figure 61 below.

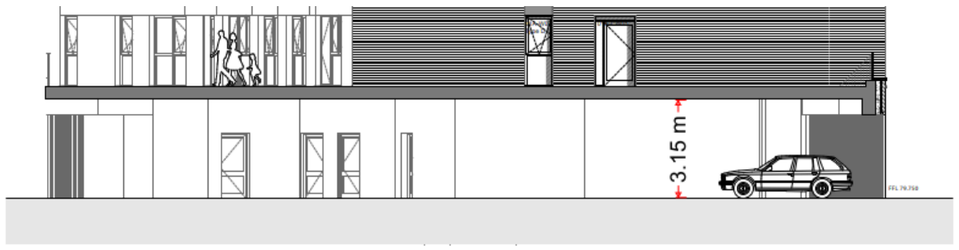


Figure 61: Under croft Car Park Compartment Height - North Site Car Park

D7.1.3 The floor area for the North Site car park has been specified as 2133m^2. This is based upon the Car Park Ventilation drawings as supplied by the client, copies of which have been provided in Appendix C –of this report.

D7.1.4 The permanent ventilation for the car park is calculated by determining the area of any permanently open areas, taking into account any structural columns, fencing or railing that may present a barrier within this space. The area of the openings is determined by multiplying the height of the openings by their width. Based upon this calculation, an area of 240m^2 permanent ventilation for the North Site Car Park was determined and this value forms the basis of the analysis in this report.

D7.1.5 It should be noted that the area of permanent ventilation provided above includes the portion of the car park adjacent to the bin store of Block A as highlighted in Figure 62 below, as it was assumed that this area is provided with permanent openings. If this is not the case, then Orion should be informed accordingly as this may affect the results of the analysis performed.

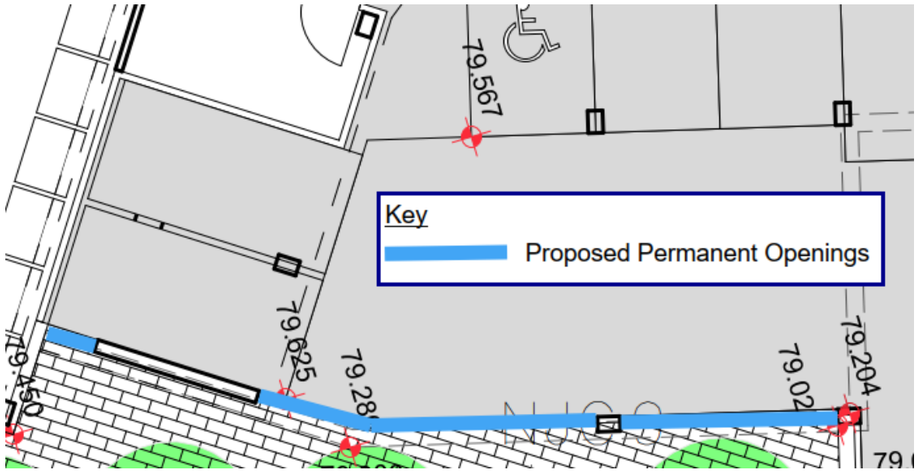


Figure 62: Proposed Ventilation to North Site Car Park - Adjacent to Block A Bin Store

South Site Car Park

D7.1.6 The height of the compartment for the North Site Car Park was determined as 3.15m, as can be seen in Figure 63 below.

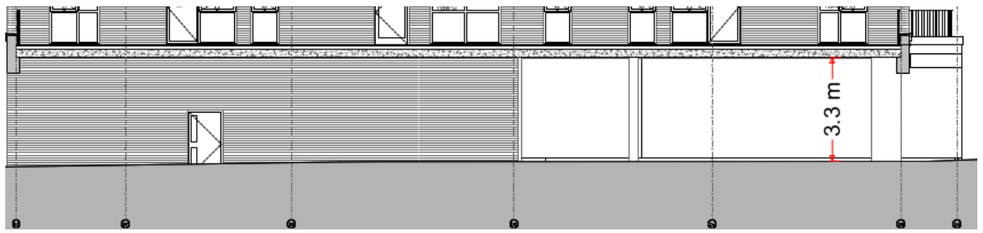


Figure 63: Under croft Car Park Compartment Height - South Site Car Park

D7.1.7 Based upon the Car Park Ventilation drawings provided in Appendix C –, the floor area of the South Site Car Park can be taken as 798m^2.

D7.1.8 The permanent ventilation for the South Site car park was calculated in via the same method as for the North Site car park detailed in section D7.1.4 above. This gave an area of 253m^2 permanent ventilation. This value forms the basis of the analysis in this report.

D8 Analysis Results

D8.1.1 Based on the results of the analysis, for the North Site Car Park using a 240m^2 free ventilation area provided to the car park and a fire load density of 400MJ/m^2, the analysis gave a time equivalence of 42 minutes. Once the fire safety factor was applied to this, a fire resistance rating requirement of 111 minutes was obtained. This results in a 2-hour applied fire resistance rating to the car park structure. From this analysis, it is considered that the omission of sprinklers to the North Site Car Park is acceptable so long as a 2-hour applied fire resistance rating to the car park structure is achieved.

D8.1.2 For the South Site Car Park, the results of the analysis show that using a 253m^2 free ventilation area provided to the car park and a fire load density of 400MJ/m^2, the analysis gave a time equivalence of 22.30 minutes. Once the fire safety factor was applied to this, a fire resistance rating requirement of 59 minutes was obtained, which would result in a 1-hour applied fire resistance rating to the car park structure. Evidently this is less than the 90 minutes required with the provision of sprinklers and therefore the omission of sprinklers from the South site Car park can be considered acceptable. However, in order to provide the most robust approach, it is advised that the fire resistance period applied to elements separating the car park and any elements of structure exposed within the car park remains at 90 minutes.

Appendix E – Fire Service Access Plans

Revision:		Date:	Drawn:	Check:
P02	Secondary dry riser added to block A, pedestrian barrier added to drawing	26/05/22	LD	SD
P03	Alternative fire engine location indicated to block A, essential supply generator added	09/08/22	LD	SD
C01	Status updated, emergency generator position amended	12/6/23	LD	SD
C02	Final construction issue	21/03/24	LJD	RTM



- Primary entrance
- Secondary entrance
- Dry riser inlet
- Upper floor dry riser outlet
- Distance to existing fire hydrant (100m max)
- Hose route to upper floors (45m max where no fire fighting stair)
- Fence / barrier

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Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Site plan north**
Scale:	**1:200@A1**
Date:	December 2021
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-SW-00-DR-A-0201-C02

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Lobby to stair arrangement amended, dry riser inlet positions updated	26/05/22	LD	SD
P03	New hydrant location added, dry riser shown to block F	26/09/22	LD	SD
P03	New hydrant location added, dry riser shown to block F	26/09/22	LD	SD
C01	Hydrant on South terrace added, route to block F indicated	7/2/23	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



Primary entrance
Secondary entrance
Dry riser inlet
Upper floor dry riser outlet
Distance to existing fire hydrant (100m max)
Hose route to upper floors (45m max where no fire fighting stair)

winvic
rgp

Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Site plan south**
Scale:	**1:200@A1**
Date:	December 2021
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-SW-00-DR-A-0202-C02

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Description of Fire Detection System Employed and Fire Detection Criteria

Information provided by EBM Electrical Services Ltd, the Electrical Services

Automatic fire detection system has been installed to all landlord areas comprising on L5 to corridors and L3 to entrance and amenity areas. Smoke detectors and call points are installed where necessary with the required number of sounders to achieve the desired audibility levels.

Main fire alarm control panels are located on the ground floor of each apartment block.

EACIE (evacuation alert control and indicating equipment) panel is also located on the ground floor which it to be used by the fire & rescue service in emergency situations.

Each individual apartment also has a stand a standalone fire detection system which comprises of a selection of interlinked smoke and heat detector.

2.7 FIRE INFORMATION

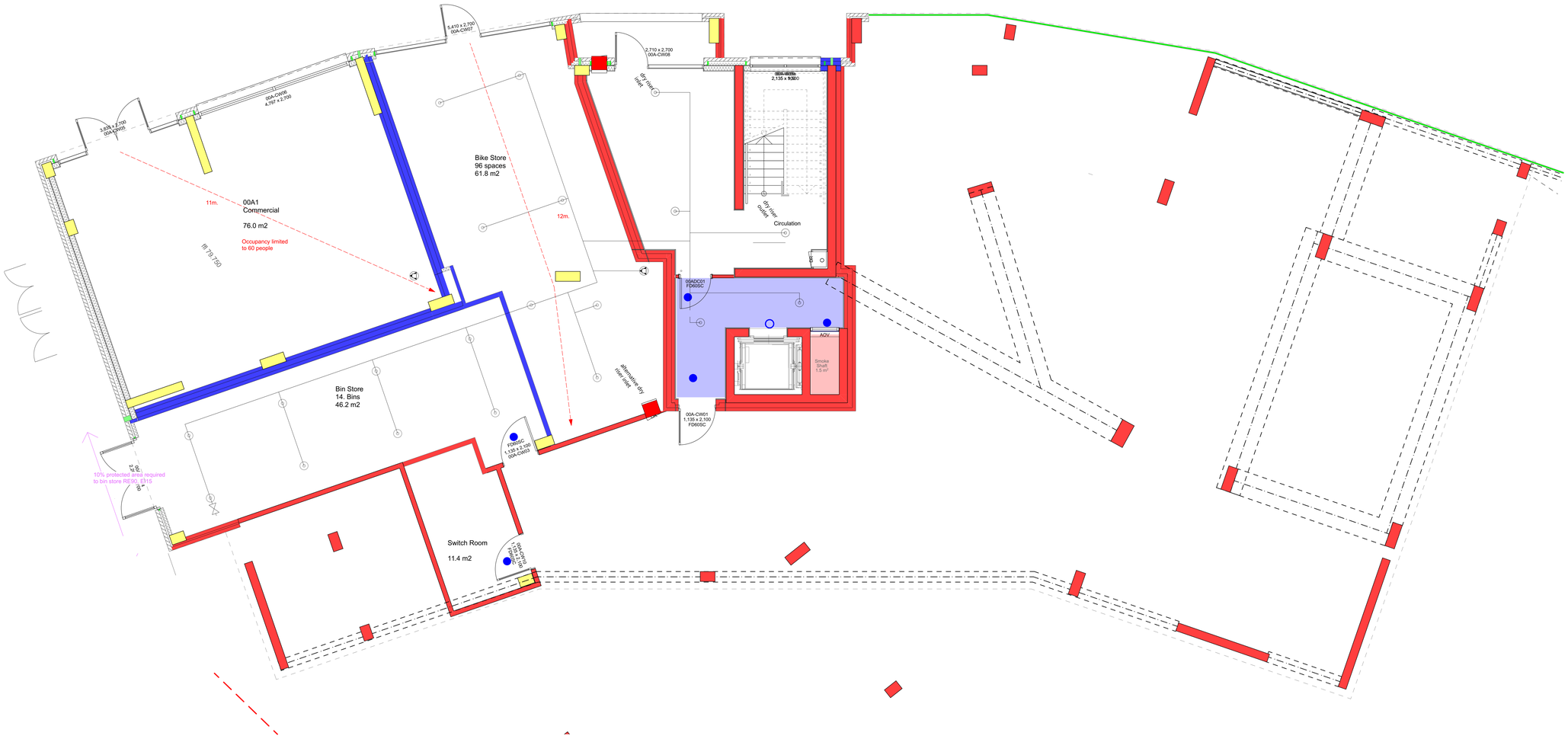
2.7.1.3 Architects Fire Strategy Drawings

The fire strategy drawings were provided by **RG + P (Architects)** and follow in this section.

Drawing No.	Drawing Title	Rev
E21062-RGP-A-00-DR-A-1200	Fire Strategy - Ground Floor Plan A	0
E21062-RGP-A-01-DR-A-1201	Fire Strategy - First Floor Plan A	0
E21062-RGP-A-09-DR-A-1209	Fire Strategy - Ninth Floor Plan A	0
E21062-RGP-A-SL-DR-A-1202	Fire Strategy - 2nd to 8th Floor Plan A	C02
E21062-RGP-A-XX-DR-A-1211	Fire Strategy - Elevation A1	C03
E21062-RGP-A-XX-DR-A-1212	Fire Strategy - Elevation A2	C02
E21062-RGP-A-XX-DR-A-1213	Fire Strategy - Elevation A3	C02
E21062-RGP-A-XX-DR-A-1214	Fire Strategy - Elevation A4	C02
E21062-RGP-A-XX-DR-A-2211	Fire Strategy - Elevation B1	C03
E21062-RGP-A-XX-DR-A-2212	Fire Strategy - Elevation B2	C02
E21062-RGP-A-XX-DR-A-2213	Fire Strategy - Elevation B3	C02
E21062-RGP-A-XX-DR-A-2214	Fire Strategy - Elevation B4	C02
E21062-RGP-B-00-DR-A-2200	Fire Strategy - Ground Floor Plan B	C03
E21062-RGP-B-01-DR-A-2201	Fire Strategy - First Floor Plan B	C02
E21062-RGP-B-07-DR-A-2207	Fire Strategy - Seventh Floor Plan B	C02
E21062-RGP-B-SL-DR-A-2202	Fire Strategy - 2nd to 6th Floor Plan B	C02
E21062-RGP-C-SL-DR-A-3201	Fire Strategy Block C Town Houses	C04
E21062-RGP-C-XX-DR-A-3202	Fire Strategy - Elevations C1-4	C03
E21062-RGP-D-00-DR-A-4200	Fire strategy - Ground floor plan D	C04
E21062-RGP-D-01-DR-A-4201	Fire strategy - First floor plan D	C02
E21062-RGP-D-SL-DR-A-4202	Fire strategy - Upper floors plan D	C02
E21062-RGP-D-XX-DR-A-4204	Fire Strategy - Elevation D1	C02
E21062-RGP-D-XX-DR-A-4205	Fire Strategy - Elevation D2	C02

E21062-RGP-D-XX-DR-A-4206	Fire Strategy - Elevation D3	C02
E21062-RGP-D-XX-DR-A-4207	Fire Strategy - Elevation D4	C03
E21062-RGP-E-00-DR-A-5200	Fire strategy - Ground floor plan E	C03
E21062-RGP-E-01-DR-A-5201	Fire strategy - First floor plan E	C02
E21062-RGP-E-05-DR-A-5203	Fire strategy -Fifth floor plan E	C02
E21062-RGP-E-SL-DR-A-5202	Fire strategy - 2nd to 4th floor plan E	C02
E21062-RGP-E-XX-DR-A-5205	Fire strategy - Elevation E1	C02
E21062-RGP-E-XX-DR-A-5206	Fire strategy - Elevation E2	C03
E21062-RGP-E-XX-DR-A-5207	Fire strategy - Elevation E3	C02
E21062-RGP-E-XX-DR-A-5208	Fire strategy - Elevation E4	C02
E21062-RGP-F-00-DR-A-6200	Fire strategy - Ground floor plan F	C03
E21062-RGP-F-01-DR-A-6201	Fire strategy - First floor plan F	C03
E21062-RGP-F-02-DR-A-6203	Fire strategy - Second floor plan F	C03
E21062-RGP-F-03-DR-A-6204	Fire strategy - Third floor plan F	C02
E21062-RGP-F-XX-DR-A-6205	Fire strategy - F1 and F3	C03
E21062-RGP-F-XX-DR-A-6206	Fire strategy - F2 and F4	C03
E21062-RGP-SW-00-DR-A-0201	Fire Strategy - Site plan north	C02
E21062-RGP-SW-00-DR-A-0202	Fire strategy - Site plan south	C02

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	Dry riser added, wall construction amended, general updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated	15/03/23	LD	SD
C03	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE			
Fire Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE	
	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	Notional Classification	European Classification*
Substation	240**	REI 240**
Gas Valve Room (e.g generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lobby	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Basement Walls	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Provided Stairs (Blocks C and F)	30	REI 30
Stairs Serving Apartments (Block D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and D) Commonly Use Room (Block C)	60	REI 60
Commercial Units (Blocks A and D) Kitchens	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant Boundary	30 (non-loadbearing and integrity 15 insulation	REI 30; REI 15
Service Risers (Blocks A, B and D) (not for stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks E and F) (fire stopped at floor level)	30	REI 30
Dwelling Decks	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Separating Walls between townhouses	60	REI 60
Party to protected to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Plant Room	60	REI 60
Separation of walls (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of walls (residential and non-residential) (Block C)	30	REI 60
Separation of floors	60	REI 60

* Compliance with the European Classification is subject to test evidence.
** Subject to Structural Engineer's calculations.

Table 10: Fire Door Requirements

Location	Notional Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self closing
Townhouse Doors	FD 30S	E 30 Sa	Self closing
Doors to Risers - Stairwell & Lift Shaft	FD 60S	E 60 Sa	
Doors to Risers	FD 60	E 60 Sa	Self closing
Fire Fighting Shaft Doors	FD 60S	E60 Sa	
Doors to Lobby/Corridor	FD 30S	E 30 Sa	Self closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke leakage and demonstrated to EN 1103-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke leakage and demonstrated to EN 1103-8
Service Risers (Blocks A, B, D and F)	FD 60S	E 60 Sa	Tested hot and not smoke leakage and demonstrated to EN 1103-8
Service Risers (Block C)	FD 30S	E 30 Sa	Tested hot and not smoke leakage and demonstrated to EN 1103-8
Plant Rooms (non life safety plant)	FD 30S	E 30 Sa	Self closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and D)	FD30S	ED30Sa	Self closing
Doors into undercroft from internal accommodation (Blocks C and E)	FD 60S	E 60Sa	
Tenants Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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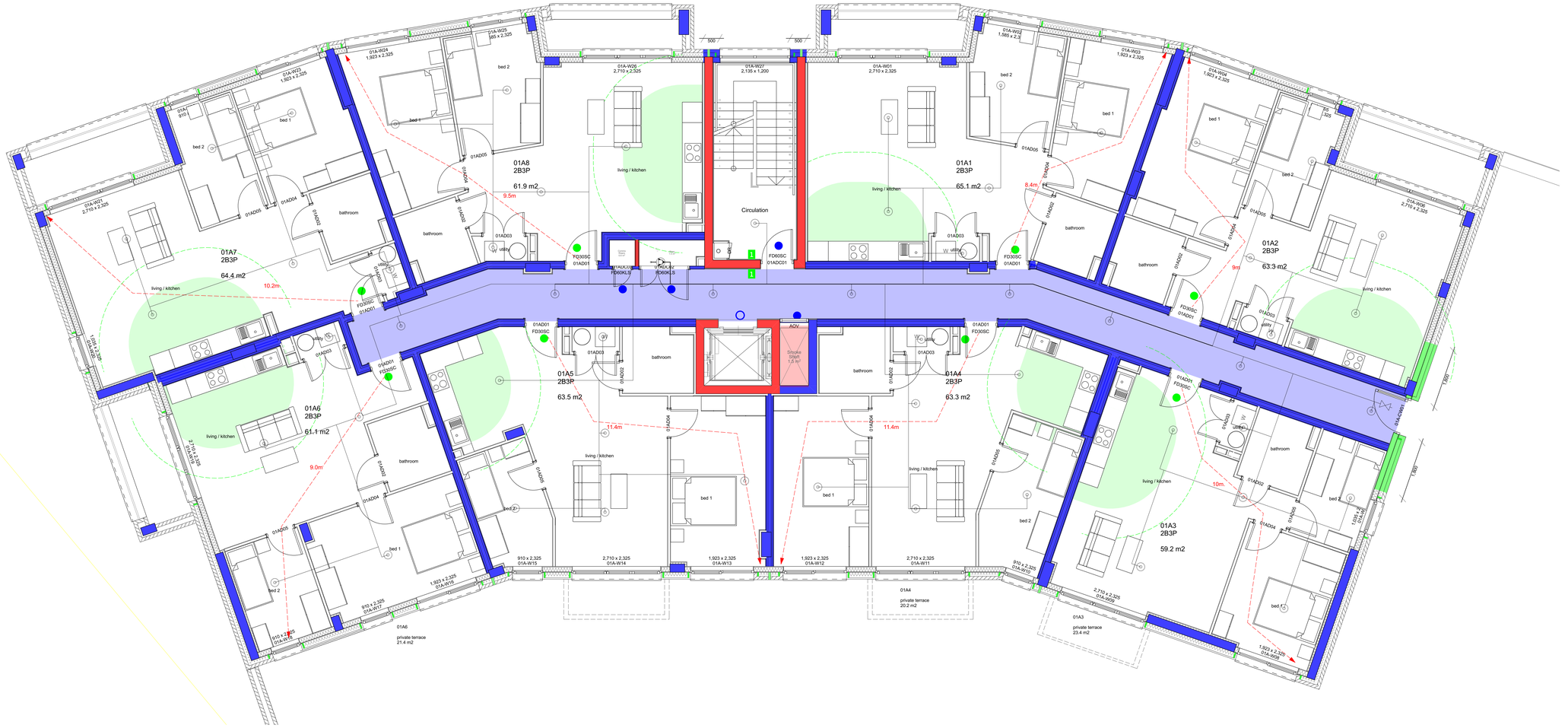
Project:	Bletchley View North 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Ground Floor Plan A
Scale:	1:50@A0
Date:	November 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-A-00-DR-A-1200-C03

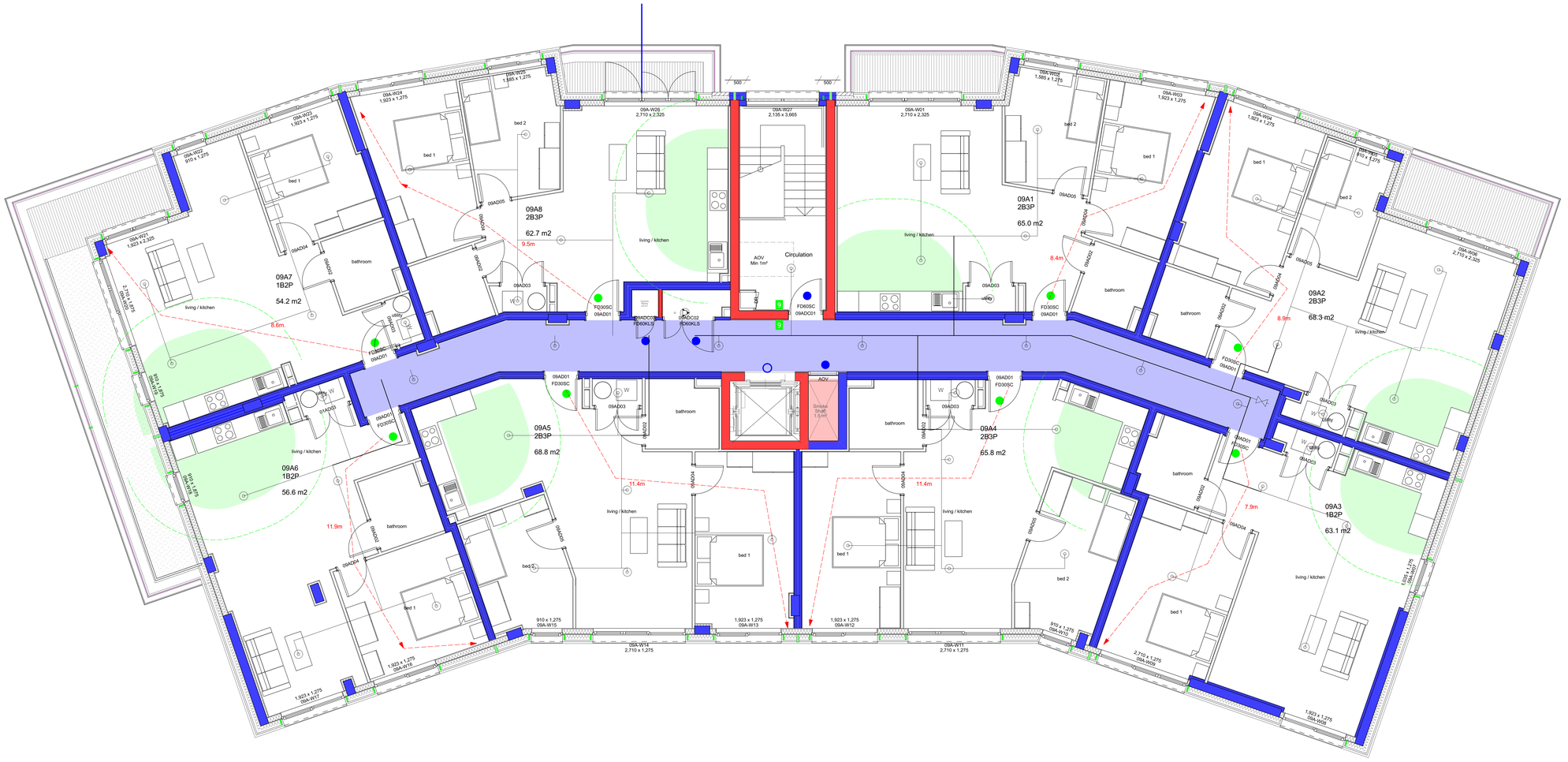
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Notes:
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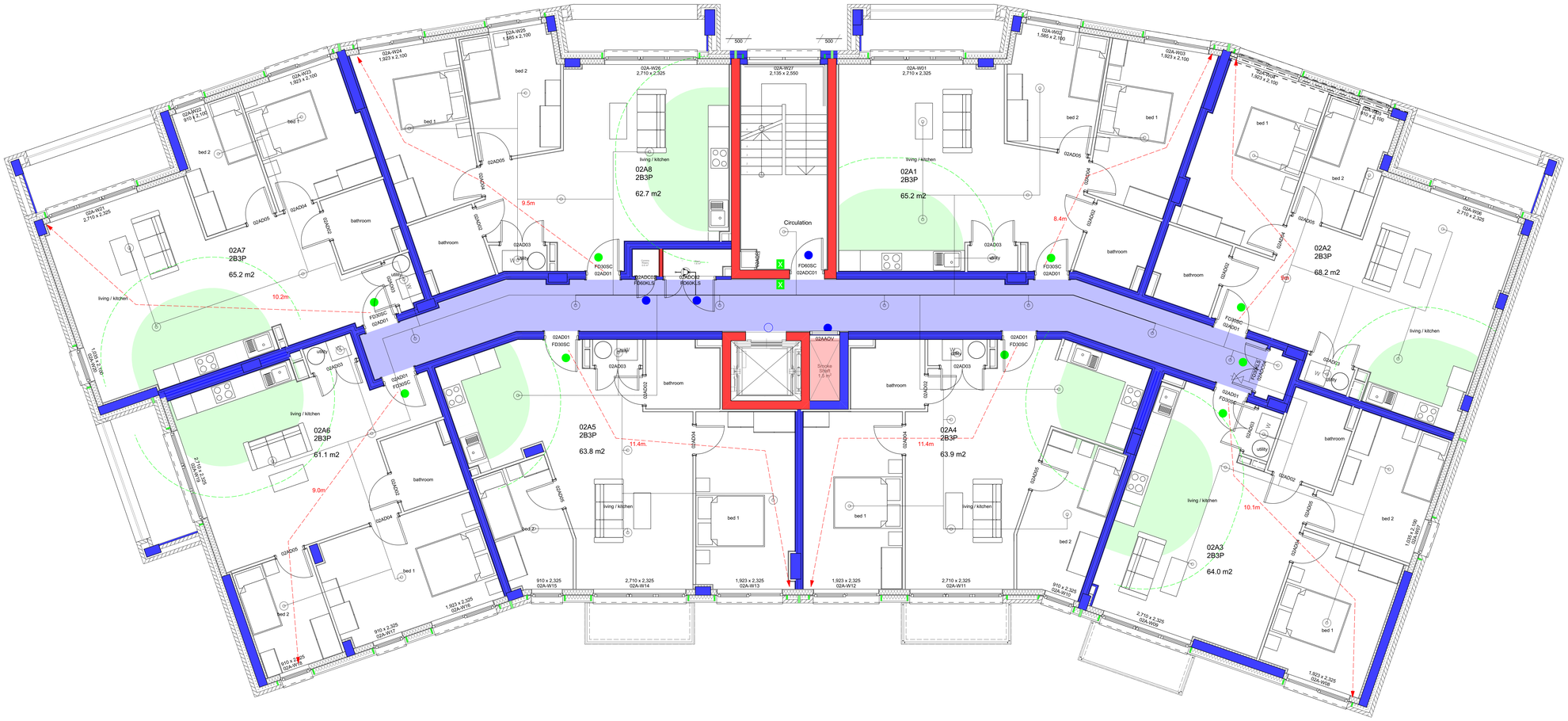
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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Wall construction amended, general updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM


01A8
2B3P
61.9 m2
01A7
2B3P
64.4 m2
01A6
2B3P
61.1 m2
01A5
2B3P
63.5 m2
01A4
2B3P
63.3 m2
01A3
2B3P
59.2 m2
01A2
2B3P
63.3 m2
01A1
2B3P
65.1 m2
Circulation
Smoke Shaft 1.5 m²
AOV
living / kitchen
bed 1
bed 2
bathroom
utility
hall
10.2m
9.5m
9.0m
11.4m
11.4m
8.4m
9m
10m
01A-W01 2,710 x 2,325
01A-W02 1,585 x 2,325
01A-W03 1,923 x 2,325
01A-W04 1,923 x 2,325
01A-W05 585 x 2,325
01A-W06 2,710 x 2,325
01A-W07 2,710 x 2,325
01A-W08 2,710 x 2,325
01A-W09 2,710 x 2,325
01A-W10 910 x 2,325
01A-W11 1,923 x 2,325
01A-W12 1,923 x 2,325
01A-W13 1,923 x 2,325
01A-W14 2,710 x 2,325
01A-W15 910 x 2,325
01A-W16 910 x 2,325
01A-W17 1,923 x 2,325
01A-W18 2,710 x 2,325
01A-W19 1,585 x 2,325
01A-W20 585 x 2,325
01A-W21 2,710 x 2,325
01A-W22 1,923 x 2,325
01A-W23 1,923 x 2,325
01A-W24 1,923 x 2,325
01A-W25 585 x 2,325
01A-W26 2,710 x 2,325
01A-W27 2,135 x 1,200
01A-W28 2,710 x 2,325
01A-W29 2,710 x 2,325
01A-W30 1,585 x 2,325
01A-W31 1,923 x 2,325
01A-W32 1,923 x 2,325
01A-W33 1,923 x 2,325
01A-W34 1,923 x 2,325
01A-W35 585 x 2,325
01A-W36 2,710 x 2,325
01A-W37 2,710 x 2,325
01A-W38 2,710 x 2,325
01A-W39 2,710 x 2,325
01A-W40 1,585 x 2,325
01A-W41 1,923 x 2,325
01A-W42 1,923 x 2,325
01A-W43 1,923 x 2,325
01A-W44 1,923 x 2,325
01A-W45 585 x 2,325
01A-W46 2,710 x 2,325
01A-W47 2,710 x 2,325
01A-W48 2,710 x 2,325
01A-W49 2,710 x 2,325
01A-W50 1,585 x 2,325
01A-W51 1,923 x 2,325
01A-W52 1,923 x 2,325
01A-W53 1,923 x 2,325
01A-W54 1,923 x 2,325
01A-W55 585 x 2,325
01A-W56 2,710 x 2,325
01A-W57 2,710 x 2,325
01A-W58 2,710 x 2,325
01A-W59 2,710 x 2,325
01A-W60 1,585 x 2,325
01A-W61 1,923 x 2,325
01A-W62 1,923 x 2,325
01A-W63 1,923 x 2,325
01A-W64 1,923 x 2,325
01A-W65 585 x 2,325
01A-W66 2,710 x 2,325
01A-W67 2,710 x 2,325
01A-W68 2,710 x 2,325
01A-W69 2,710 x 2,325
01A-W70 2,710 x 2,325
01A-W71 2,710 x 2,325
01A-W72 2,710 x 2,325
01A-W73 2,710 x 2,325
01A-W74 2,710 x 2,325
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09A8
2B3P
62.7 m2
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1B2P
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56.6 m2
09A5
2B3P
68.8 m2
09A1
2B3P
65.0 m2
09A2
2B3P
68.3 m2
09A4
2B3P
65.8 m2
09A3
1B2P
63.1 m2
Circulation
AOV
Min 1m²
Smoke Shaft 1.5 m²
living / kitchen
bed 1
bed 2
bathroom
utility
9.5m
8.6m
11.9m
11.4m
8.4m
8.9m
7.9m
09A-W01 2,710 x 2,325
09A-W02 910 x 1,275
09A-W03 1,565 x 1,275
09A-W04 1,923 x 1,275
09A-W05 1,565 x 1,275
09A-W06 2,710 x 2,325
09A-W07 2,135 x 3,665
09A-W08 2,710 x 2,325
09A-W09 1,565 x 1,275
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09A-W11 2,710 x 1,275
09A-W12 910 x 1,275
09A-W13 1,923 x 1,275
09A-W14 2,710 x 1,275
09A-W15 910 x 1,275
09A-W16 1,923 x 1,275
09A-W17 1,923 x 1,275
09A-W18 910 x 1,275
09A-W19 910 x 1,275
09A-W20 2,710 x 2,325
09A-W21 1,565 x 2,325
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09A-W30 2,710 x 2,325
09A-W31 1,923 x 1,275
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09A-W33 1,923 x 1,275
09A-W34 910 x 1,275
09A-W35 1,923 x 1,275
09A-W36 1,923 x 1,275
09A-W37 1,923 x 1,275
09A-W38 1,923 x 1,275
09A-W39 1,923 x 1,275
09A-W40 1,923 x 1,275
09A-W41 1,923 x 1,275
09A-W42 1,923 x 1,275
09A-W43 1,923 x 1,275
09A-W44 1,923 x 1,275

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
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02A7
2B3P
65.2 m2
02A6
2B3P
61.1 m2
02A5
2B3P
63.8 m2
02A8
2B3P
62.7 m2
02A1
2B3P
65.2 m2
02A4
2B3P
63.9 m2
02A2
2B3P
68.2 m2
02A3
2B3P
64.0 m2
Circulation
Smoke shaft 1.5 m²
living / kitchen
bed 1
bed 2
bathroom
utility
9.5m
10.2m
9.0m
11.4m
11.4m
8.4m
8m
10.1m
02A-W01 2,710 x 2,325
02A-W02 1,585 x 2,100
02A-W03 1,923 x 2,100
02A-W04 1,923 x 2,100
02A-W05 1,585 x 2,100
02A-W06 2,710 x 2,325
02A-W07 2,710 x 2,325
02A-W08 910 x 2,100
02A-W09 1,585 x 2,100
02A-W10 910 x 2,325
02A-W11 2,710 x 2,325
02A-W12 1,923 x 2,325
02A-W13 1,923 x 2,325
02A-W14 2,710 x 2,325
02A-W15 910 x 2,325
02A-W16 1,923 x 2,325
02A-W17 910 x 2,325
02A-W18 910 x 2,325
02A-W19 2,710 x 2,325
02A-W20 1,923 x 2,325
02A-W21 2,710 x 2,325
02A-W22 1,923 x 2,100
02A-W23 910 x 2,100
02A-W24 1,585 x 2,100
02A-W25 1,585 x 2,100
02A-W26 1,923 x 2,100
02A-W27 2,135 x 2,550
02A-W28 2,710 x 2,325
02A-W29 2,710 x 2,325
02AD01 FD30SC
02AD02 FD60SC
02AD03
02AD04
02AD05
02AD06
02AD07
02AD08
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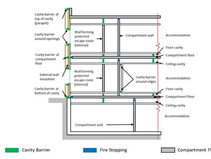
Revision:		Date:	Drawn:	Check:
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated on ground floor	15/03/23	LD	SD
C03	Final construction issue	14/03/24	LJD	RTM



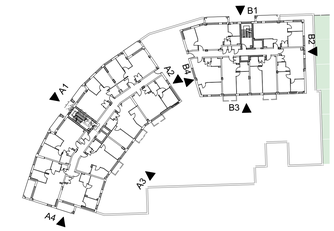
FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



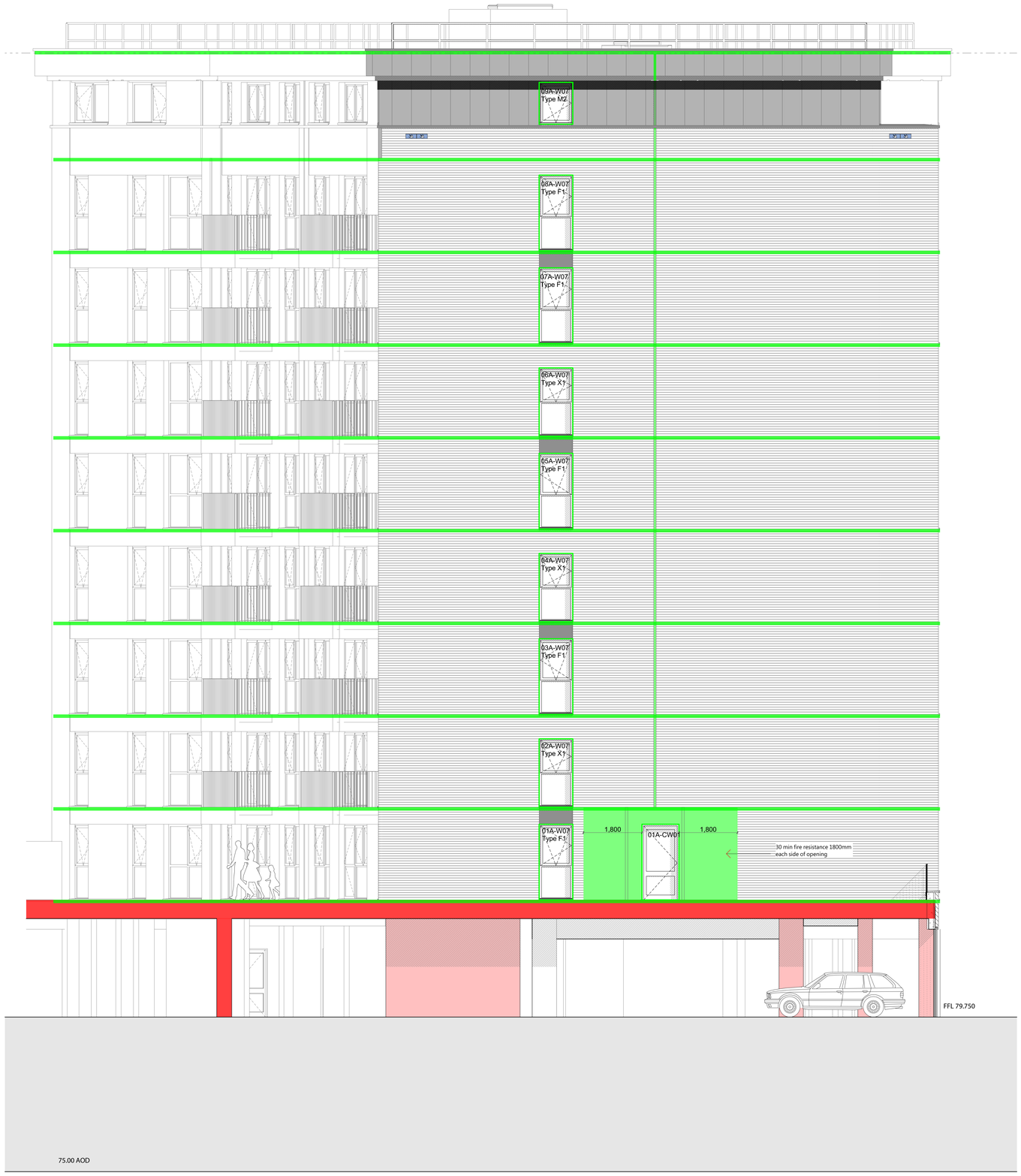
Project:	Bletchley View North 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation A1
Scale:	1:50@A0
Date:	January 2022
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Ref:	E21062-RGP-A-XX-DR-A-1211-C03

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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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P02	Window moved away from terrace access door	15/07/22	LD	SD
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

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Project:	Bletchley View North 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation A2
Scale:	1:50@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-1212-C02

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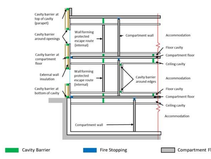
Revision:		Date:	Drawn:	Check:
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



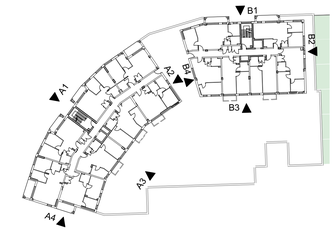
FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View North 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation A3
Scale:	1:50@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-1213-C02

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Notes
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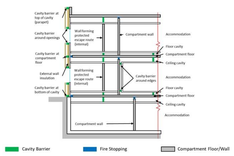
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C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM

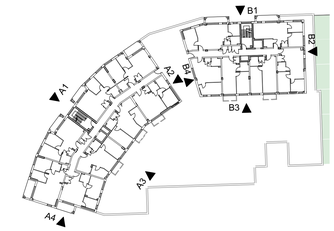


FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View North 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation A4
Scale:	1:50@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-1214-C02

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Notes
All designs should be constructed in strict accordance with building regulations.
All cladding and insulation materials used on the building connected to a façade should be non-combustible if the top storey of the building is above 11m.

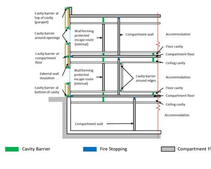
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Revision:		Date:	Drawn:	Check:
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated on ground floor	15/03/23	LD	SD
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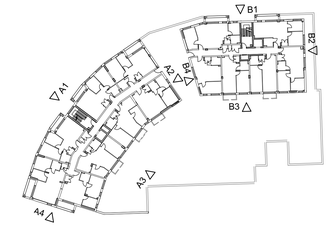


FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation B1
Scale:	1:50, 1:71.43@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-2211-C03

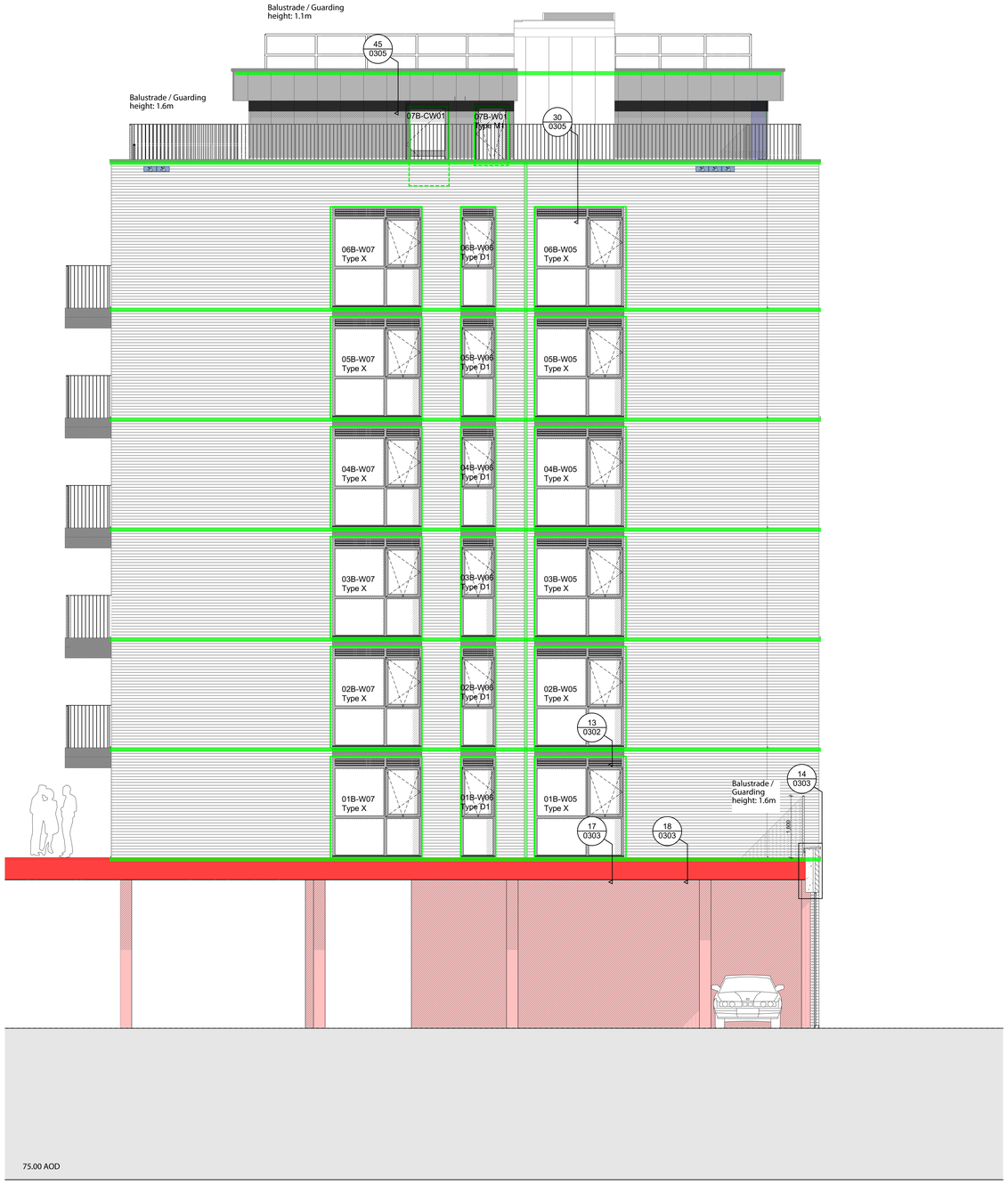
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Notes:
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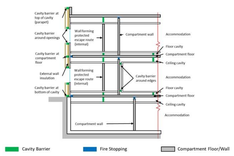
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C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM

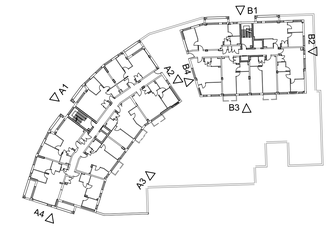


FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation B2
Scale:	1:50, 1:71.43@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-2212-C02

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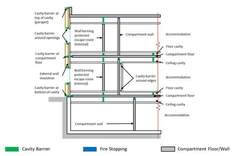
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C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM

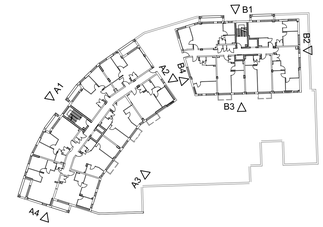


FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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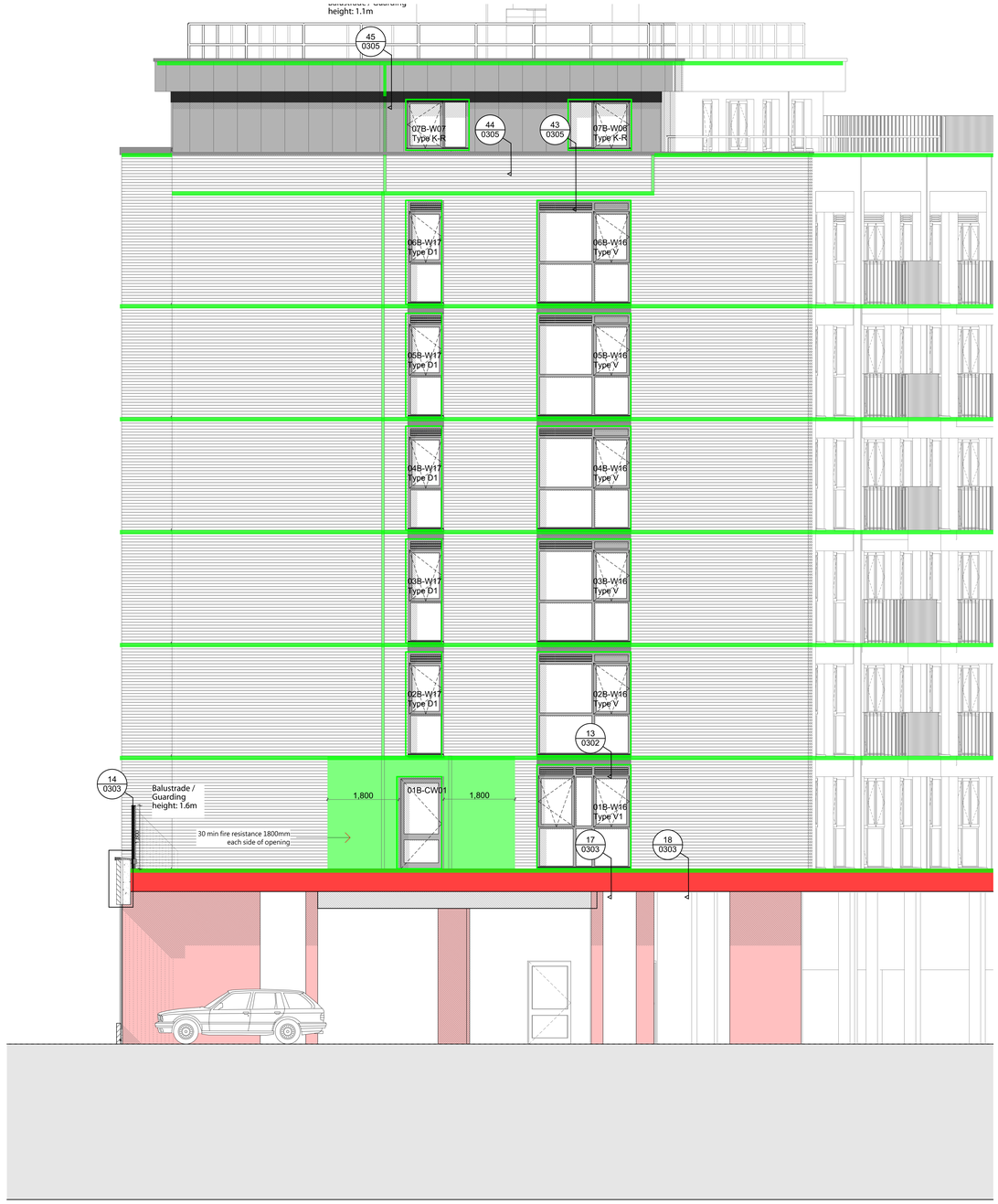
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Status:	FINAL ISSUE
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Sheet title:	Fire Strategy - Elevation B3
Scale:	1:50, 1:71.43@A0
Date:	January 2022
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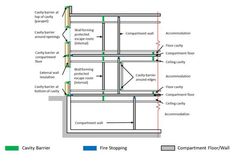
Revision:		Date:	Drawn:	Check:
P02	Windows moved away from terrace access door	15/07/22	LD	SD
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



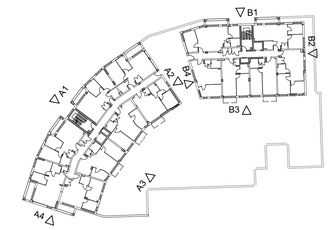
FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.



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Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation B4
Scale:	1:50, 1:71.43@A0
Date:	January 2022
Drawn:	LD
Checked:	SD
Ref:	E21062-RGP-A-XX-DR-A-2214-C02

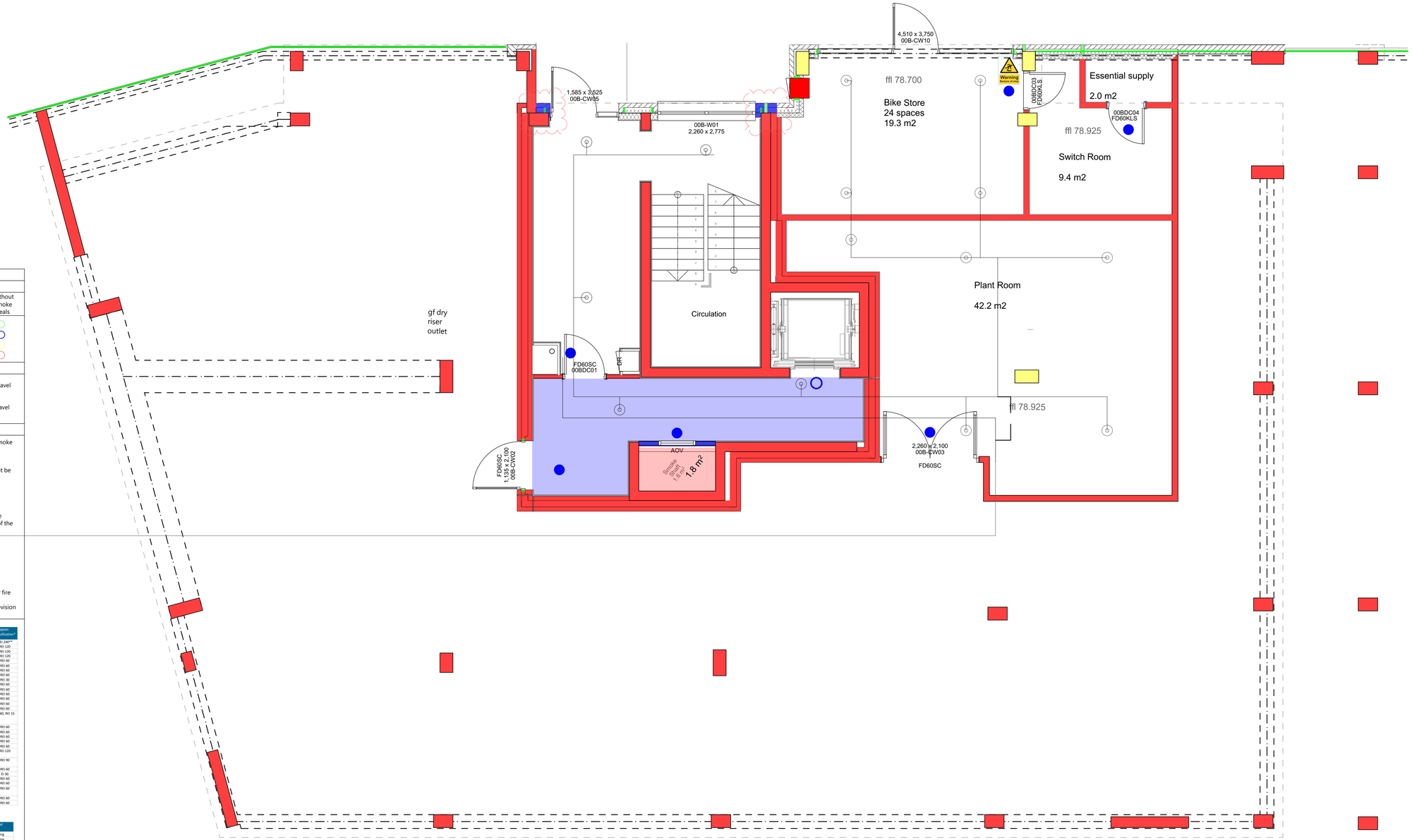
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P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	Dry riser outlet added, general drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated, step warning sign added to switch room	15/03/23	LD	SD
C03	Final construction issue	14/03/24	LID	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door
Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Protected Stairs (Blocks C and F)	60	REI 60
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, F and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Secondary Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and B)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Using approach to load bearing elements only
** Substation ratings will need to be confirmed by DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control dampet/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control dampet/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Ground Floor Plan B**
Scale:	**1:50@A1**
Date:	November 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-B-00-DR-A-2200-C03

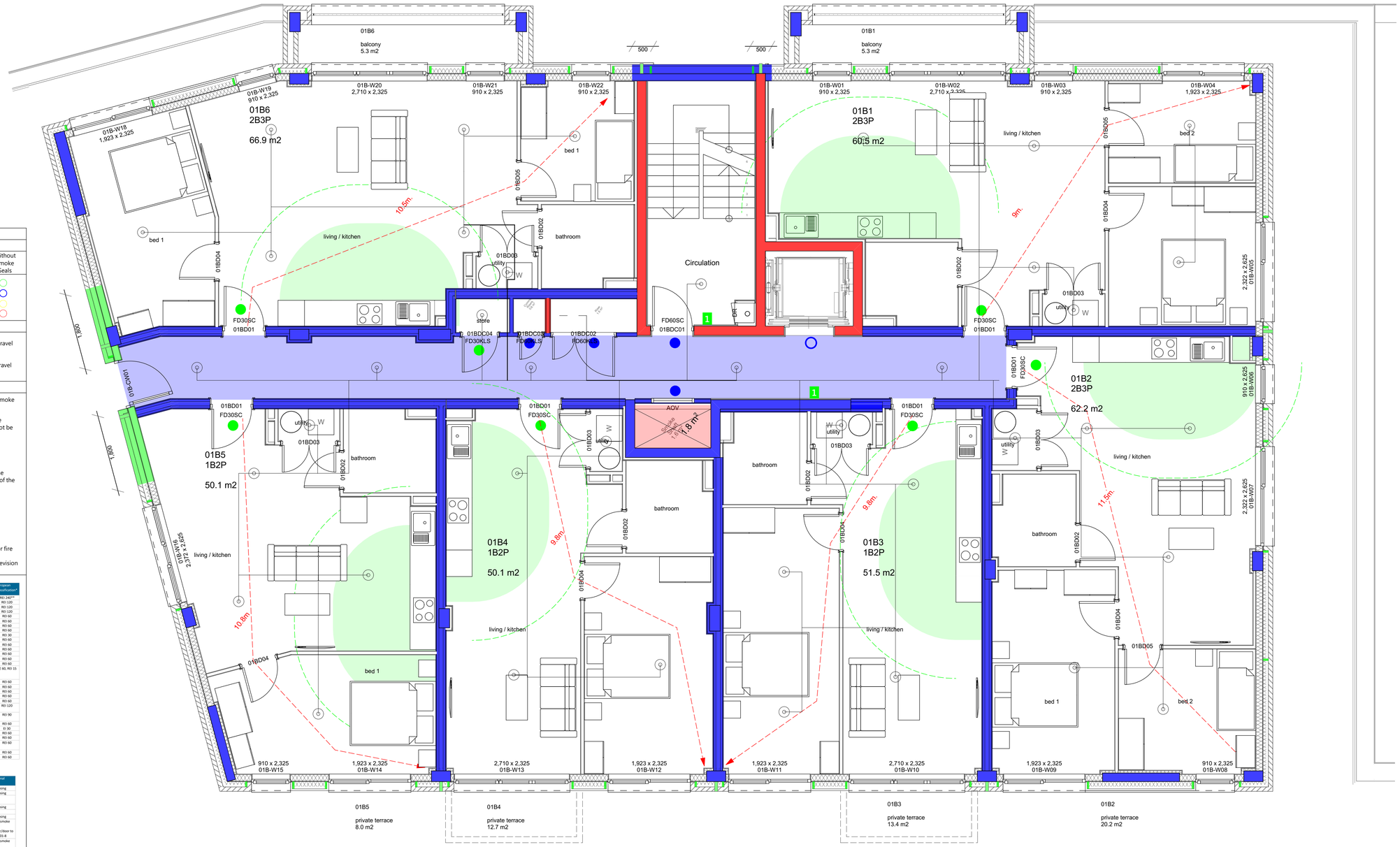
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door
Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Block C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse internal Protected Stairs (Block C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 minutes insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* 'A' rating applies to base drawing elements only
** Calculation rating will need to be confirmed by DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class d2 B-s3,
Other rooms	Class d2 C-s3,
Circulation spaces within a dwelling	
Other circulation spaces (including the common corridors to the apartments)	Class d2 B-s3,

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - First Floor Plan B**
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Ref:	E21062-RGP-B-01-DR-A-2201-C02

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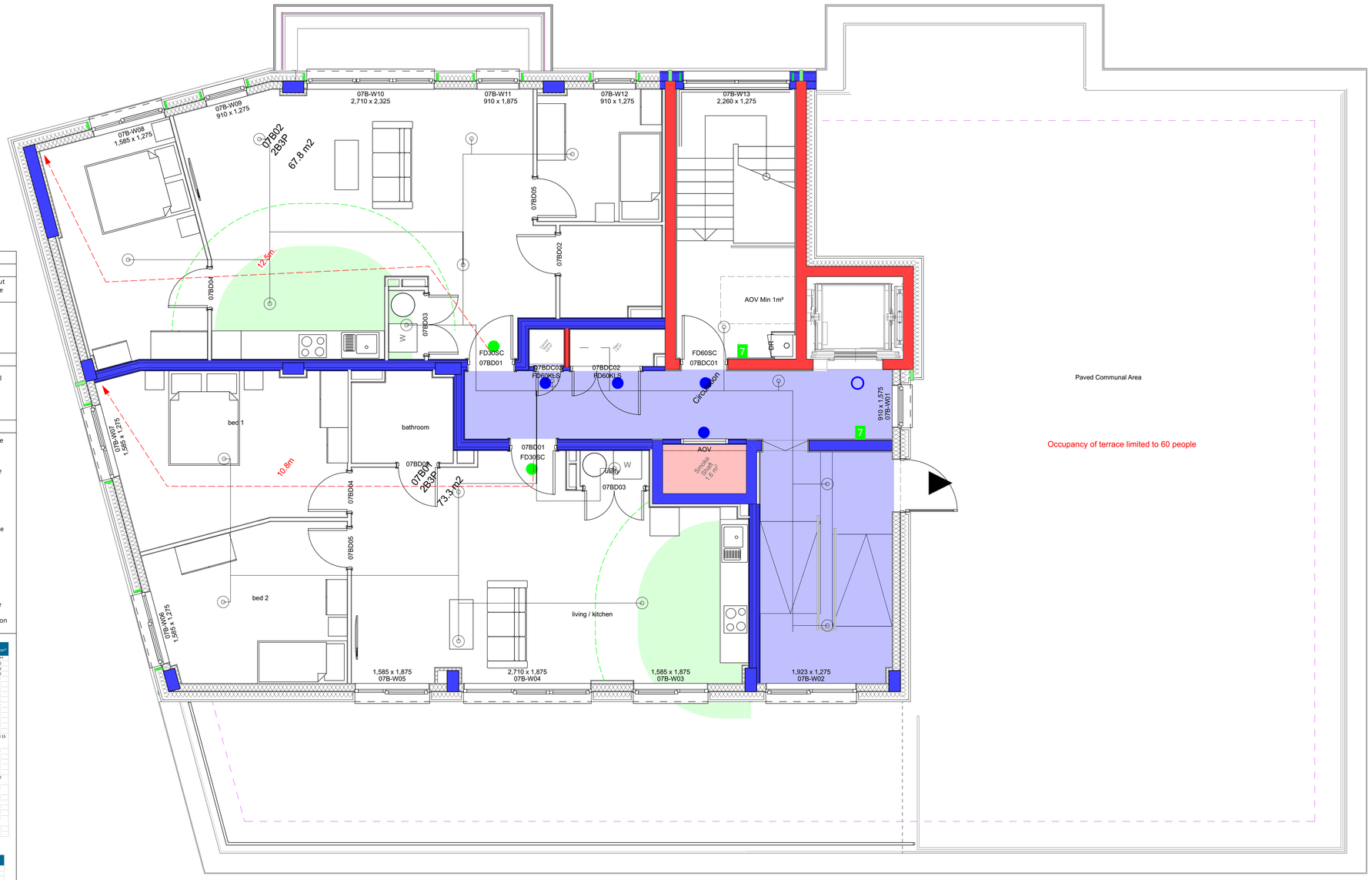
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C, and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Where a building contains a load-bearing element only
** Unless otherwise agreed with the local authority building control body (LABC) provided

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and E)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

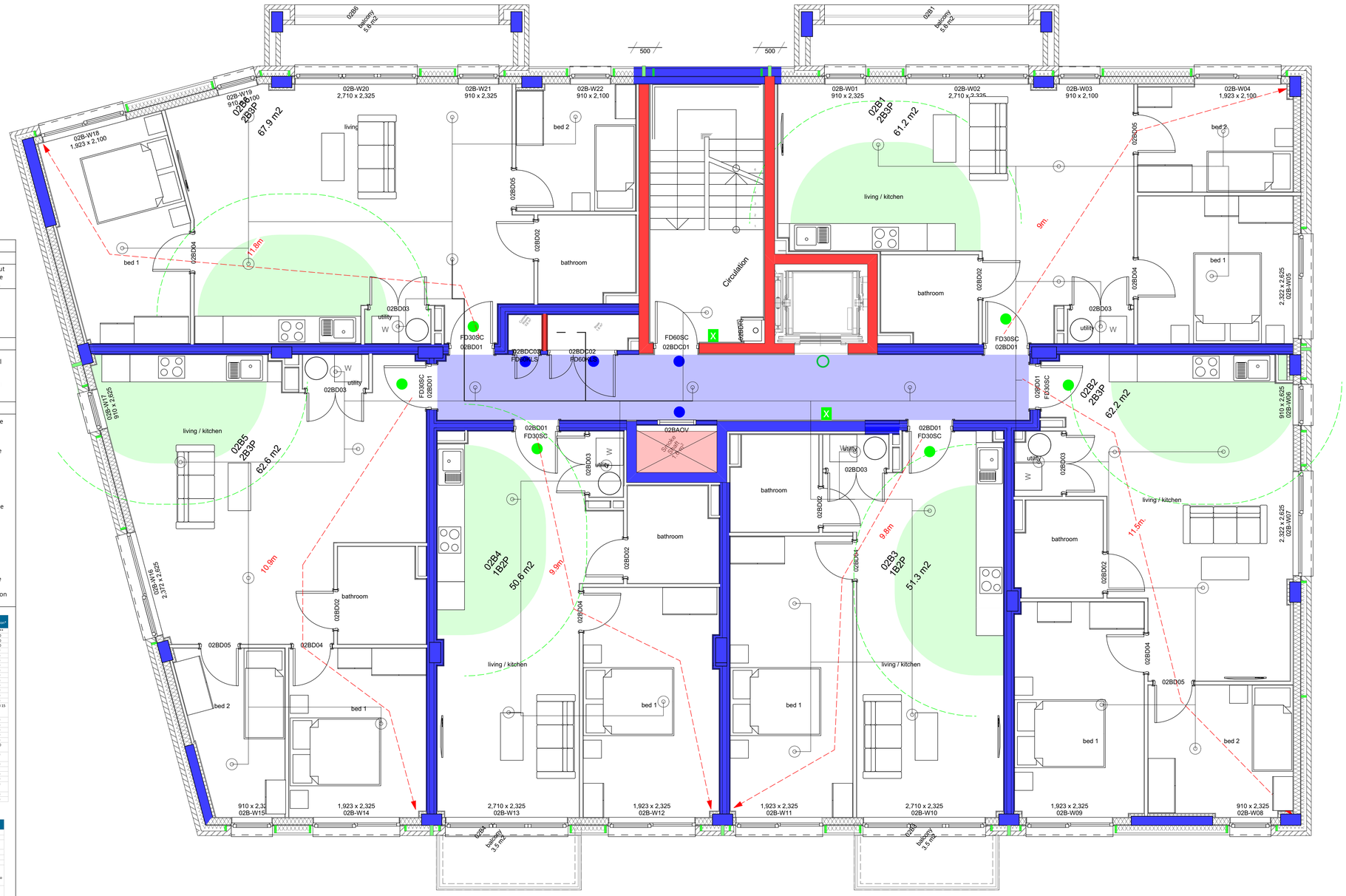
Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Seventh Floor Plan B**
Scale:	**1:50, 1:71.43@A1**
Date:	November 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-B-07-DR-A-2207-C02

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Notes
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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Class A1 ceiling systems to load-bearing elements only
** Substation walls and floors may be reduced to 60 REI subject to DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and E)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

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Project: Bletchley View North
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy - 2nd to 6th Floor Plan B**

Scale: **1:50, 1:71.43@A1**

Date: November 2021

Drawn: SD

Checked: LD

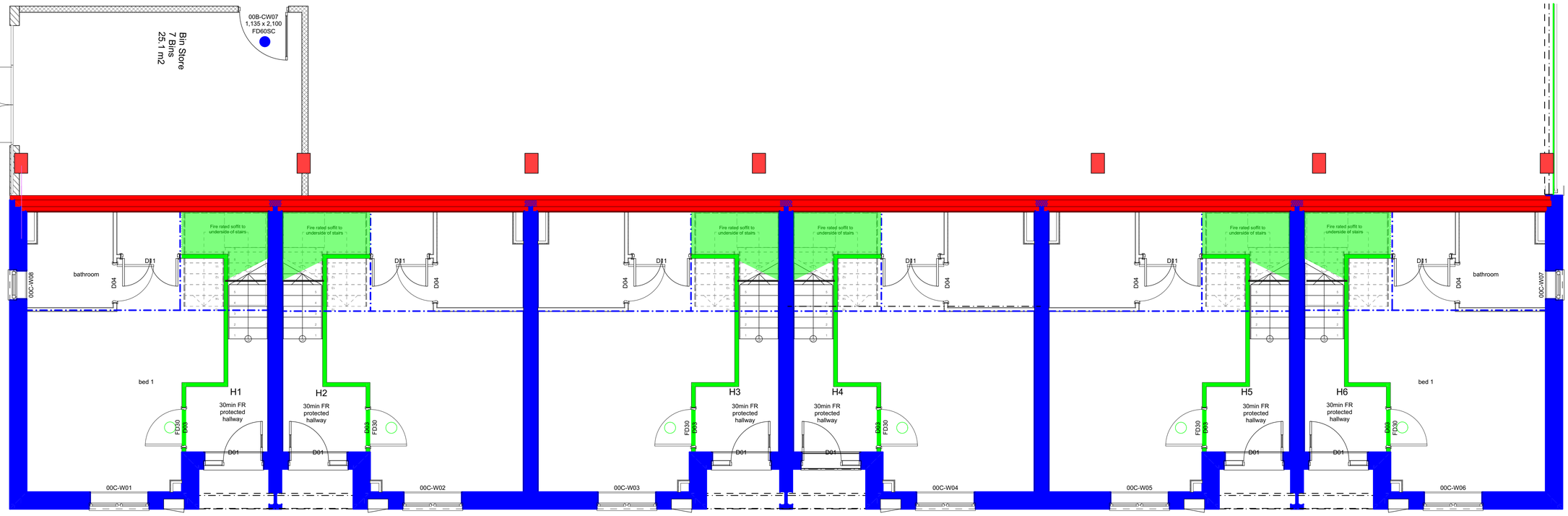
Ref: E21062-RGP-B-SL-DR-A-2202-C02

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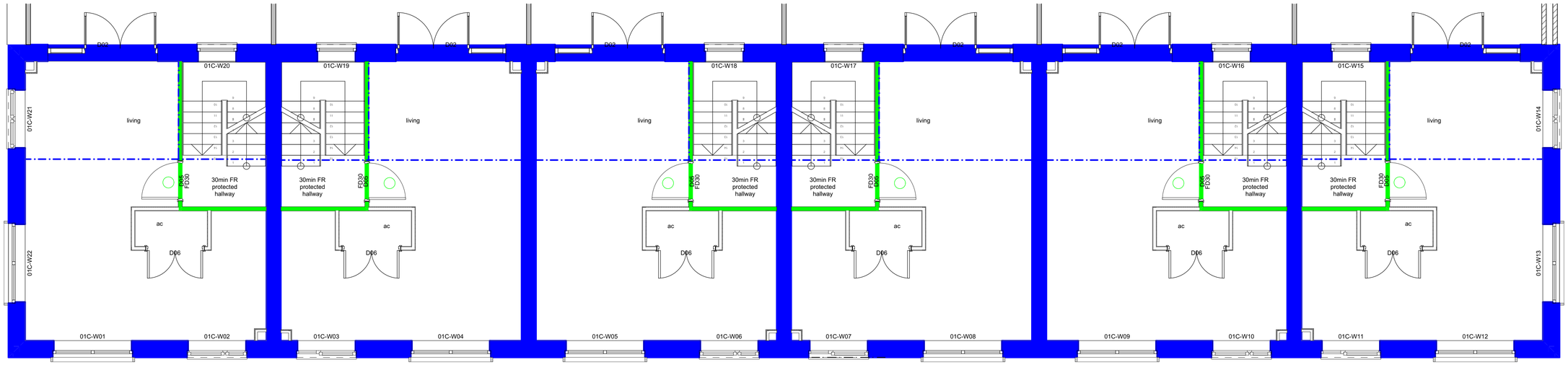
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

All dimensions to be checked on site. Do not scale off this drawing for construction purposes.

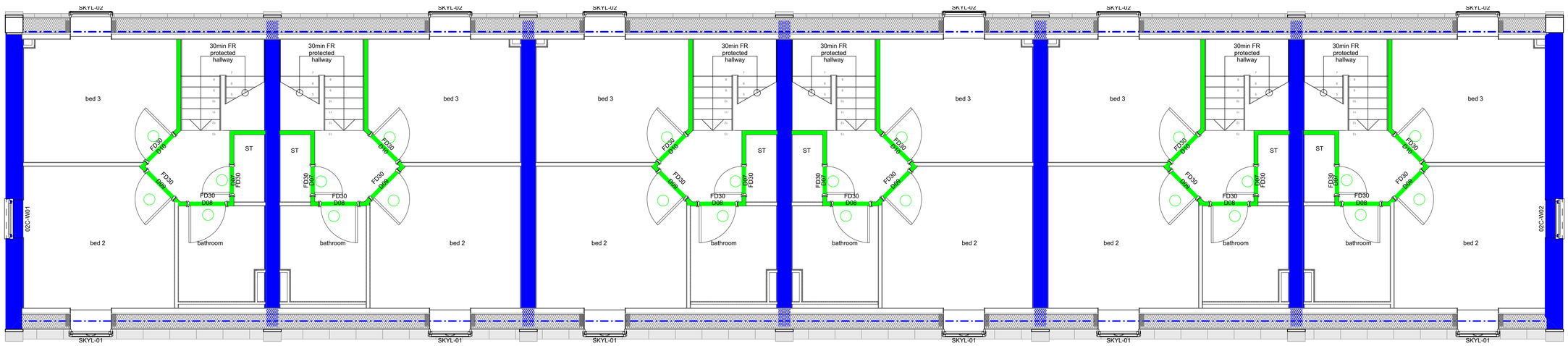
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Ground Floor Plan



First Floor Plan



Second Floor Plan

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
C01	Updated in line with comments in fire report, status amended	11/04/23	LD	SD
C02	Cavity barriers indicated	23/5/23	LD	TH
C03	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C04	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial units (Blocks A and D)/ Community Use Room (Block E)	60	REI 60
Protected Floors (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	90	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* If relying solely on load-bearing elements only
** Substation relying wall could be re-positioned by DNO provider

to be updated

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance	FD 30S	E30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1210:-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1210:-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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Project: Bletchley View North
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy Block C Town Houses**

Scale: **1:50@A1**

Date: November 2020

Drawn: SD

Checked: LD

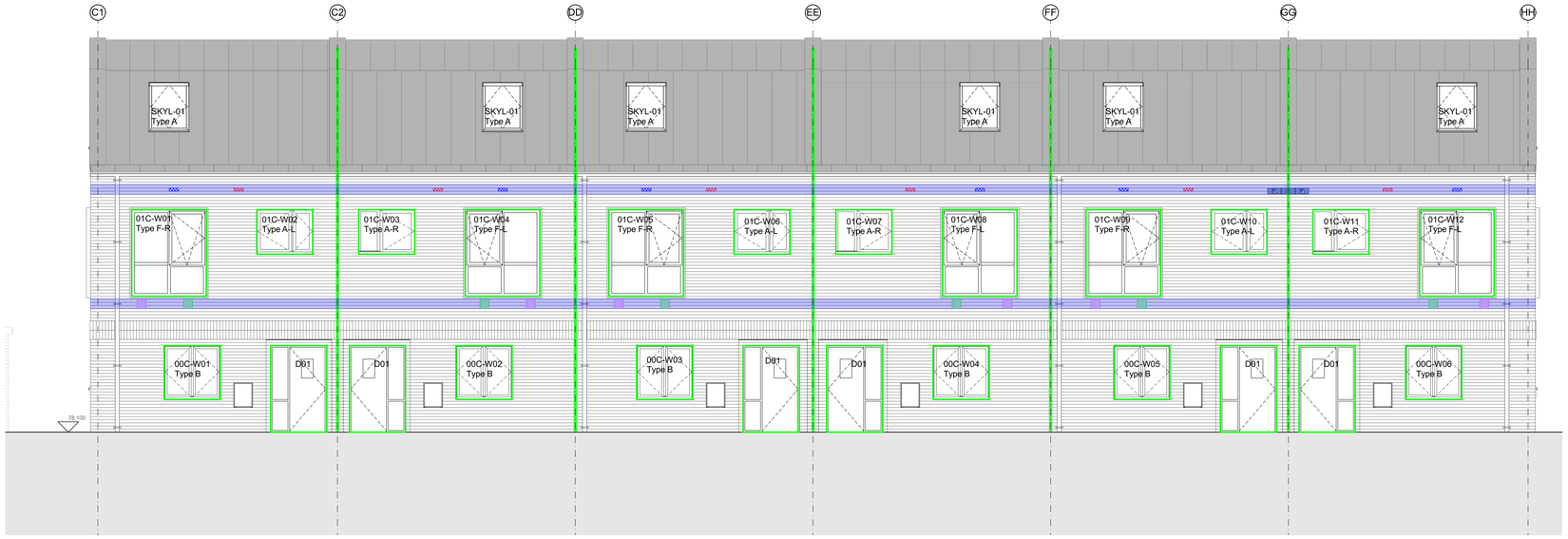
Ref: E21062-RGP-C-SL-DR-A-3201-C04

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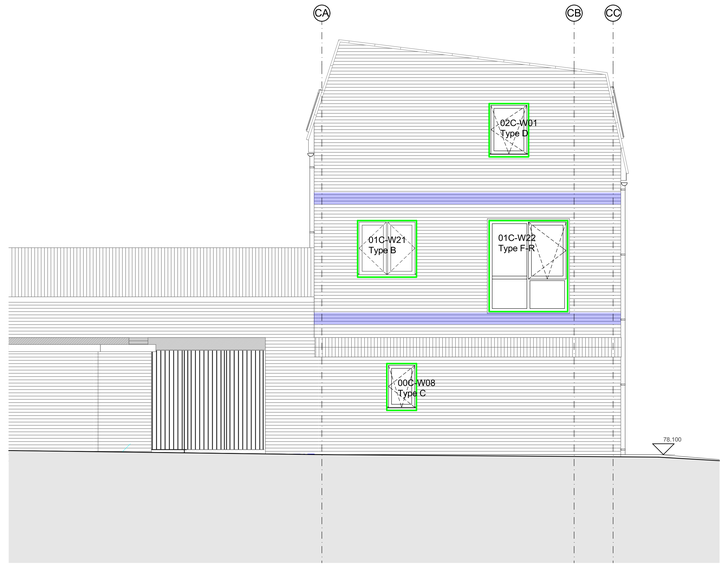
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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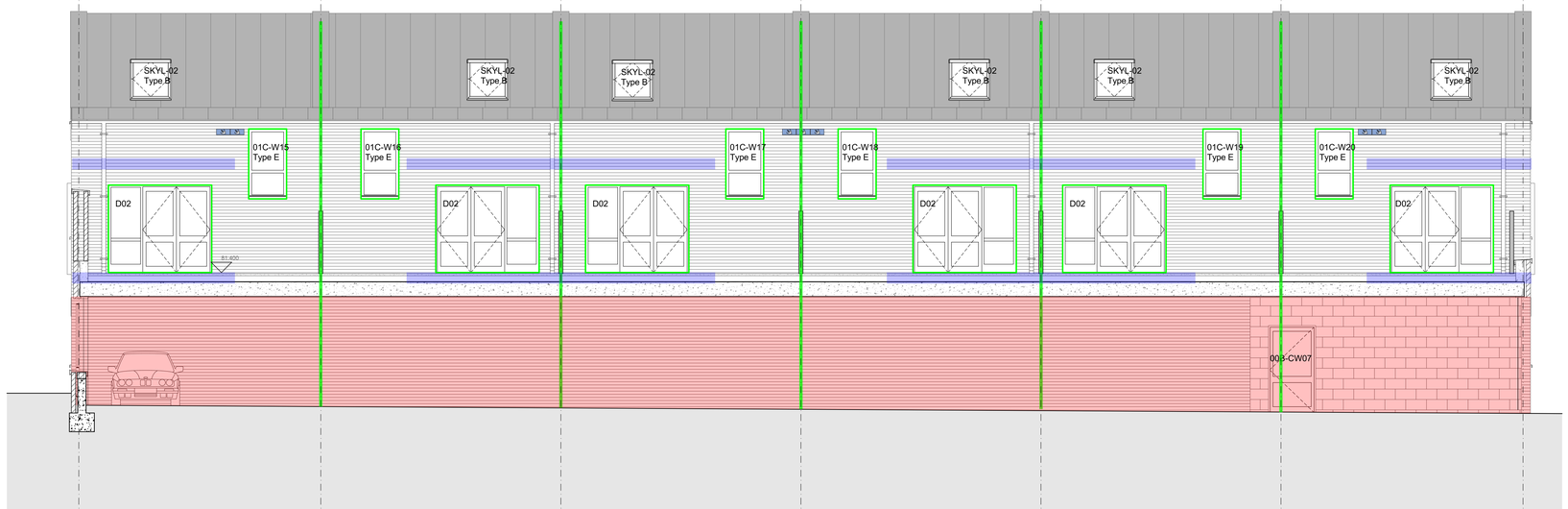
Revision:		Date:	Drawn:	Check:
C02	Internal floors shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



North Townhouses - Front Elevation 1
1:50@A0



North Townhouses - Side Elevation 2
1:50@A0

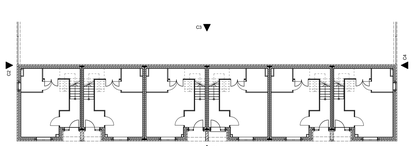


North Townhouses - Rear Elevation 3
1:50@A0



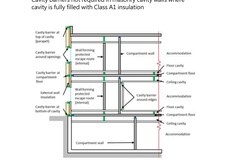
North Townhouses - Side Elevation 4
1:50@A0

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FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation



To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

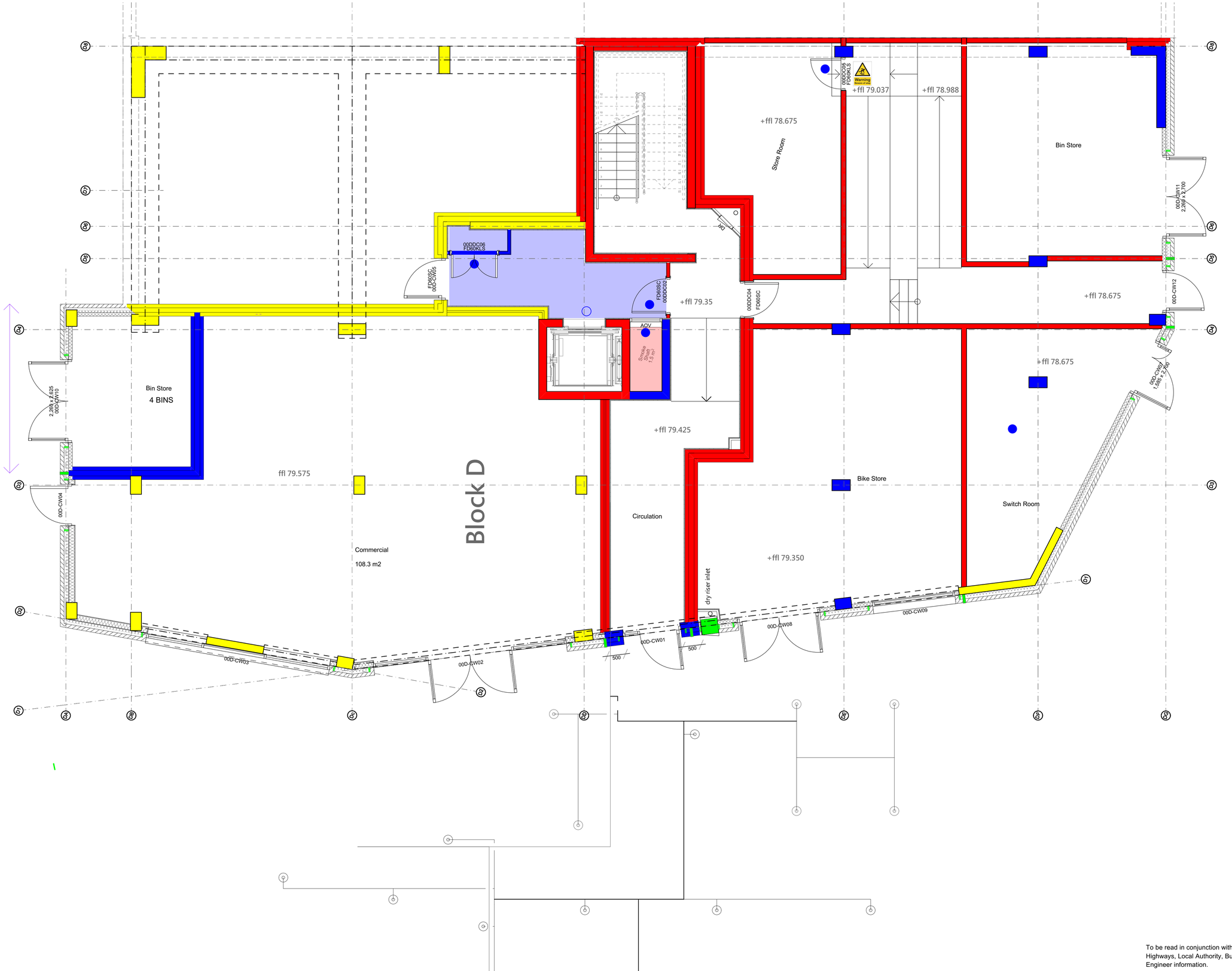
Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Elevations C1-4**
Scale:	**1:50@A0**
Date:	May 2023
Drawn:	LD
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Ref:	E21062-RGP-C-XX-DR-A-3202-C03

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Notes
All designs should be constructed in strict accordance with building regulations.
Any timber cladding within 1m of the boundary or any cladding connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Essential supply room omitted, dry riser outlet added, general plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Fire rating of wall next to entrance amended, layout updated, warning sign added to store room step	16/03/23	LD	TH
C03	Added elec.cupboard	07/12/23	TH	RM
C04	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Staircases	240**	REI 240**
Lift /Lift Motor Room	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C and F)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments & from common corridors	60	REI 60
Townhouse external Protected Stairs (Blocks C and F)	60	REI 60
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Stairs (Blocks A, B and D) Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks C and F without apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (additional reg and integrity, 15	REI 60 15
Service Risers (Blocks A, B and D) Void fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (no safety plant)	60	REI 60
Boulders Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape zone within 1.8m	30	EI 30
Refuse Store	60	REI 60
Sub-station Room	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Essential Supply Room	60	REI 60

*Classification may be determined by testing to BS EN 1364-1 or BS EN 1365-1

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stairs	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Garrwell & entrance)	FD 30S	E 30/Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Fire Fighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control Leakage (Door to EN 1191) A
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control Leakage (Door to EN 1191) B Locked shut and not easily openable
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (door for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan D**
Scale:	**1:50@A1**
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-D-00-DR-A-4200-C04

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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
P06	Riser compartment rating amended	27/09/22	LD	SD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, LPG or Petrol Store (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Lift Shaft Walls	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (see comments below)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Lobby (Blocks A and D) Communly Use Room (Block C)	60	REI 60
Protected Stairs (Blocks A and Block B apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (sealed/opening and non-opening)	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C) (not fire stopped at floor level)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Car Park Ventilation	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60
Fourth Compartment	60	REI 60

*Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. **Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments.

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily operable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily operable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and Locked shut and locked door
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	
Doors between undercroft and accommodation (Block C and F)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Main rooms	Class C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - First floor plan D**
Scale:	**1:50@A1**
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-D-01-DR-A-4201-C02

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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, battery, fuel rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lobby	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments and Core (Lobby) corridors	60	REI 60
Downstream Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block C)	60	REI 60
Protected Floors (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (sheltering and reduced impact)	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks E and F) (fire stopped at floor level)	30	REI 30
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	60	REI 60
Party Walls between Townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Fire Fighting Lift	60	REI 60
Passenger Lift	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

*Fire resistance periods may be substituted for equivalent performance using BS 476 parts 20 to 24 or BS EN 1364 parts 1 to 4 and BS EN 1365 parts 1 to 6 and BS EN 1366 parts 1 to 4 and BS EN 1634 parts 1 to 3 as appropriate.

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & bathroom)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from external accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0 All
Other rooms	Class 0 All
Circulation spaces within a dwelling	Class 0 All
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project: Bletchley View South
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire strategy - Upper floors plan D**

Scale: **1:50@A1**

Date: Nov 2021

Drawn: SD

Checked: LD

Ref: E21062-RGP-D-SL-DR-A-4202-C02

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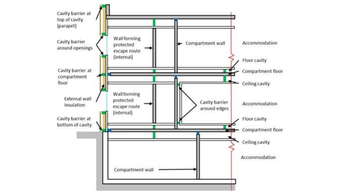
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

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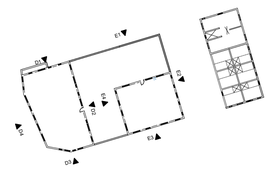
Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



Project:	Bletchley View South 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation D1
Scale:	1:50@A1
Date:	Dec 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-D-XX-DR-A-4204-C02

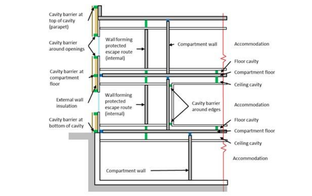
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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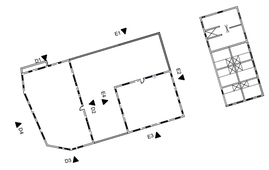
Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Elevation D2**
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Date:	Dec 2021
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Ref:	E21062-RGP-D-XX-DR-A-4205-C02

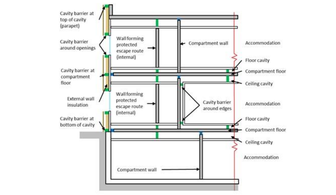
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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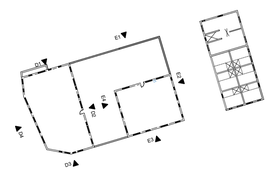
Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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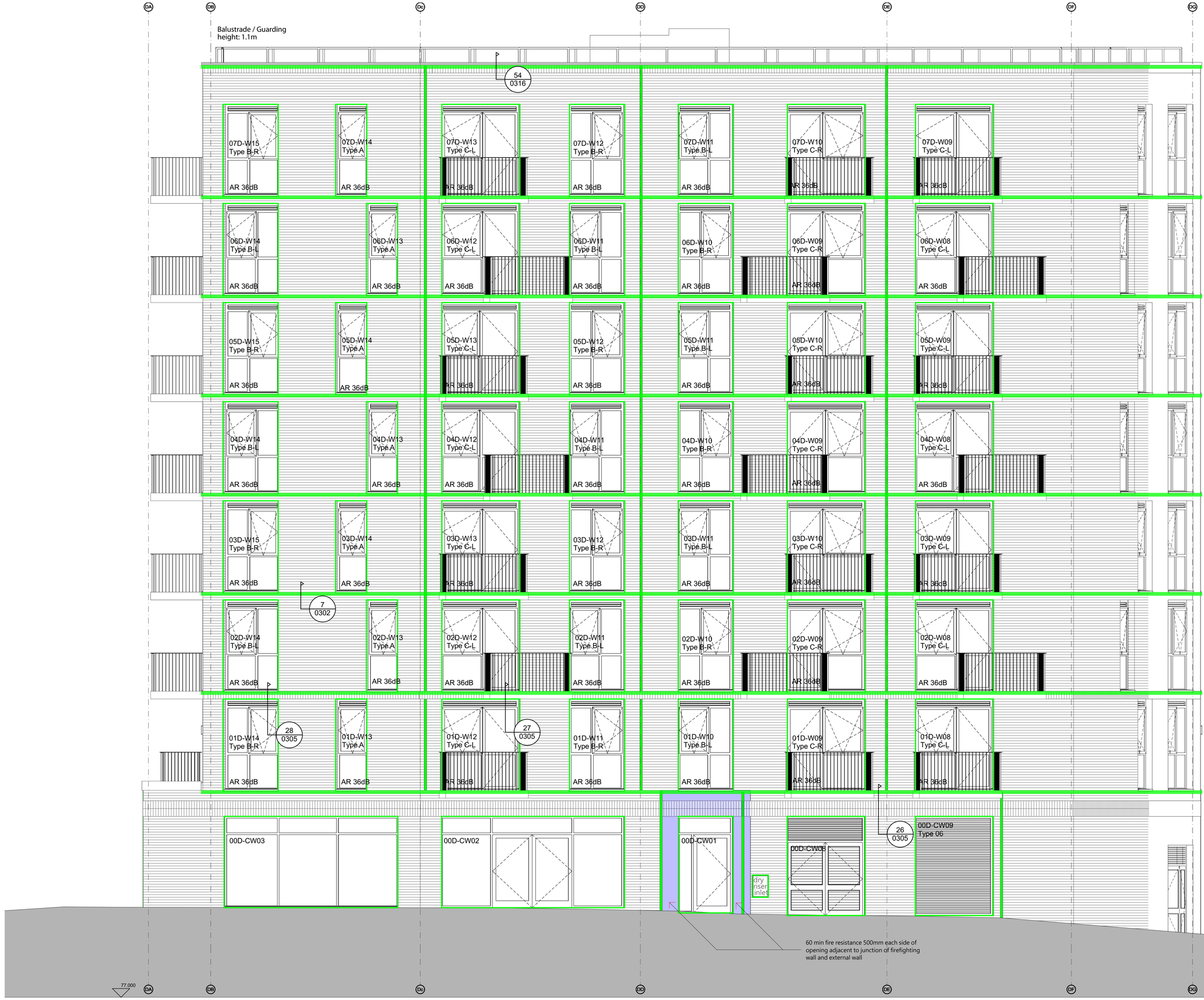
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Project:	Bletchley View South 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire Strategy - Elevation D3
Scale:	1:50@A1
Date:	Dec 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-D-XX-DR-A-4206-C02

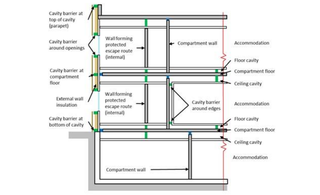
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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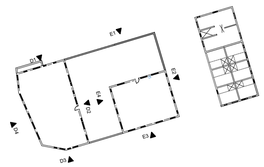
Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Wall to side of entrance door fire rated	16/03/23	LD	TH
C03	Final construction issue	21/3/24	LID	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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Project: Bletchley View South
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy - Elevation D4**

Scale: **1:50@A1**

Date: Dec 2021

Drawn: SD

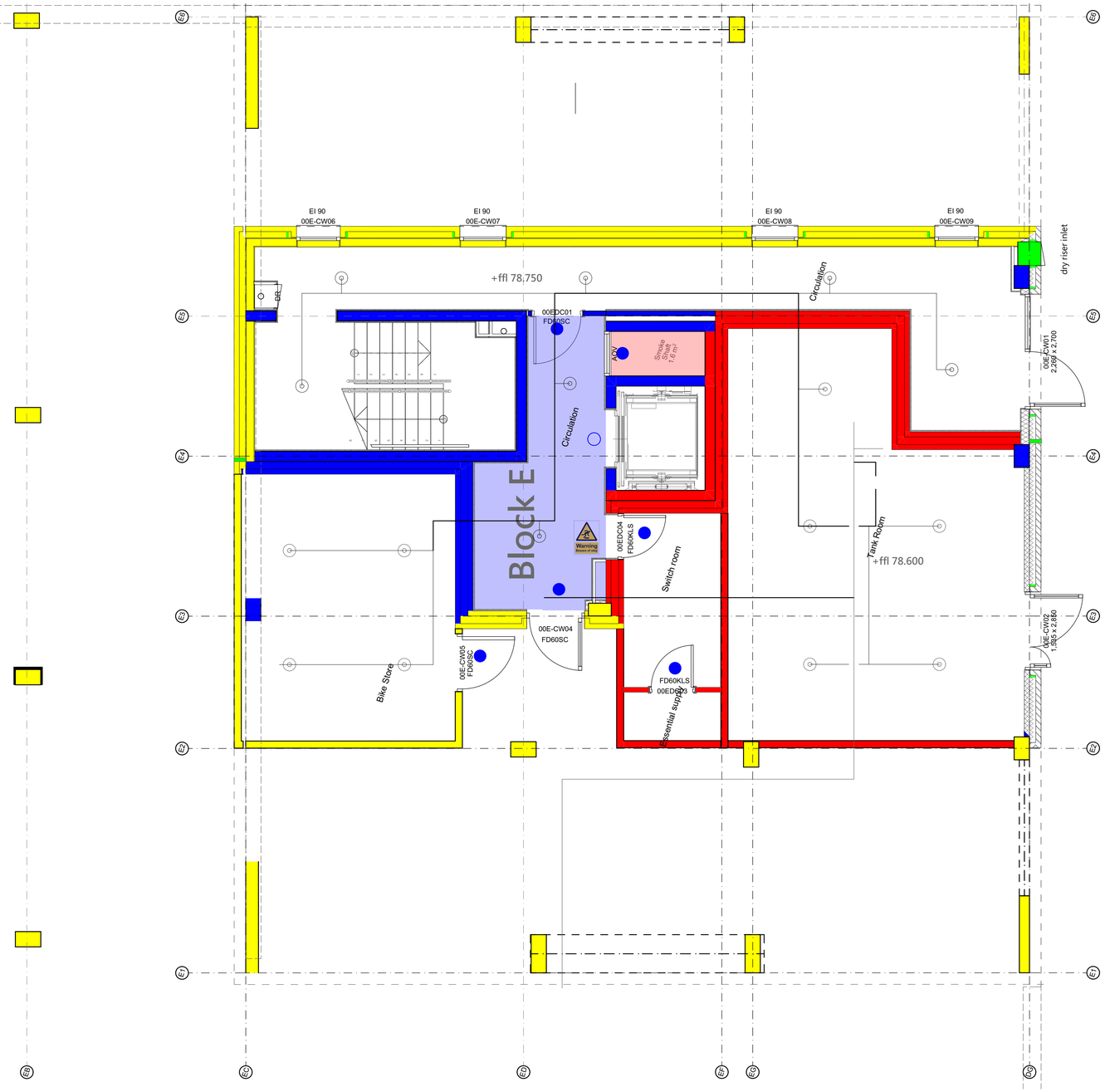
Checked: LD

Ref: E21062-RGP-D-XX-DR-A-4207-C03

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Lobby to stair arrangement amended	26/05/22	LD	SD
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Essential supply door moved, dry riser outlet added, general plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Door to switch room moved	16/03/23	LD	SD
C03	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Element	National Classification	European Classification*
Staircases	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobbies	120	REI 120
Fire Fighting Shaft	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, F and E)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments & from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Stairs (Blocks A and B) Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks C, D and E above 4 apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (unbearing and integrity, 15 insulation)	REI 60 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and E) (not fire stopped at floor level)	60	REI 60
Service Risers (Block F - no cellar plant)	60	REI 60
Ancillary Stores	30	REI 30
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Floors between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape zone within 1.8m	30	EI 30
Refuse Store	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and B)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Townhouse party wall	60	REI 60

* Based on new test standard for compartment walls and floors

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Garrowell & Johnstone)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E 60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 1366-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1366-8
Service Risers (Blocks A, B, D, and E)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD60S	E 30Sa	Self-closing
Stores into undercroft from internal accommodation (Blocks A, B and C)	FD 60S	E 120Sa	
Stores into undercroft from internal accommodation (Blocks D and E)	FD 30S	E 90Sa	
Townhouse Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0 All
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan E**
Scale:	**1:50@A1**
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-E-00-DR-A-5200-C03

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, LPG, Paints (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Plant Rooms	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Separation of Commercial Units from communal corridors	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Vents Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Separation between Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Stairs (Blocks A and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (selfbearing and non-loadbearing and insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between Townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Fire Fighting Lobbies	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block E)	60	REI 60
Transfer Landspaces	60	REI 60

*Conversion from National Classification to European Classification may not be possible

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Bathroom)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Shaft Lobby	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Self-closing Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and F)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class B-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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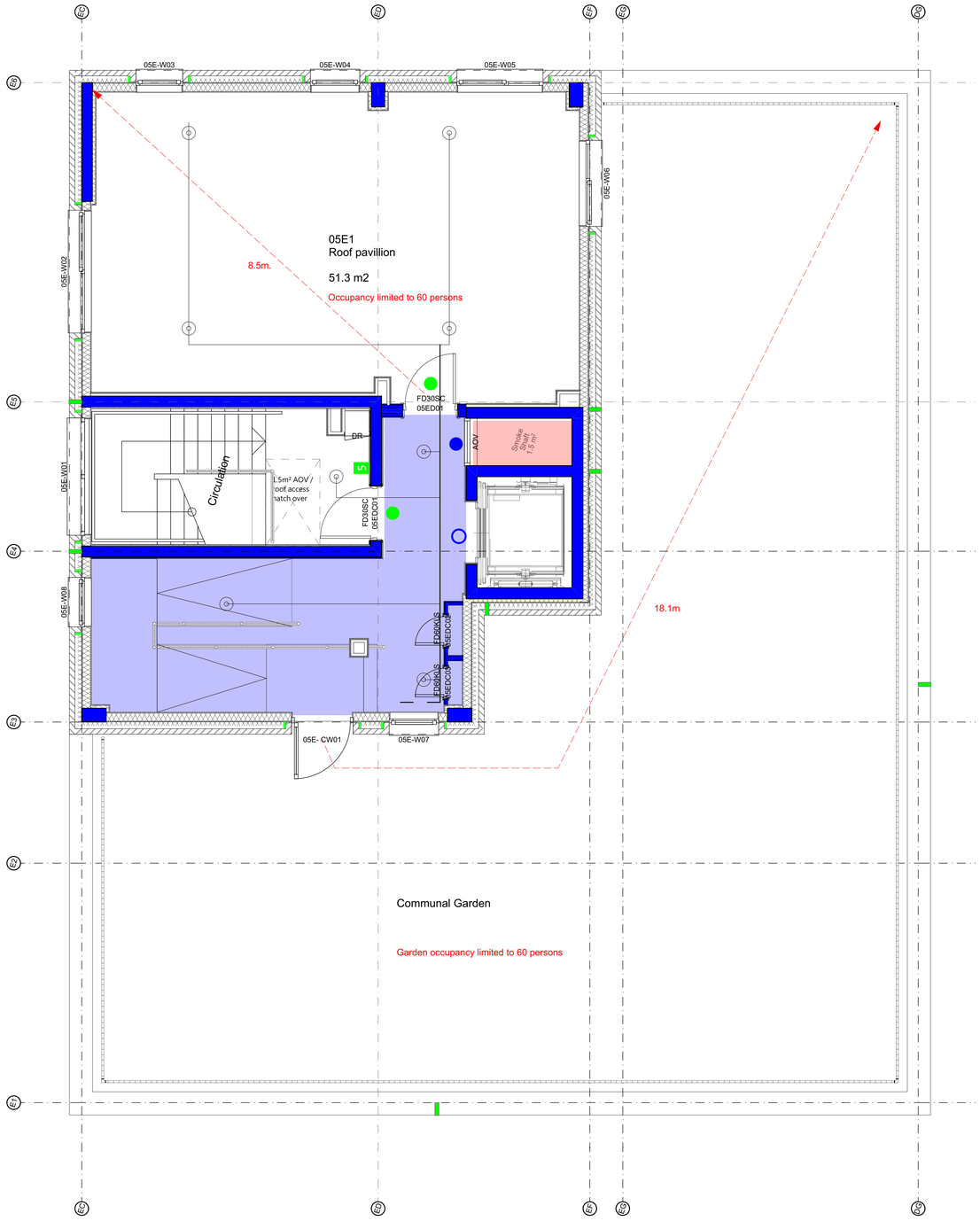
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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - First floor plan E**
Scale:	**1:50@A1**
Date:	Nov 2021
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Notes
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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, Valve Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Lift Shafts	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (Blocks A, B and C only)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Stairs (Blocks A and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (wallbearing and non-loadbearing) and 30 (separating membrane)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Cycle Stores	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block E)	60	REI 60
Transformer Compounds	60	REI 60

*Classification in accordance with BS EN 13501-2 and the relevant parts of BS EN 1363, BS EN 1364, BS EN 1365, BS EN 1366 and BS EN 1634.

Table 10 Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Shaft Lobby	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Self-closing Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks A and D)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Living Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class -s3, d2
Other rooms	Class -s2, d2
Circulation spaces within a dwelling	Class -s2, d2
Other circulation spaces (including the common corridors to the apartments)	Class -s1, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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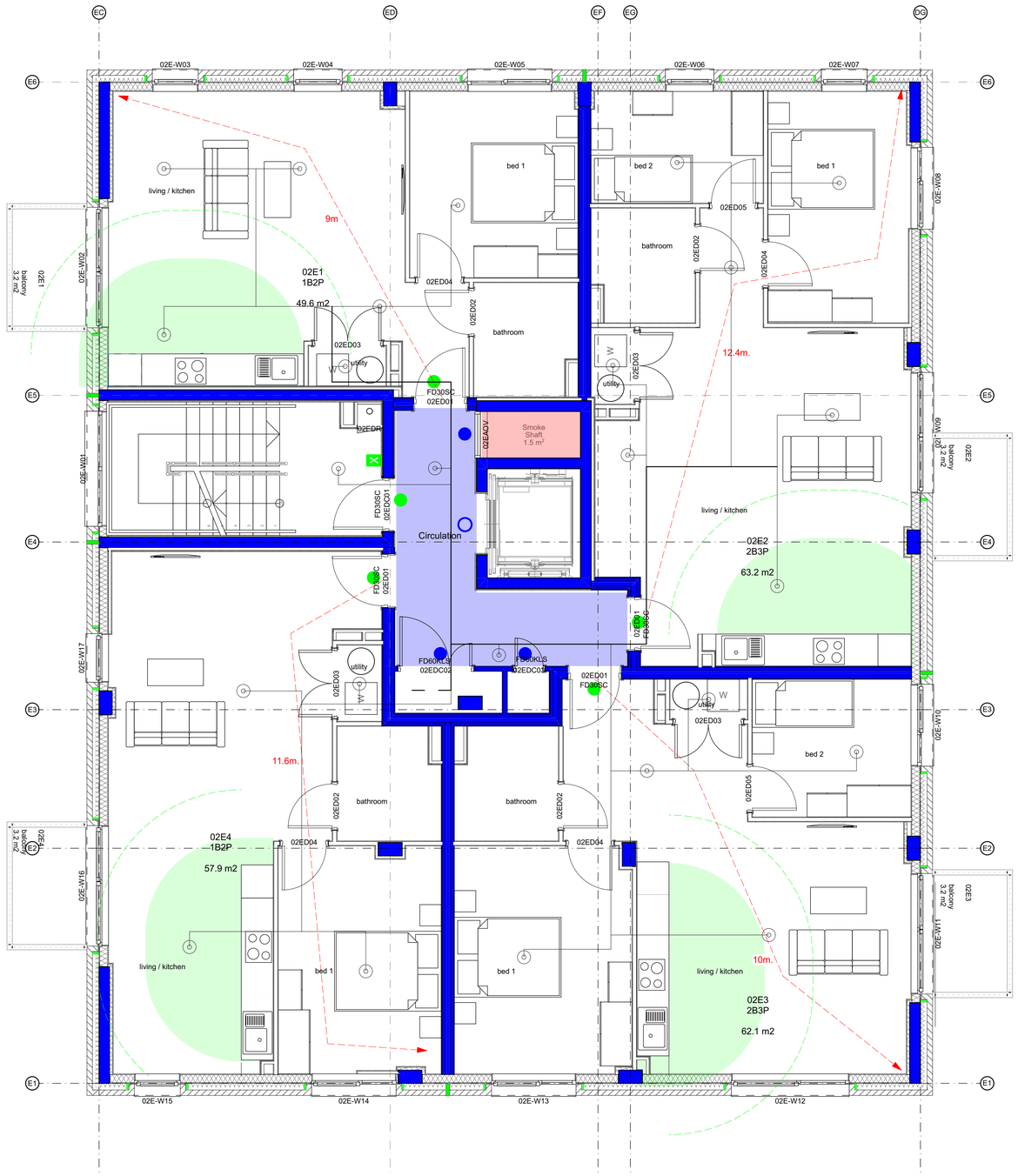
Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy -Fifth floor plan E**
Scale:	**1:50@A1**
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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil Valve Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lobby	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (Block 1 over Lobby Lobby)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Floors (Blocks 1 and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (selfbearing and non-loadbearing and insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block E)	60	REI 60
Service Risers (Blocks A and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks C and F) (fire stopped at floor level)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Plant Rooms	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block E)	60	REI 60
Fourth Floor Landscape	60	REI 60

*Classification to be confirmed by manufacturer following CPD provision

Table 10 Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD30S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - 2nd to 4th floor plan E**
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Ref:	E21062-RGP-E-SL-DR-A-5202-C02

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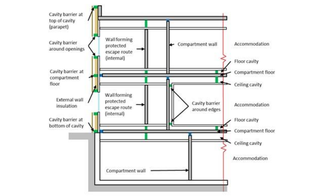
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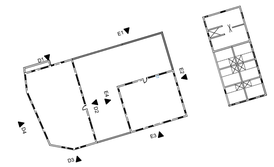
Revision:		Date:	Drawn:	Check:
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Status:	FINAL ISSUE
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Sheet title:	Fire strategy - Elevation E1
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Date:	Dec 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-E-XX-DR-A-5205-C02

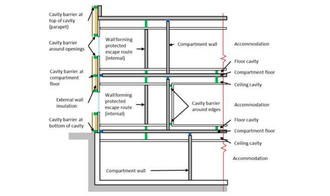
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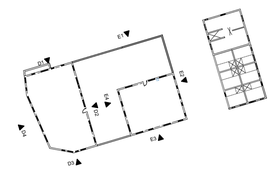
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C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Louvres above CW06 to 09 omitted	12/6/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



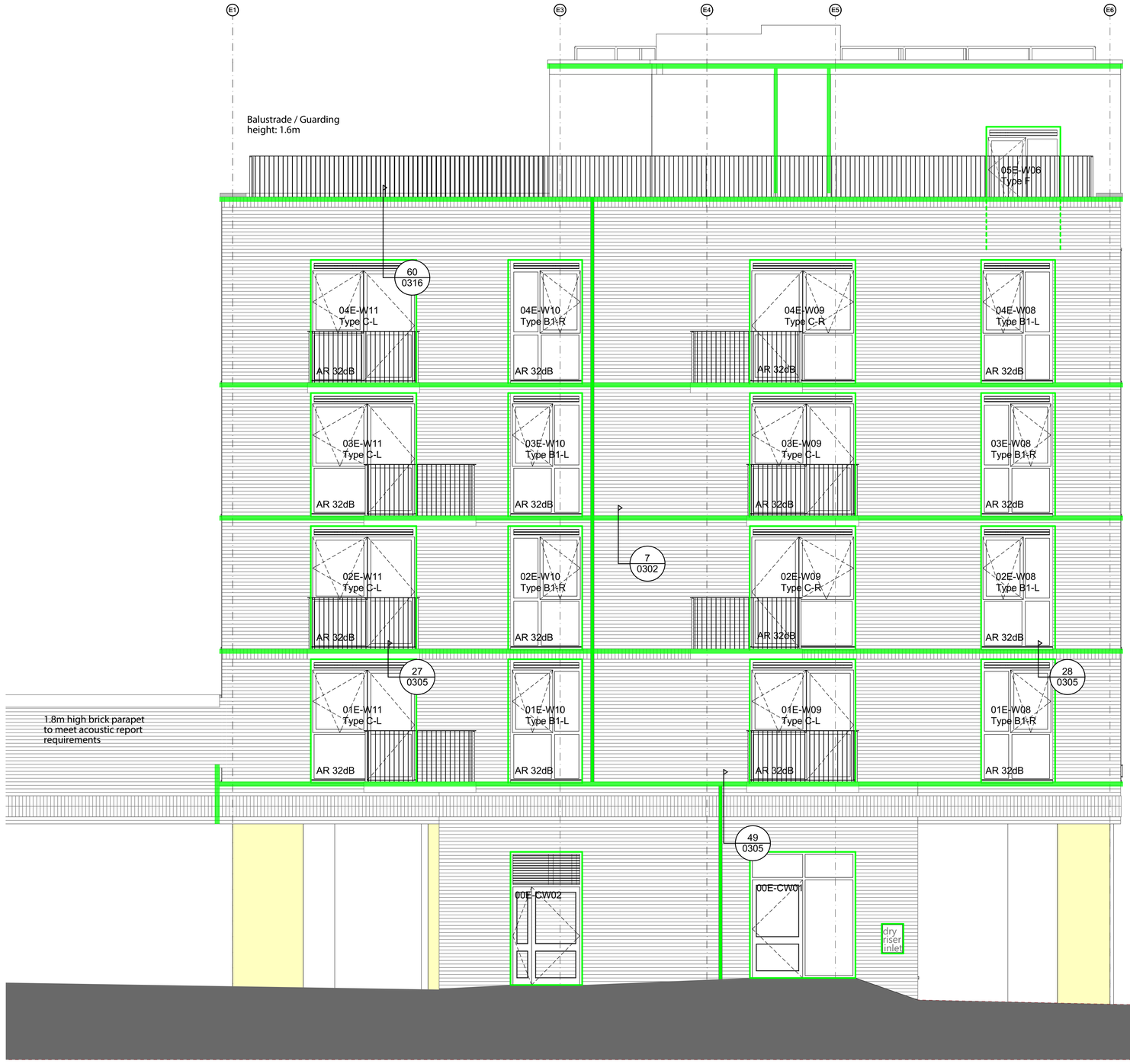
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Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

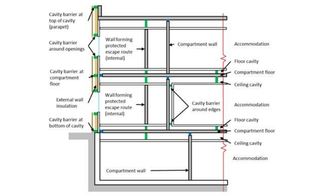
Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



Revision:		Date:	Drawn:	Check:
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

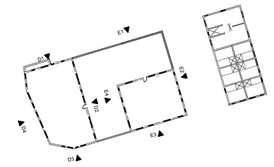




FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



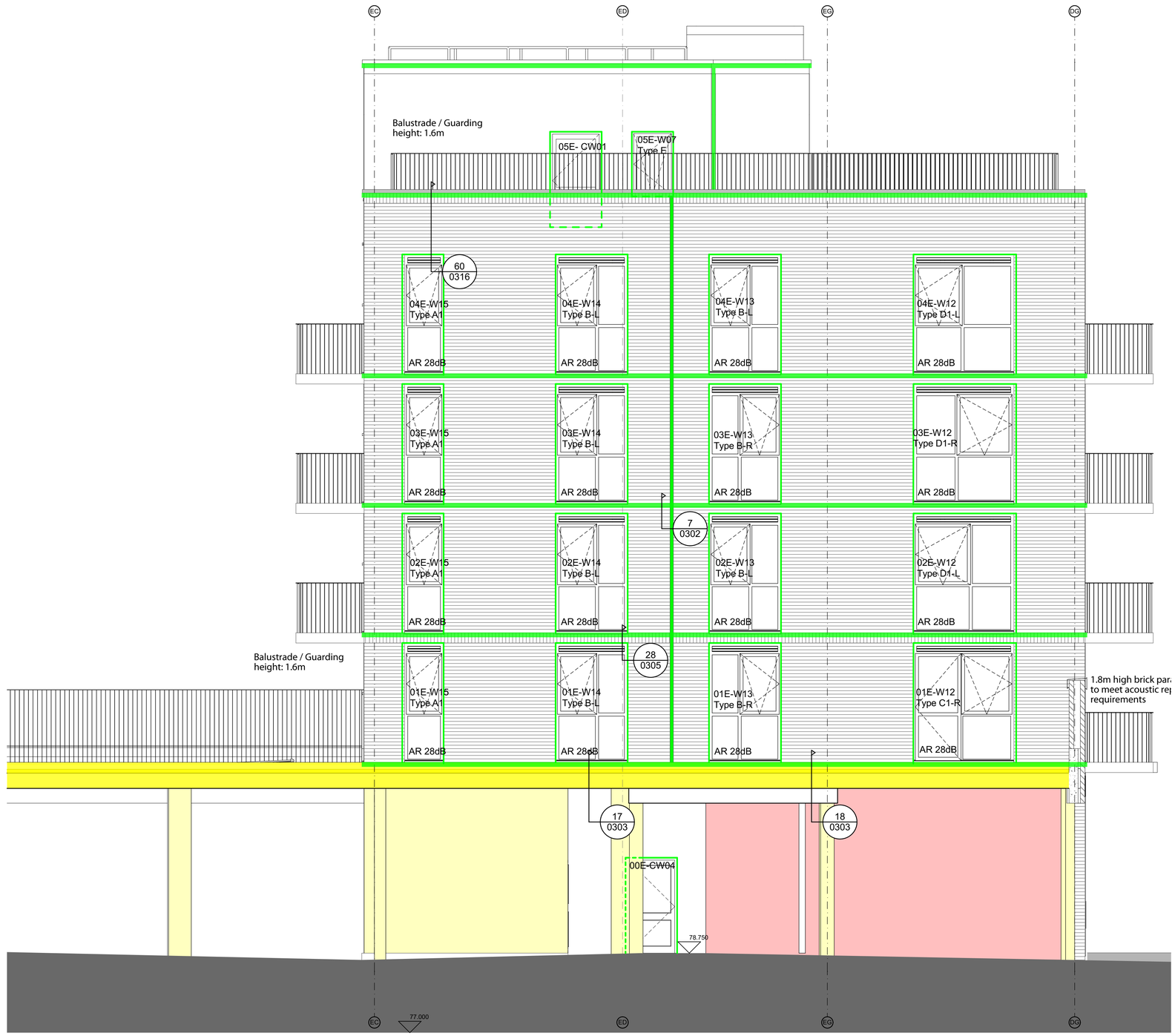
Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Elevation E3**
Scale:	**1:50@A1**
Date:	Dec 2021
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Checked:	LD
Ref:	E21062-RGP-E-XX-DR-A-5207-C02

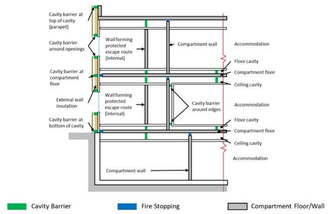
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C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

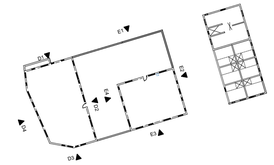




FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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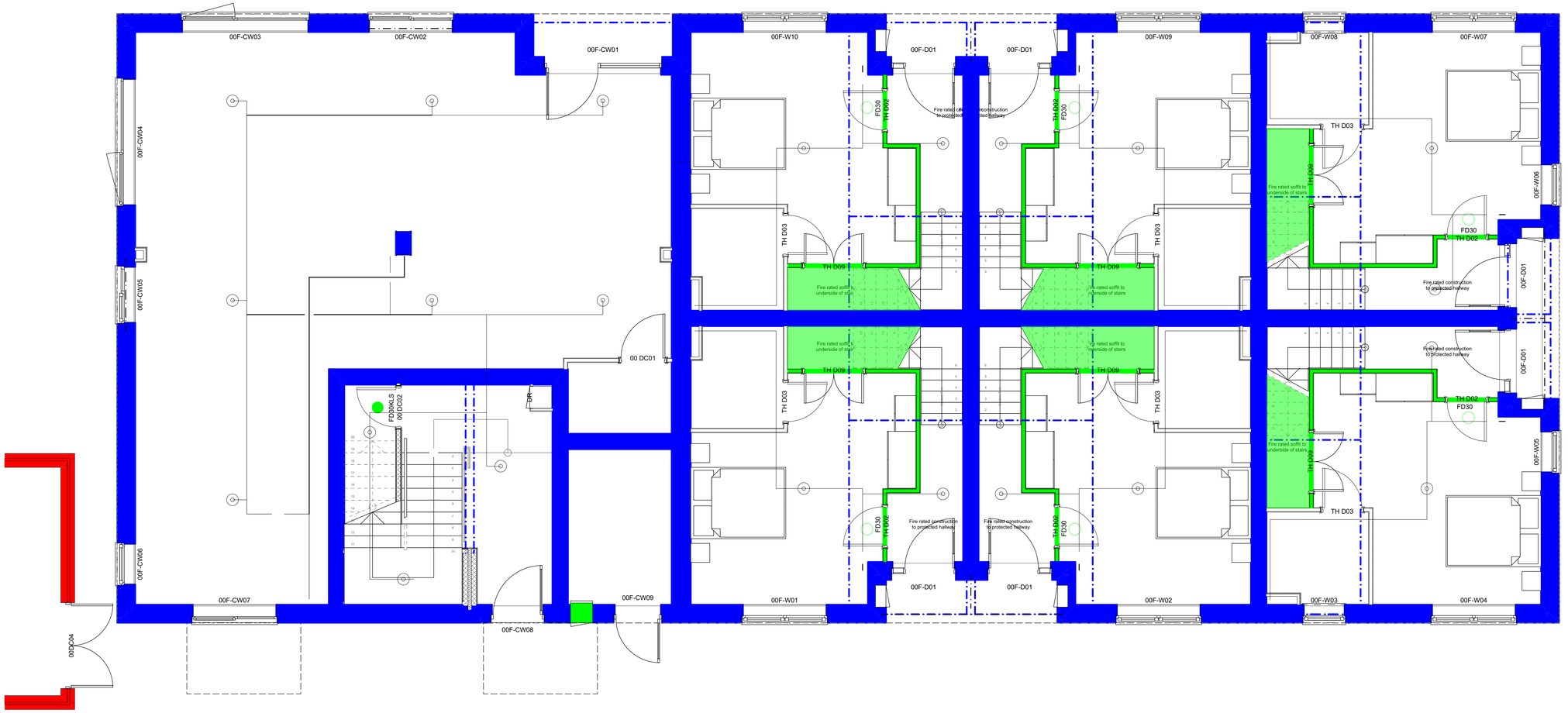
Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Elevation E4**
Scale:	**1:50@A1**
Date:	Dec 2021
Drawn:	SD
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P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Suberation	240[1]	REI 240[1]
Lifts (where Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobby	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Plant Rooms (Blocks A, B and D) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of internal walls / 1m from relevant boundary	60 (Loadbearing and Integrity, 15 min)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Doors into undercroft from internal accommodation (Blocks A, B, and C)	120	REI 120
Doors into undercroft from internal accommodation (Blocks D and E)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Fire Fighting Shaft	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[1] Loadbearing capacity and integrity only required for a fire attack from above ground level

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 60S	E 30 Sa	Self-closing
Electrical Riser Doors	FD 30S	E 30 Sa	Self-closing
Communal Doors Stairwell & Lobby	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E 60 Sa	
Doors into Lobby (Corridor)	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B, and C)	FD120S	E120Sa	
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Basement Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan F**
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P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30		●	○
60		●	○
90		●	○
120		●	○

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Function	National Classification	European Classification
Substation	240/*	REI 240*
Lifts Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobby	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Inter-Protected Party (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Communal Rooms (Blocks A and D) / Community Use Room (Block C)	60	REI 60
Commercial Units (Blocks A and B) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected area of external walls within 1m of relevant boundary	60 (Loadbearing and Integrity, 15 minutes other)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (Blocks A, B and D)	60	REI 60
Ancillary Stores	60	REI 60
Stores below undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Stores between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60
Caravans / Lodges	60	REI 60

* Fire resistance period may be reduced subject to BRE guidance

Table 10: Fire Door Requirements

Function	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & Corridor	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby (Corridor)	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and Locked shut and Sealed shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and D)	FD120S	EI120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks C and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Function	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0-s3, d2
Class exits	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - First floor plan F**
Scale:	**1:50@A1**
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Notes
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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Element	National Classification	European Classification
Substation	240[1]	REI 240[1]
Lifts (where Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lifts	120	REI 120
Fire Fighting Lifts	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Plant Rooms (not lift safety plant rooms)	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60 (loadbearing and integrity, 15 min insulation)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between ground floor cloak from external accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Doors into undercroft from internal accommodation (Blocks D and E)	60	REI 60
Townhouse Party Walls	60	REI 60
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[1] Fire resistance period may be reduced subject to a risk assessment

Table 10: Fire Door Requirements

Element	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Undercroft Doors Stairwell & Lobby	FD 30S	E30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby Entrance	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8 Locked shut and not easily accessible
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily accessible
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily accessible
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from external accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Owners / Caretaker	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	D2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

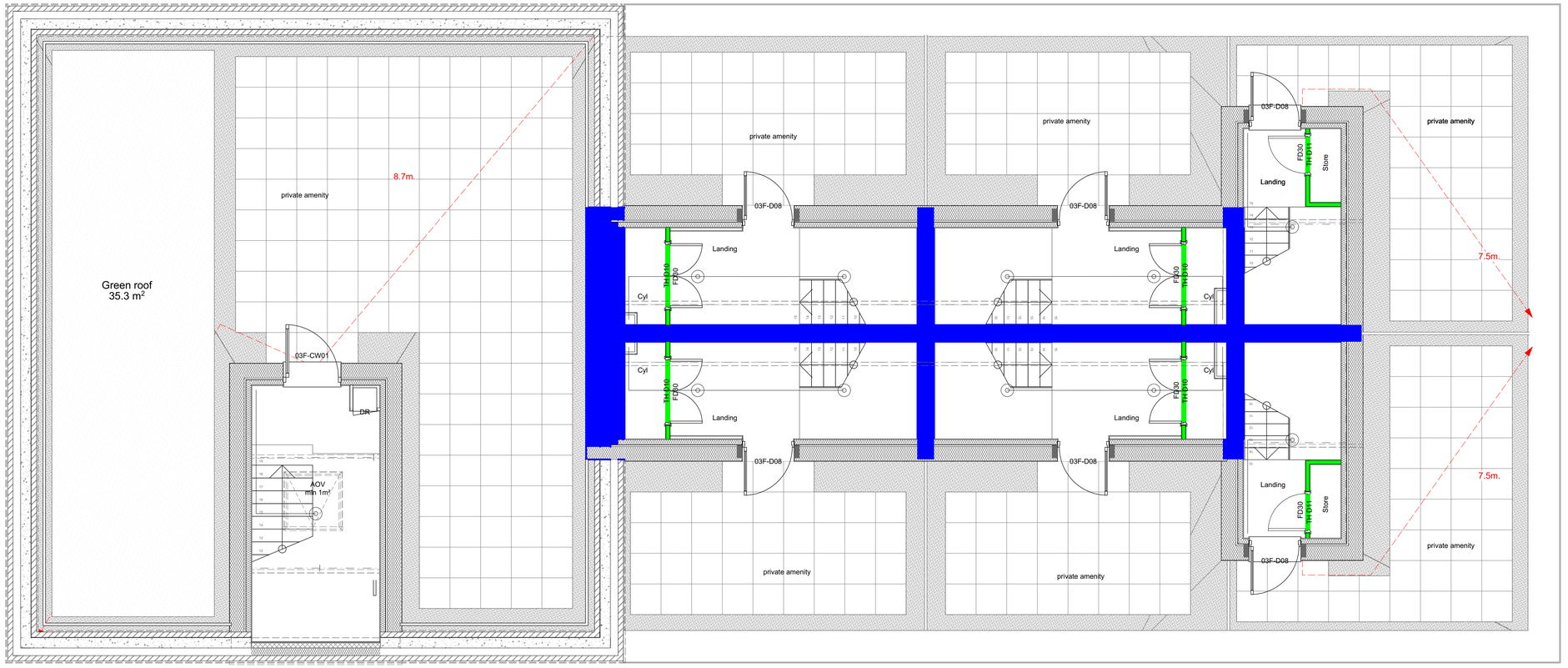
Project:	Bletchley View South 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire strategy - Second floor plan F
Scale:	1:50@A1
Date:	Nov 2021
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Ref:	E21062-RGP-F-02-DR-A-6203-C03

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Substation	240[a][b]	REI 240[a][b]
Lifts (where lift machinery is not housed in the lift shaft)	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments and corridors/circulation spaces	60	REI 60
Overhead Fire Rated Protected Slabs (Block C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Commercial Units (Blocks A and B) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected area of external walls within 1m of relevant boundary	60 (loadbearing and integrity, 15 minutes other)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Basement Lifts	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[a] Load bearing capacity should be maintained for the period of fire resistance specified.
[b] Applies to substations housing transformers containing more than 1000 gallons

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Spur	FD 30S	E 30 Sa	Self-closing
Communal Doors (Kennard & Gilmore)	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and locked shut and locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks C and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (40m² for non-residential)	Class 0-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces, (including the common corridors to the apartments)	Class B-s3, d2

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
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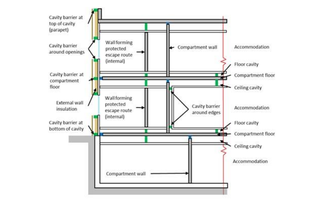
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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C02	Internal floors shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - F1 and F3**
Scale:	**1:50@A1**
Date:	May 2023
Drawn:	LD
Checked:	TH
Ref:	E21062-RGP-F-XX-DR-A-6205-C03

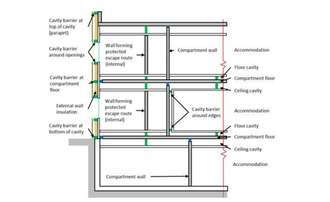
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C02	Internal floors shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE	
Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.



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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - F2 and F4**
Scale:	**1:50@A1**
Date:	May 2023
Drawn:	LD
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Revision:		Date:	Drawn:	Check:
P02	Secondary dry riser added to block A, pedestrian barrier added to drawing	26/05/22	LD	SD
P03	Alternative fire engine location indicated to block A, essential supply generator added	09/08/22	LD	SD
C01	Status updated, emergency generator position amended	12/6/23	LD	SD
C02	Final construction issue	21/03/24	LJD	RTM



- Primary entrance
- Secondary entrance
- Dry riser inlet
- Upper floor dry riser outlet
- Distance to existing fire hydrant (100m max)
- Hose route to upper floors (45m max where no fire fighting stair)
- Fence / barrier

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Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Site plan north**
Scale:	**1:200@A1**
Date:	December 2021
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Lobby to stair arrangement amended, dry riser inlet positions updated	26/05/22	LD	SD
P03	New hydrant location added, dry riser shown to block F	26/09/22	LD	SD
P03	New hydrant location added, dry riser shown to block F	26/09/22	LD	SD
C01	Hydrant on South terrace added, route to block F indicated	7/2/23	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



Primary entrance
Secondary entrance
Dry riser inlet
Upper floor dry riser outlet
Distance to existing fire hydrant (100m max)
Hose route to upper floors (45m max where no fire fighting stair)

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Site plan south**
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Date:	December 2021
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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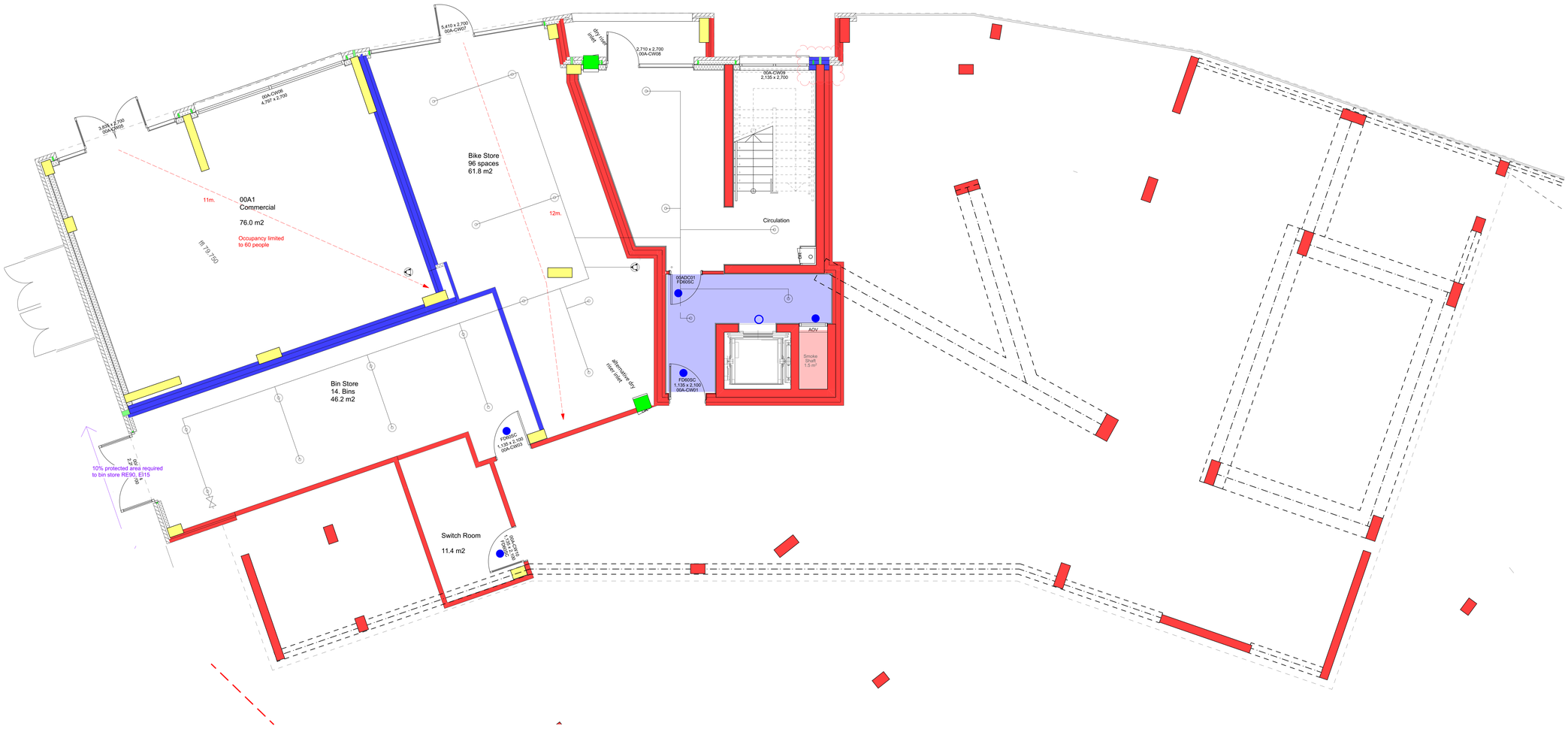
2.7 FIRE INFORMATION

2.7.1.4 Fire Site Plans

The fire site plan drawings were provided by **RG+P Ltd,** the Architects and follow in this section.

Drawing No.	Drawing Title	Rev
E21062-RGP-A-00-DR-A-1200	Fire Strategy - Ground Floor Plan A	C02
E21062-RGP-A-01-DR-A-1201	Fire Strategy - First Floor Plan A	C01
E21062-RGP-A-09-DR-A-1209	Fire Strategy - Ninth Floor Plan A	C01
E21062-RGP-A-SL-DR-A-1202	Fire Strategy - 2nd to 8th Floor Plan A	C02
E21062-RGP-B-00-DR-A-2200	Fire Strategy - Ground Floor Plan B	C03
E21062-RGP-B-01-DR-A-2201	Fire Strategy - First Floor Plan B	C02
E21062-RGP-B-07-DR-A-2207	Fire Strategy - Seventh Floor Plan B	C02
E21062-RGP-B-SL-DR-A-2202	Fire Strategy - 2nd to 6th Floor Plan B	C02
E21062-RGP-C-SL-DR-A-3201	Fire Strategy Block C Town Houses	C04
E21062-RGP-D-00-DR-A-4200	Fire strategy - Ground floor plan D	C04
E21062-RGP-D-01-DR-A-4201	Fire strategy - First floor plan D	C02
E21062-RGP-D-SL-DR-A-4202	Fire strategy - Upper floors plan D	C02
E21062-RGP-E-00-DR-A-5200	Fire strategy - Ground floor plan E	C03
E21062-RGP-E-01-DR-A-5201	Fire strategy - First floor plan E	C02
E21062-RGP-E-05-DR-A-5203	Fire strategy -Fifth floor plan E	C02
E21062-RGP-E-SL-DR-A-5202	Fire strategy - 2nd to 4th floor plan E	C02
E21062-RGP-F-00-DR-A-6200	Fire strategy - Ground floor plan F	C03
E21062-RGP-F-01-DR-A-6201	Fire strategy - First floor plan F	C03
E21062-RGP-F-02-DR-A-6203	Fire strategy - Second floor plan F	C03
E21062-RGP-F-03-DR-A-6204	Fire strategy - Third floor plan F	C02

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	Dry riser added, wall construction amended, general updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated	15/03/23	LD	SD



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Lift Lobby Doors (e.g generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Basement Walls	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Associated Stairs (Blocks C and F)	30	REI 30
Walls between Apartments (Block D)	60	REI 60
Streets Wall (Block C)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block C)	60	REI 60
Walls between Apartments and Retail / apartments	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant Boundary	Non-loadbearing and integrity 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not for stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Ventilation Ducts (serving more than one apartment)	60	REI 60
Plantiling Decks	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Separating Walls between Townhouses	60	REI 60
Fabric to protected circulation route within 2.5m	30	EI 30
Refuse Store	60	REI 60
Basement Car Park	60	REI 60
Separation of sub residential and non-residential (Blocks A and D)	60	REI 60
Separation of sub residential and non-residential (Block C)	60	REI 60

* Compartment walls and floors shall be tested in accordance with BS EN 1364-1 and classified in accordance with BS EN 13501-2.
** Substation walls and floors shall be tested in accordance with BS EN 1364-1 and classified in accordance with BS EN 13501-2.

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self closing
Townhouse Doors	FD 30S	E 30 Sa	Self closing
Protected Lobby / Stairwell & Lift Doors	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self closing
Lift Fighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke leakage and demonstrated to EN 1155-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke leakage and demonstrated to EN 1155-8
Service Risers (Blocks A, B, D and F)	FD 60S	E 60 Sa	Self closing and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self closing and not easily openable
Plant Rooms (non life safety plant)	FD 30S	E 30 Sa	Self closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self closing and door to be kept locked shut
Ancillary Doors	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and D)	FD30S	ED30Sa	Self closing
Doors into under croft from internal accommodation (Blocks C and E)	FD 60S	E 60Sa	
Tenants Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of the 12m² for non-residential.	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

winvic

rgp

Project: Bletchley View North
100-331

Status: CONSTRUCTION

Client: Winvic Construction Ltd

Sheet title: Fire Strategy - Ground Floor Plan A

Scale: 1:50@A0

Date: November 2021

Drawn: SD

Checked: LD

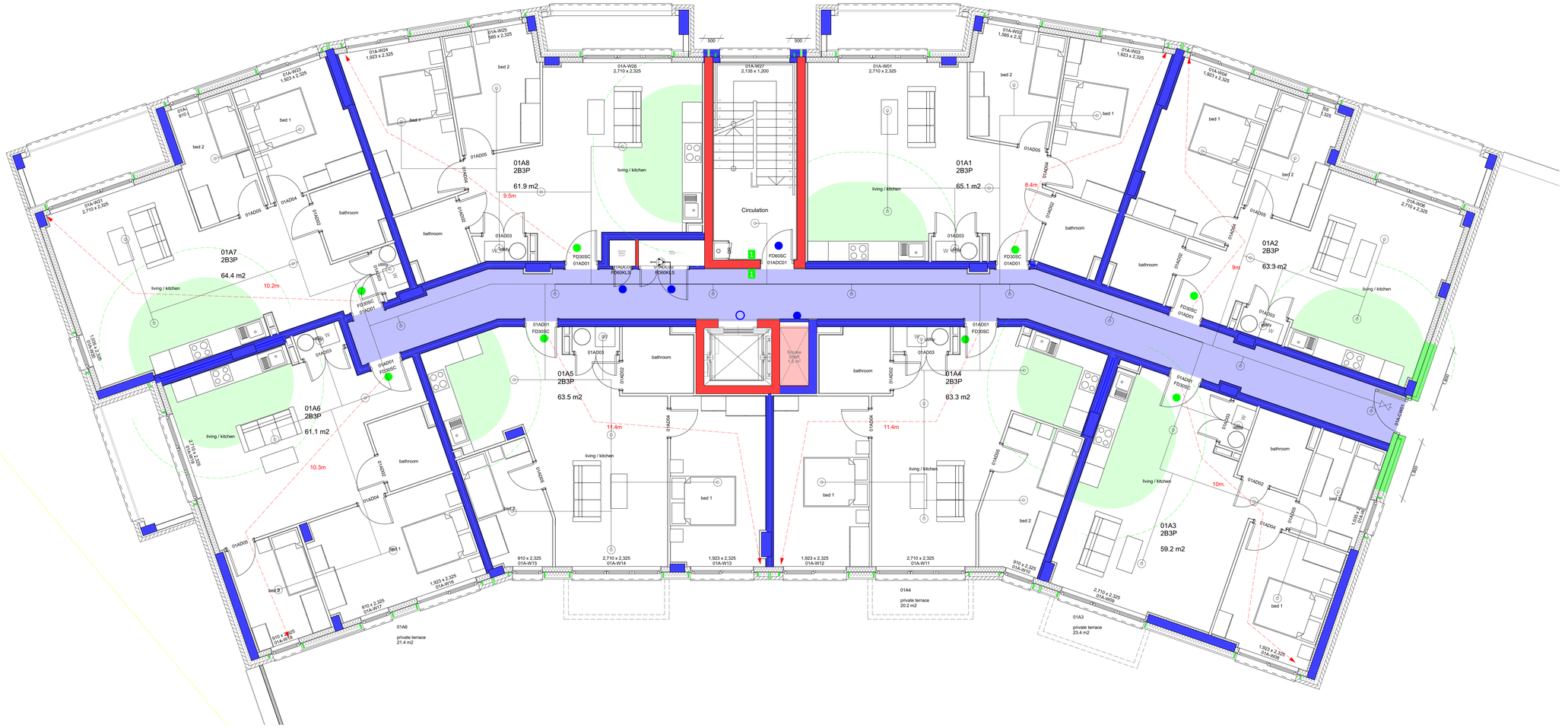
Ref: E21062-RGP-A-00-DR-A-1200-C02

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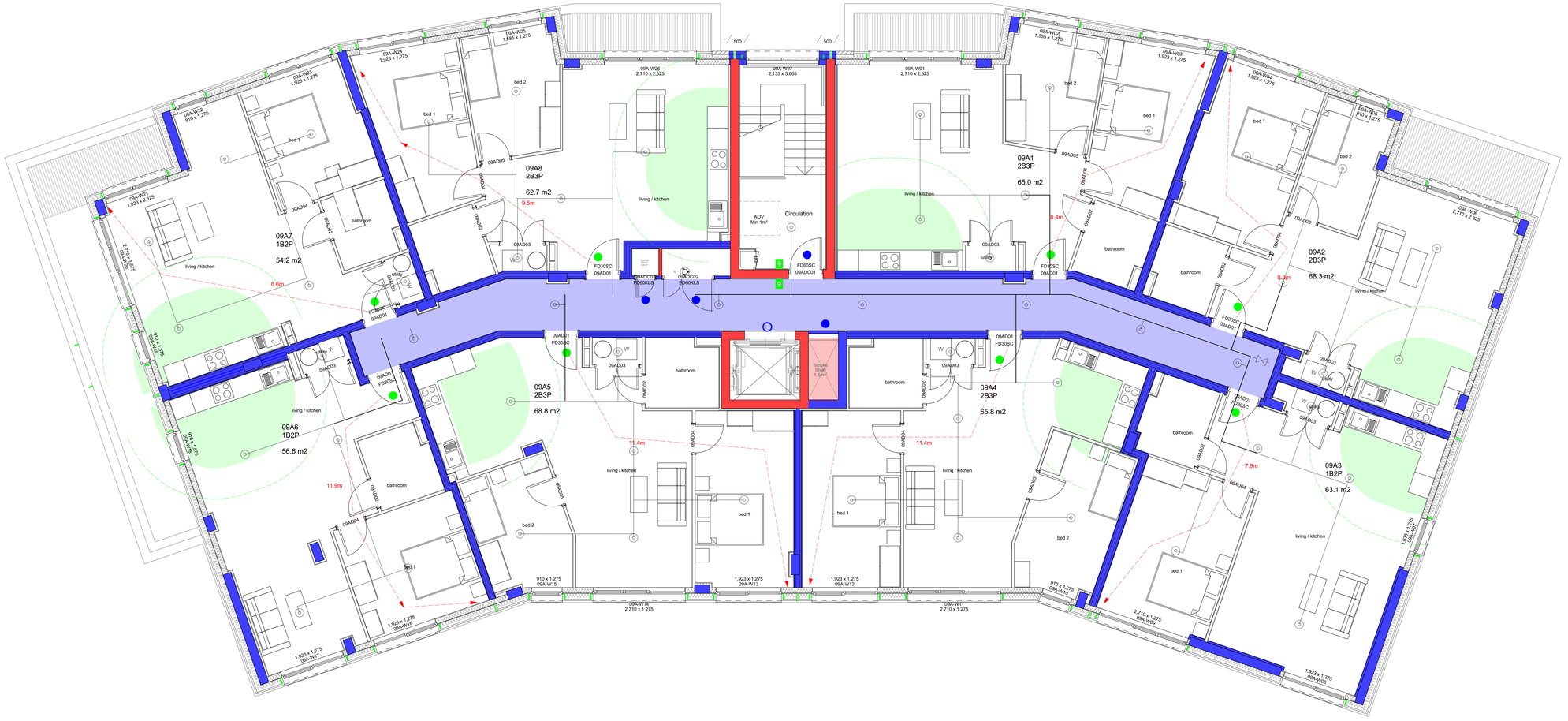
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings incor connected to a façade should be non-combustible if the top storey of the building is above 11m.

All dimensions to be checked on site. Do not scale off this drawing for construction purposes.
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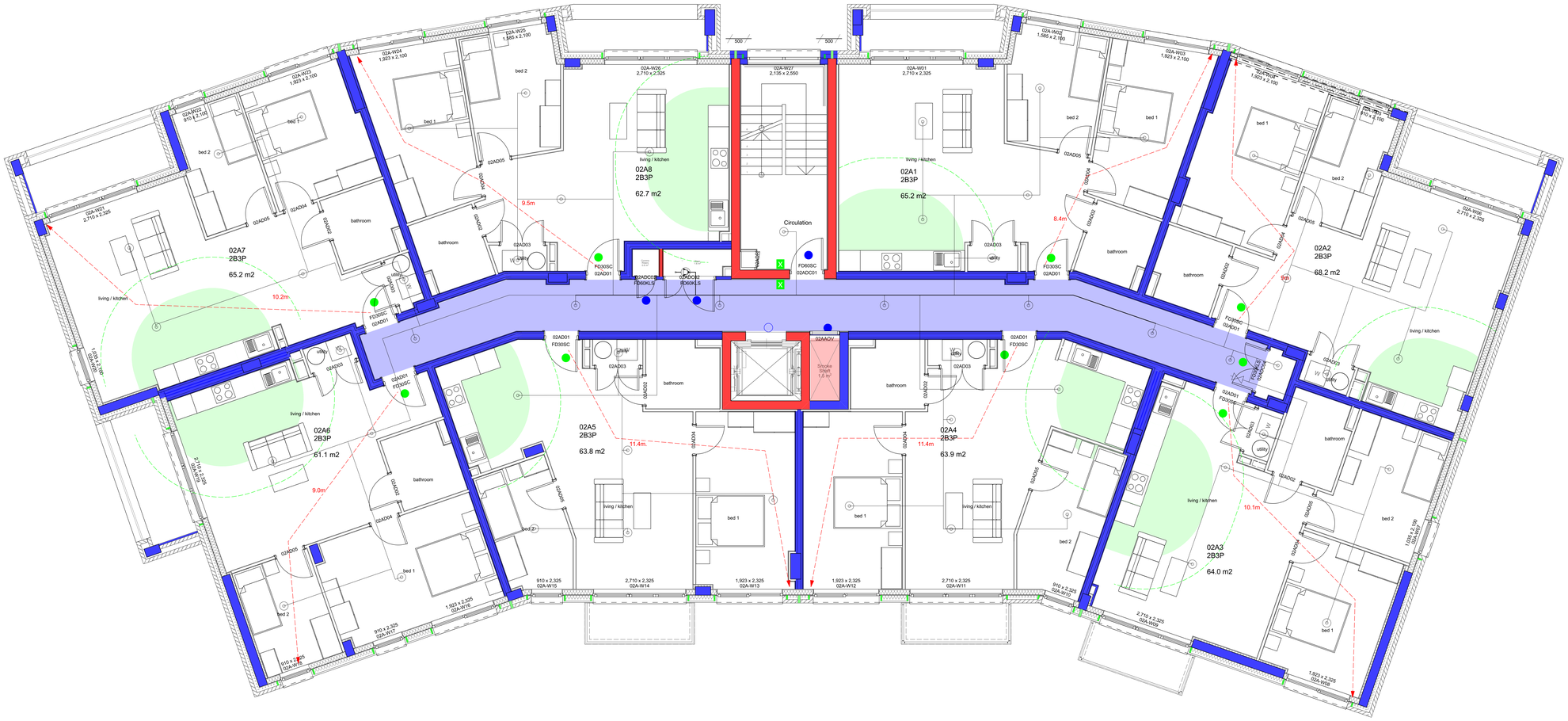
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P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/5/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Wall construction amended, general updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD


01A8
2B3P
61.9 m2
01A7
2B3P
64.4 m2
01A6
2B3P
61.1 m2
01A5
2B3P
63.5 m2
01A4
2B3P
63.3 m2
01A1
2B3P
65.1 m2
01A2
2B3P
63.3 m2
01A3
2B3P
59.2 m2
Circulation
Smoke Shaft 1.5 m²
living / kitchen
bed 1
bed 2
bathroom
9.5m
10.2m
10.3m
11.4m
8.4m
9m
10m
01A-W01 2,710 x 2,325
01A-W02 1,585 x 2,325
01A-W03 1,923 x 2,325
01A-W04 1,923 x 2,325
01A-W05 585 x 2,325
01A-W06 2,710 x 2,325
01A-W07 2,710 x 2,325
01A-W08 2,710 x 2,325
01A-W09 2,710 x 2,325
01A-W10 910 x 2,325
01A-W11 2,710 x 2,325
01A-W12 1,923 x 2,325
01A-W13 1,923 x 2,325
01A-W14 2,710 x 2,325
01A-W15 910 x 2,325
01A-W16 1,923 x 2,325
01A-W17 910 x 2,325
01A-W18 2,710 x 2,325
01A-W19 1,923 x 2,325
01A-W20 1,923 x 2,325
01A-W21 2,710 x 2,325
01A-W22 1,923 x 2,325
01A-W23 1,923 x 2,325
01A-W24 1,923 x 2,325
01A-W25 585 x 2,325
01A-W26 2,710 x 2,325
01A-W27 2,135 x 1,200
01A-W28 1,585 x 2,325
01A-W29 1,923 x 2,325
01A-W30 1,923 x 2,325
01A-W31 1,923 x 2,325
01A-W32 1,923 x 2,325
01A-W33 1,923 x 2,325
01A-W34 1,923 x 2,325
01A-W35 1,923 x 2,325
01A-W36 1,923 x 2,325
01A-W37 1,923 x 2,325
01A-W38 1,923 x 2,325

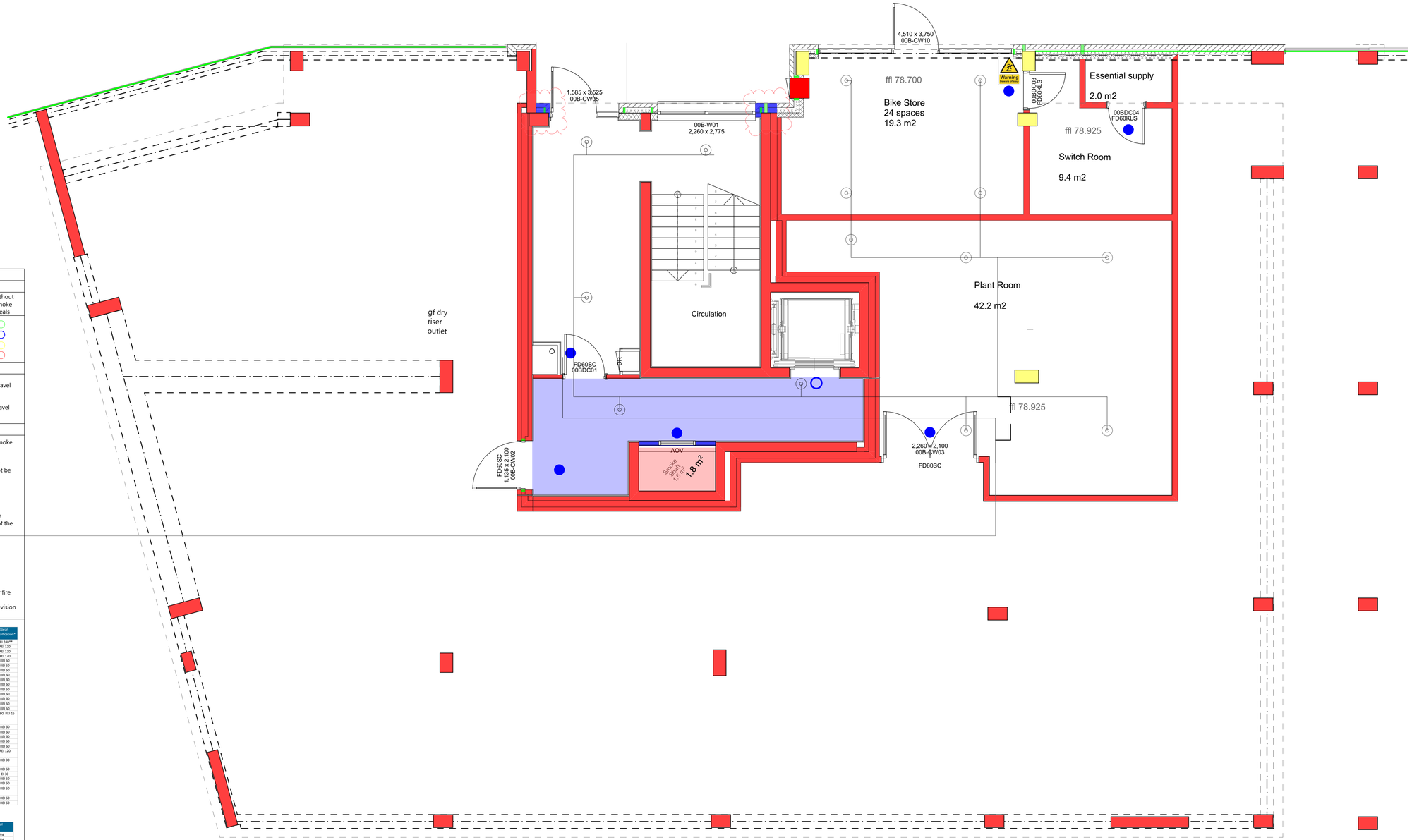
Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Wall construction amended	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD


09A1
2B3P
65.0 m2
09A2
2B3P
68.3 m2
09A3
1B2P
63.1 m2
09A4
2B3P
65.8 m2
09A5
2B3P
68.8 m2
09A6
1B2P
56.6 m2
09A7
1B2P
54.2 m2
09A8
2B3P
62.7 m2
Circulation
AOV
Min 1m²
Smoke Shaft
1.5 m²
living / kitchen
bathroom
bed 1
bed 2
utility
8.4m
8.9m
7.9m
11.4m
11.9m
9.5m
8.6m
09A-W01
2,710 x 2,325
09A-W02
1,585 x 1,275
09A-W03
910 x 1,275
09A-W04
1,923 x 1,275
09A-W05
1,585 x 1,275
09A-W06
2,710 x 2,325
09A-W07
2,135 x 3,665
09A-W08
2,710 x 1,275
09A-W09
2,710 x 1,275
09A-W10
1,923 x 1,275
09A-W11
2,710 x 1,275
09A-W12
910 x 1,275
09A-W13
1,923 x 1,275
09A-W14
2,710 x 1,275
09A-W15
1,923 x 1,275
09A-W16
1,923 x 1,275
09A-W17
1,923 x 1,275
09A-W18
1,923 x 1,275
09A-W19
2,710 x 1,875
09A-W20
1,923 x 1,275
09A-W21
1,923 x 1,275
09A-W22
910 x 1,275
09A-W23
1,923 x 1,275
09A-W24
1,923 x 1,275
09A-W25
1,923 x 1,275
09A-W26
2,710 x 2,325
09A-W27
2,135 x 3,665
09A-W28
2,710 x 1,275
09A-W29
2,710 x 1,275
09A-W30
1,923 x 1,275
09A-W31
1,923 x 1,275
09A-W32
1,923 x 1,275
09A-W33
1,923 x 1,275
09A-W34
1,923 x 1,275
09A-W35
1,923 x 1,275
09A-W36
2,710 x 2,325
09AD01
FD30SC
09AD02
09AD03
09AD04
09AD05
09AD06
09AD07
09AD08
09AD09
09AD10
09AD11
09AD12
09AD13
09AD14
09AD15
09AD16
09AD17
09AD18
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09AD36
09AD37
09AD38
09AD39
09AD40
09AD41

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Wall construction amended, general updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report. status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM


02A7
2B3P
65.2 m2
02A6
2B3P
61.1 m2
02A5
2B3P
63.8 m2
02A8
2B3P
62.7 m2
02A1
2B3P
65.2 m2
02A4
2B3P
63.9 m2
02A2
2B3P
68.2 m2
02A3
2B3P
64.0 m2
Circulation
Smoke shaft 1.5 m²
living / kitchen
bed 1
bed 2
bathroom
utility
9.5m
10.2m
9.0m
11.4m
11.4m
8.4m
8m
10.1m
02A-W01 2,710 x 2,325
02A-W02 1,585 x 2,100
02A-W03 1,923 x 2,100
02A-W04 1,923 x 2,100
02A-W05 1,585 x 2,100
02A-W06 2,710 x 2,325
02A-W07 2,710 x 2,325
02A-W08 910 x 2,100
02A-W09 1,585 x 2,100
02A-W10 910 x 2,325
02A-W11 2,710 x 2,325
02A-W12 1,923 x 2,325
02A-W13 1,923 x 2,325
02A-W14 2,710 x 2,325
02A-W15 910 x 2,325
02A-W16 1,923 x 2,325
02A-W17 910 x 2,325
02A-W18 910 x 2,325
02A-W19 2,710 x 2,325
02A-W20 1,923 x 2,325
02A-W21 2,710 x 2,325
02A-W22 1,923 x 2,100
02A-W23 910 x 2,100
02A-W24 1,585 x 2,100
02A-W25 1,585 x 2,100
02A-W26 1,923 x 2,100
02A-W27 2,135 x 2,550
02A-W28 2,710 x 2,325
02A-W29 2,710 x 2,325
02AD01 FD30SC
02AD02 FD60SC
02AD03
02AD04
02AD05
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02AD07
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02AD20
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02AD39
02AD40
02AD41
02AD42

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	Dry riser outlet added, general drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Fire rating to side of core updated, step warning sign added to switch room	15/03/23	LD	SD
C03	Final construction issue	14/03/24	LID	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

- Single Direction Travel Distance
- Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door
Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Protected Stairs (Blocks C and F)	60	REI 60
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, F and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Using approach to load bearing elements only.
** Substation ratings will need to be confirmed by DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control dampet/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control dampet/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	-
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project: Bletchley View North
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy - Ground Floor Plan B**

Scale: **1:50@A1**

Date: November 2021

Drawn: SD

Checked: LD

Ref: E21062-RGP-B-00-DR-A-2200-C03

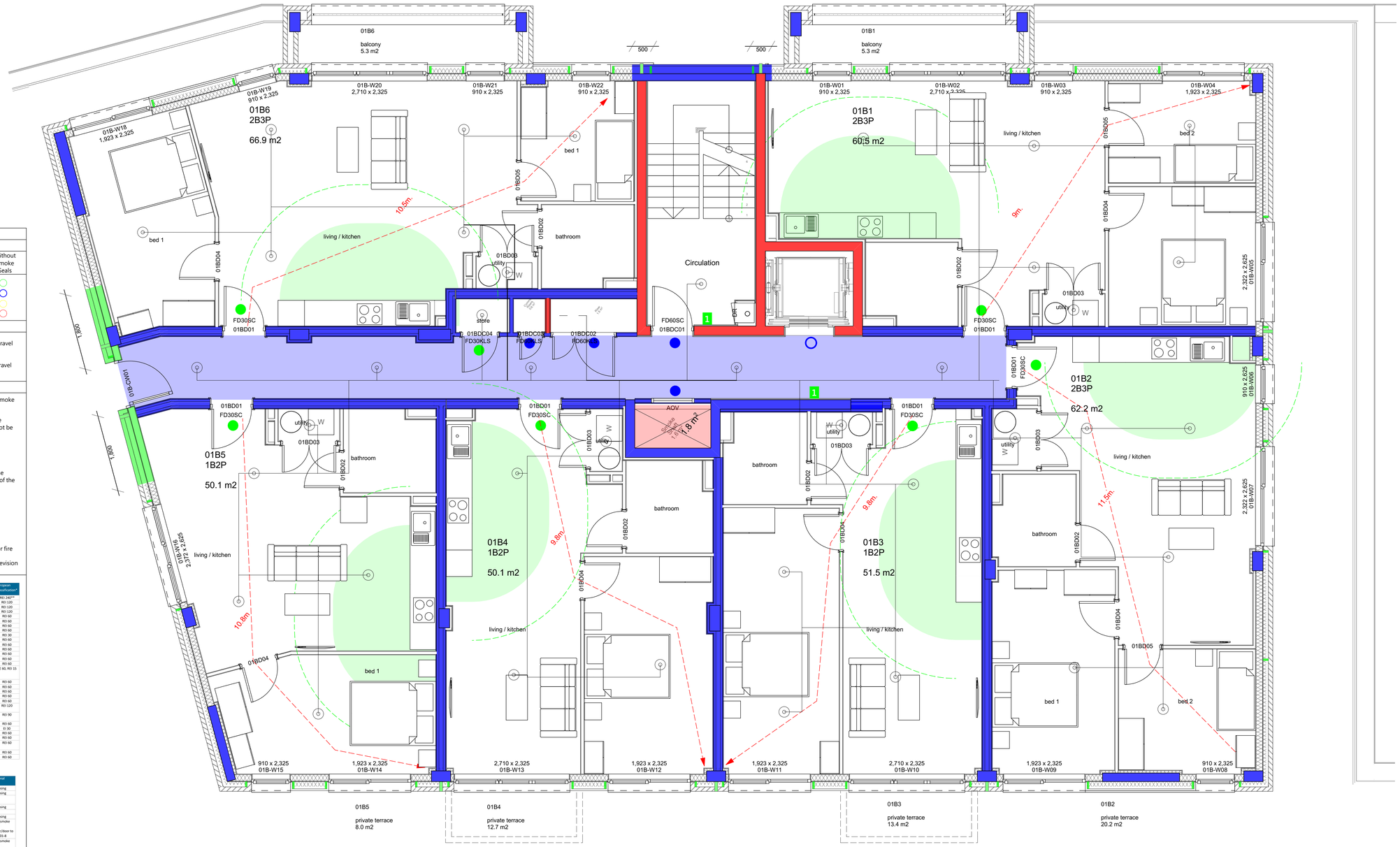
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

All dimensions to be checked on site. Do not scale off this drawing for construction purposes.

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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door
Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Block C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse internal Protected Stairs (Block C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 minutes insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* 'A' rating applies to base drawing elements only
** Calculation rating will need to be confirmed by DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class d2 B-s3,
Other rooms	Class d2 C-s3,
Circulation spaces within a dwelling	
Other circulation spaces (including the common corridors to the apartments)	Class d2 B-s3,

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - First Floor Plan B**
Scale:	**1:50, 1:71.43@A1**
Date:	November 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-B-01-DR-A-2201-C02

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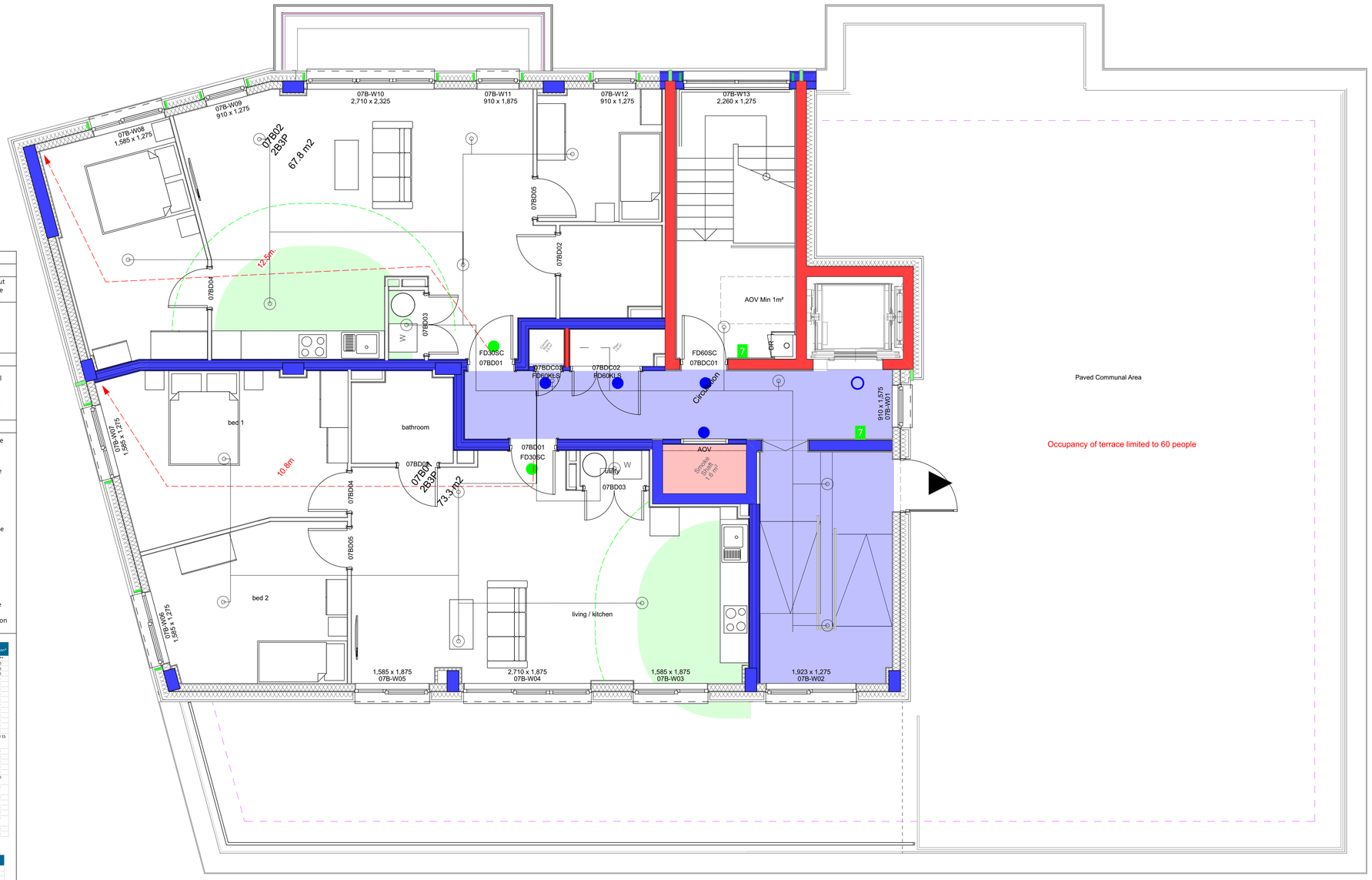
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

	Single Direction Travel Distance
	Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C, and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Where a building contains a load-bearing element only
** Unless otherwise agreed with the local authority building control body (LABC) provided

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and E)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

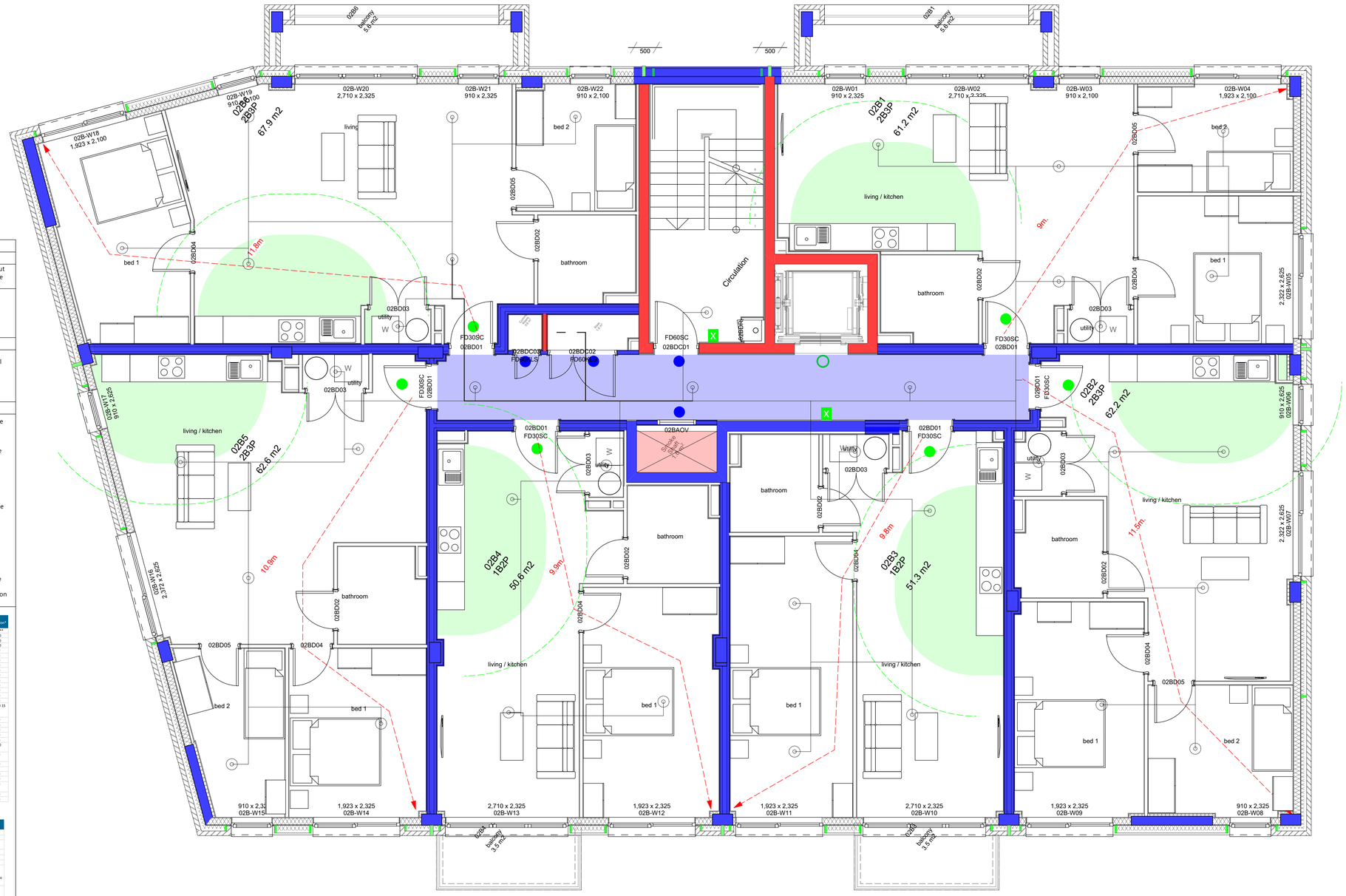
Project:	Bletchley View North 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire Strategy - Seventh Floor Plan B**
Scale:	**1:50, 1:71.43@A1**
Date:	November 2021
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General drawing updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	15/12/22	LD	SD
C02	Final construction issue	14/03/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C, and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial Units (Blocks A and D)/ Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* Class A1 or A2 ceiling boards to load-bearing elements only
** Fire resistance period may be reduced to 90 minutes by DNO provider

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance)	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	60S	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and E)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Acoustic, Local Authority, Building Control and Fire Engineer information.

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Project: Bletchley View North
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy - 2nd to 6th Floor Plan B**

Scale: **1:50, 1:71.43@A1**

Date: November 2021

Drawn: SD

Checked: LD

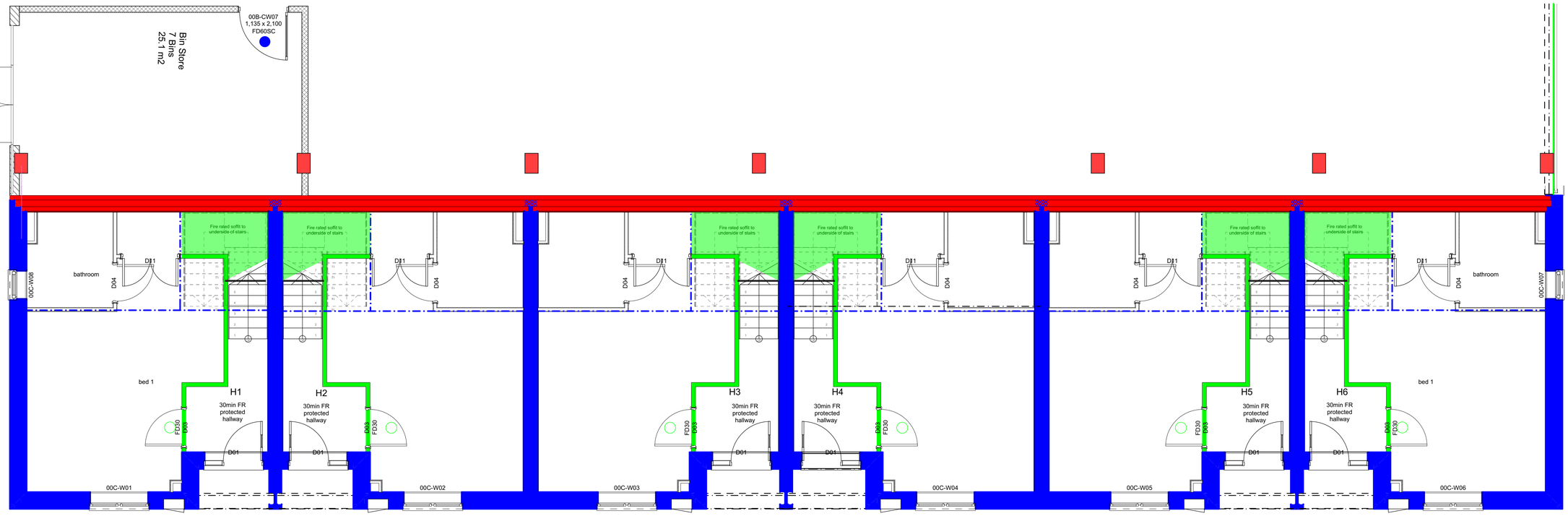
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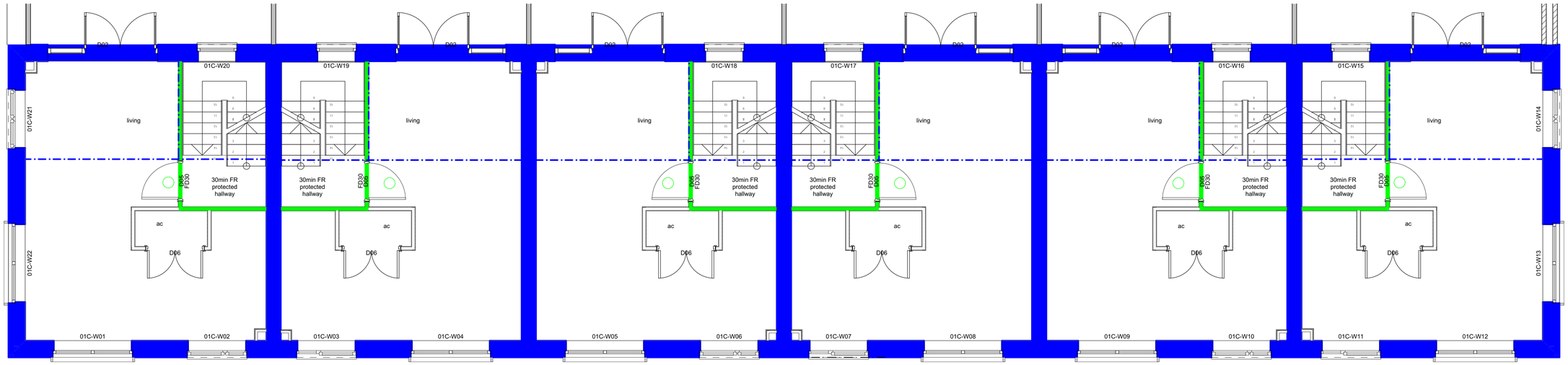
Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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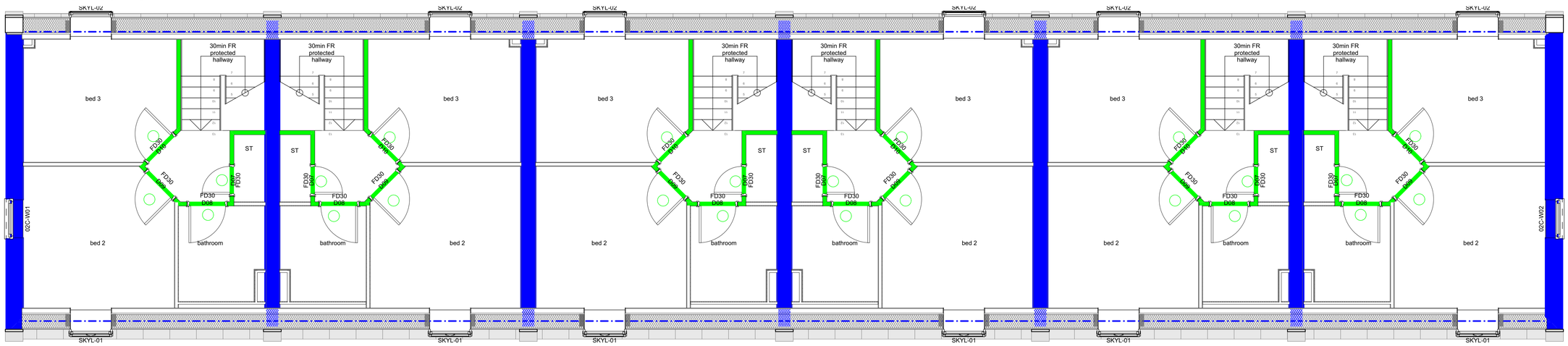
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Ground Floor Plan



First Floor Plan



Second Floor Plan

Revision:		Date:	Drawn:	Check:
P02	Updated for Stage 3 issue	24/01/21	LD	SD
C01	Updated in line with comments in fire report, status amended	11/04/23	LD	SD
C02	Cavity barriers indicated	23/5/23	LD	TH
C03	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C04	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Substation	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls separating apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Commercial units (Blocks A and D)/ Community Use Room (Block E)	60	REI 60
Protected Floors (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 Loadbearing and integrity, 15 insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	90	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Cleaners Cupboards	60	REI 60

* If relying solely on load-bearing elements only
** Substation relying wall could be re-positioned by DNO provider

to be updated

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & entrance	FD 30S	E30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1210:-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1210:-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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Project: Bletchley View North
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire Strategy Block C Town Houses**

Scale: **1:50@A1**

Date: November 2020

Drawn: SD

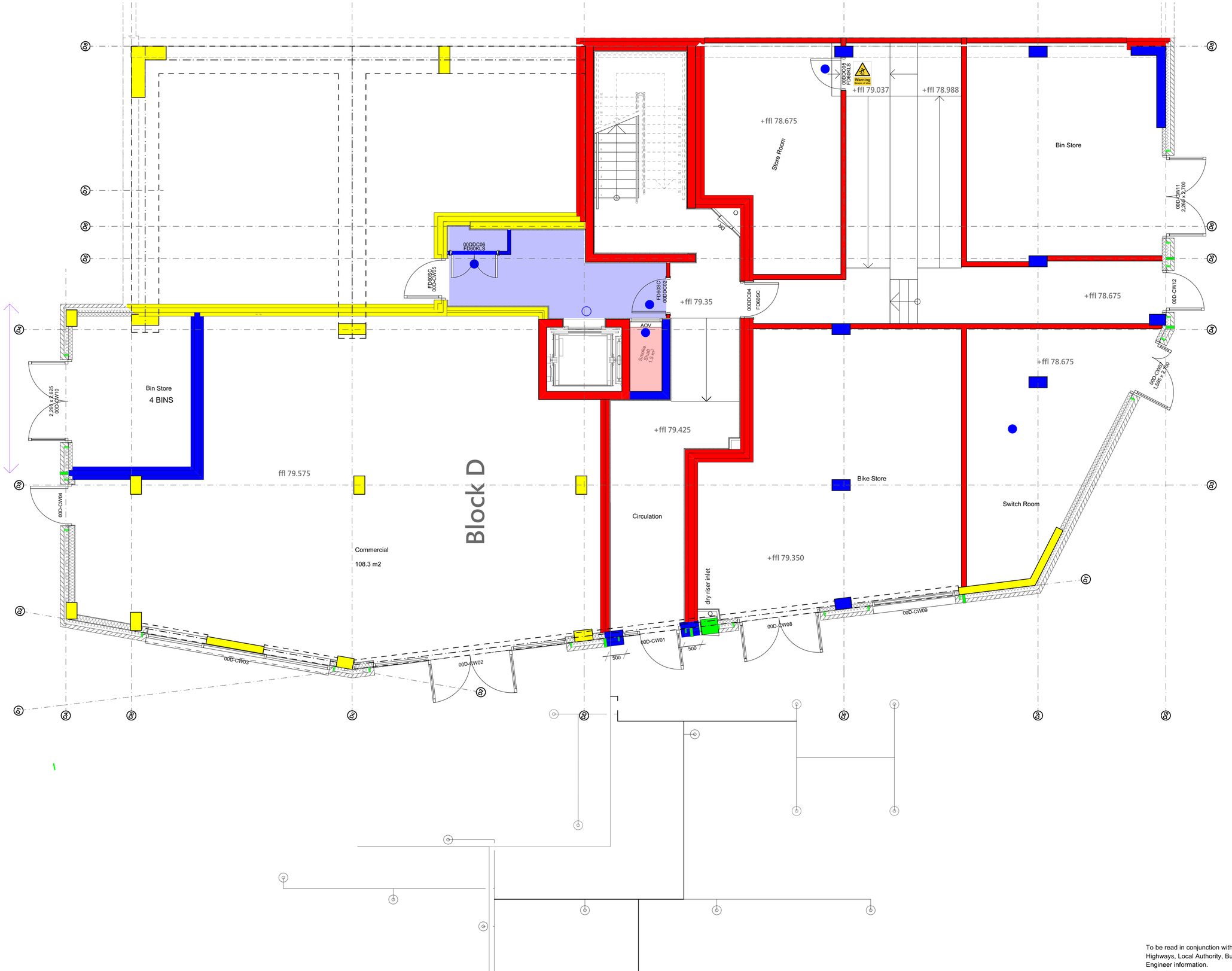
Checked: LD

Ref: E21062-RGP-C-SL-DR-A-3201-C04

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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Essential supply room omitted, dry riser outlet added, general plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Fire rating of wall next to entrance amended, layout updated, warning sign added to store room step	16/03/23	LD	TH
C03	Added elec.cupboard	07/12/23	TH	RM
C04	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Staircases	240**	REI 240**
Lift /Lift Motor Room	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C and F)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments & from common corridors	60	REI 60
Townhouse external Protected Stairs (Blocks C and F)	60	REI 60
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Stairs (Blocks A, B and D) Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks C and F without apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (additional reg and integrity, 15	REI 60 15
Service Risers (Blocks A, B and D) Void fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and F) (not fire stopped at floor level)	60	REI 60
Plant Rooms (no safety plant)	60	REI 60
Boulders Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape zone within 1.8m	30	EI 30
Refuse Store	60	REI 60
Sub-station Room	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Essential Supply Room	60	REI 60

*Classification may be determined by testing to BS EN 1364-1 or BS EN 1365-1

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stairs	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Garrwell & entrance)	FD 30S	E 30/Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Fire Fighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control Leakage (Door to EN 1191) A
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control Leakage (Door to EN 1191) B Locked shut and not easily openable
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (door for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan D**
Scale:	**1:50@A1**
Date:	Nov 2021
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
P06	Riser compartment rating amended	27/09/22	LD	SD
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, LPG or Petrol Store (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Lift Shaft Walls	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (see comments below)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Lobby (Blocks A and D) Communly Use Room (Block C)	60	REI 60
Protected Stairs (Blocks A and Block B apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (sealed/opening and non-opening)	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C) (not fire stopped at floor level)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Car Park Ventilation	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60
Fourth Compartment	60	REI 60

*Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. **Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments. Fire resistance periods may be reduced in accordance with the relevant clauses in Approved Document B, Volume 2 Buildings other than dwellings, 2019 Edition with 2020 amendments.

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily operable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily operable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and Locked shut and locked door
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	
Doors between undercroft and accommodation (Block C and F)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Main rooms	Class C-s3, d2
Circulation spaces within a dwelling	
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, battery, fuel rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lobby	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments and Core (Lobby) corridors	60	REI 60
Downstream Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block C)	60	REI 60
Protected Floors (Blocks E and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (sheltering and reduced impact)	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and F) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks E and F) (fire stopped at floor level)	30	REI 30
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	60	REI 60
Party Walls between Townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Fire Fighting Lift	60	REI 60
Passenger Lift	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

*Fire resistance periods may be substituted for equivalent performance using BS 476 parts 20 to 24 or BS EN 1364 parts 1 to 4 and BS EN 1365 parts 1 to 6 and BS EN 1366 parts 1 to 4 and BS EN 1634 parts 1 to 3 as appropriate.

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & bathroom)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	
Doors into undercroft from external accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0 All
Other rooms	Class 0 All
Circulation spaces within a dwelling	Class 0 All
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project: Bletchley View South
100-331

Status: **FINAL ISSUE**

Client: Winvic Construction Ltd

Sheet title: **Fire strategy - Upper floors plan D**

Scale: **1:50@A1**

Date: Nov 2021

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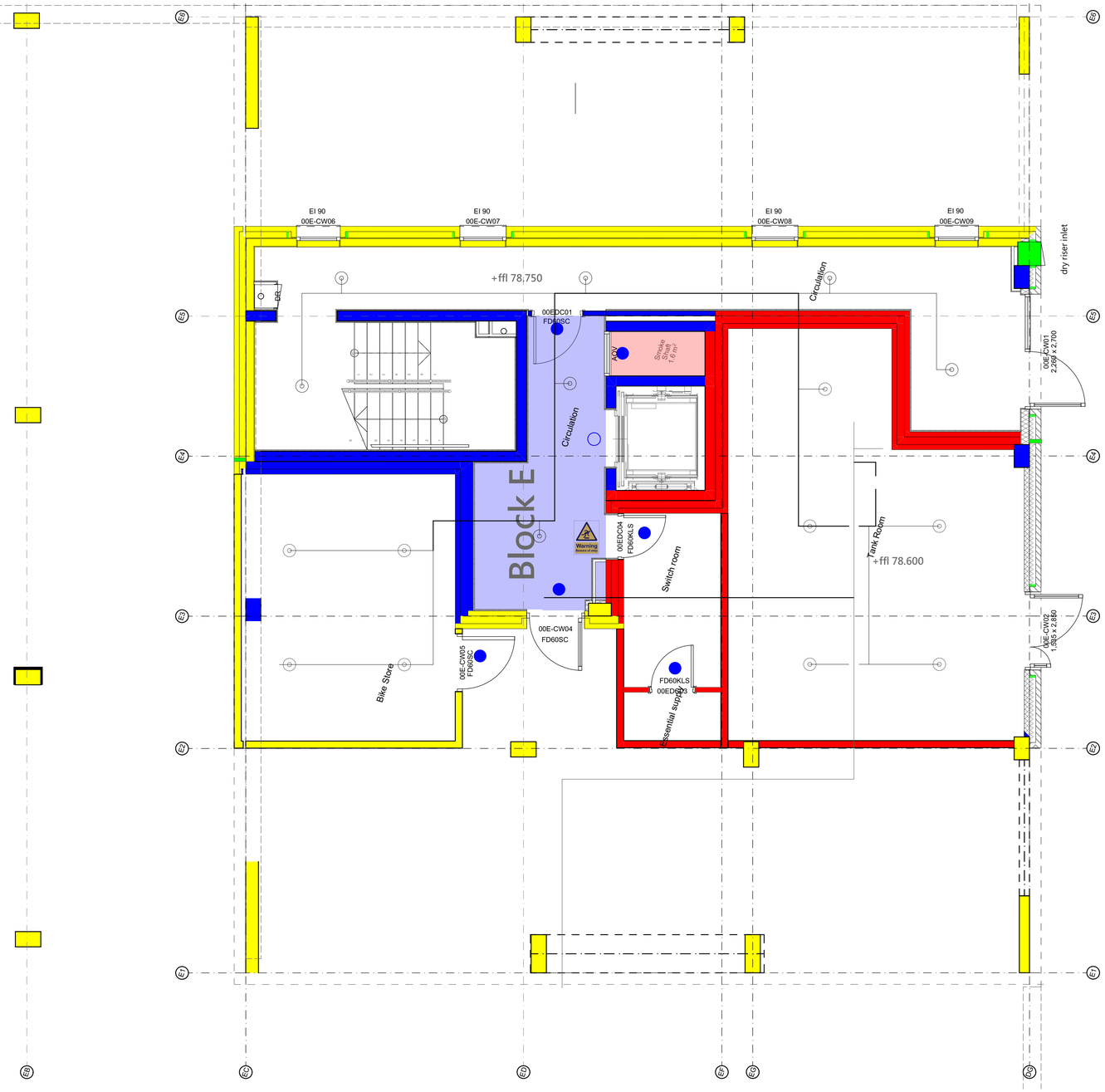
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Lobby to stair arrangement amended	26/05/22	LD	SD
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	Essential supply door moved, dry riser outlet added, general plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Door to switch room moved	16/03/23	LD	SD
C03	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Element	National Classification	European Classification*
Staircases	240**	REI 240**
Life Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobbies	120	REI 120
Fire Fighting Shaft	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, F and E)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments & from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Protected Stairs (Blocks A and B) Community Use Room (Block F)	60	REI 60
Protected Stairs (Blocks C, D and E above 4 apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (unbearing and integrity, 15 insulation)	REI 60 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks C and E) (not fire stopped at floor level)	60	REI 60
Service Risers (Block F - no cellar plant)	60	REI 60
Ancillary Stores	30	REI 30
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Floors between undercroft and internal accommodation (Blocks D, E and F)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape zone within 1.8m	30	EI 30
Refuse Store	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and B)	60	REI 60
Separation of uses (residential and non-residential) (Block F)	60	REI 60
Townhouse party wall	60	REI 60

* Based on new test standard for compartment walls and floors

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Garrowell & Johnstone)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E 60 Sa	
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 1366-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 1366-8
Service Risers (Blocks A, B, D, and E)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD60S	E 30Sa	Self-closing
Stores into undercroft from internal accommodation (Blocks A, B and C)	FD 60S	E 120Sa	
Stores into undercroft from internal accommodation (Blocks D and E)	FD 30S	E 90Sa	
Townhouse Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0 All
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan E**
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To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, LPG, Paints (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Plant Rooms (over 200m²)	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (Blocks C and E only)	60	REI 60
Downslope Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Stairs (Blocks A and Block D apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (satisfactory and no insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and C) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Walls between undercroft and internal accommodation (Blocks C, E and F)	90	REI 90
Party Walls between Dwellings	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Refuse Chute	60	REI 60
Passenger Lift	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60
Transfer Landscape	60	REI 60

*Alternative European classification may be acceptable providing they provide equivalent performance to the National Classification

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Ref/Prot)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Service Riser Doors (Block C)	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Self-closing Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and F)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class B-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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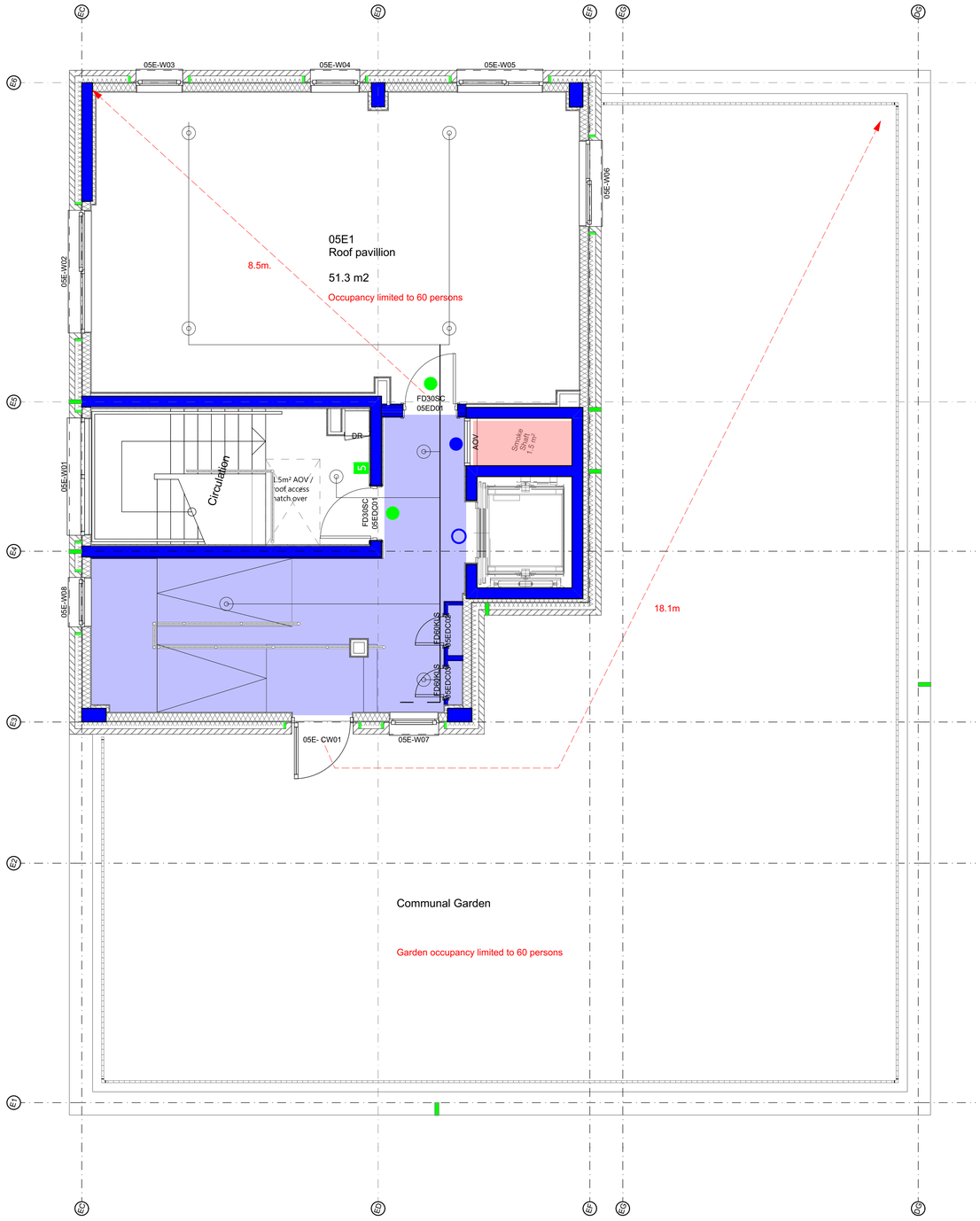
To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - First floor plan E**
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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Compartmentation updated to Orion report	15/07/22	LD	SD
P04	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil, Valve Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Lift Shafts	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (Blocks A, B and C only)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Stairs (Blocks A and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of external walls > 1m from relevant boundary	60 (wallbearing and non-loadbearing) and 30 (separating membrane)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks E and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Cycle Stores	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block E)	60	REI 60
Transformer Compounds	60	REI 60

*Classification in accordance with BS EN 13501-2 and the relevant parts of BS EN 1363, BS EN 1364, BS EN 1365, BS EN 1366 and BS EN 1634.

Table 10 Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Shaft Lobby	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Self-closing Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from external accommodation (Blocks A and D)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table B: Classifications of Living Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class -s3, d2
Other rooms	Class -s2, d2
Circulation spaces within a dwelling	Class -s2, d2
Other circulation spaces (including the common corridors to the apartments)	Class -s1, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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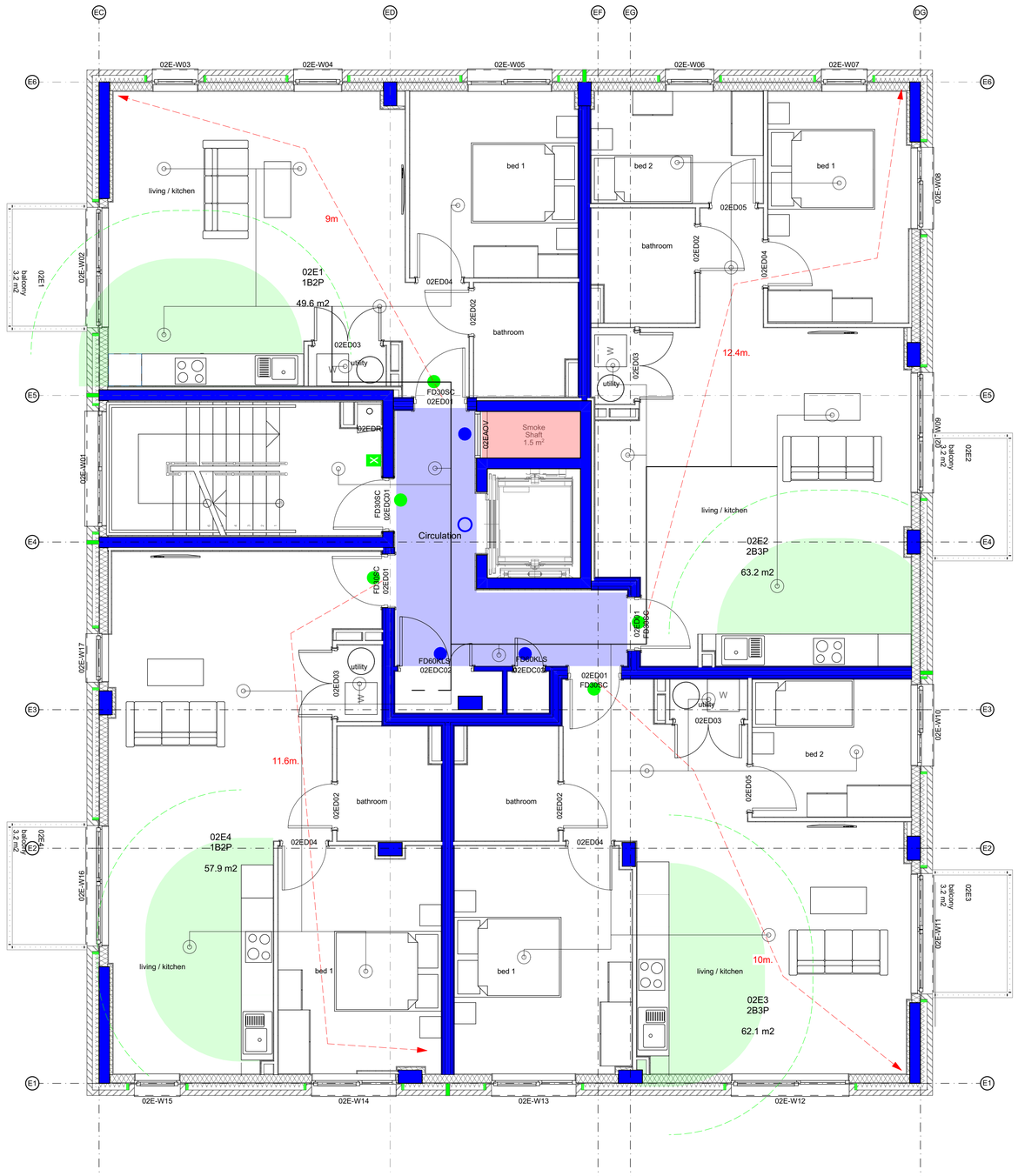
Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Zones to cooker added	16/6/22	LD	TH
P04	Compartmentation updated to Orion report	15/07/22	LD	SD
P05	General plan updates	09/09/22	LD	TH
C01	Updated in line with comments in fire report, status amended	20/12/22	LD	SD
C02	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

X Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9 Compartment Wall and Floor Requirements

Location	National Classification	European Classification*
Substation	240**	REI 240**
Oil Valve Rooms (e.g. generator room)	120	REI 120
Fire Fighting Shaft	120	REI 120
Fire Fighting Lobby	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, E and F)	60	REI 60
Walls between apartments	60	REI 60
Floors between apartments (Block 1 over Lobby Lobby)	60	REI 60
Downstairs Internal Protected Doors (Blocks C and F)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block E)	60	REI 60
Protected Lobby (Blocks A and D) Community Use Room (Block E)	60	REI 60
Protected Floors (Blocks 1 and Block F apartments)	60	REI 60
Protected Lobby/Corridor	60	REI 60
Protected area of external walls within 1m of relevant boundary	60	REI 60
Protected area of external walls > 1m from relevant boundary	60 (selfbearing and non-loadbearing and insulation	RE 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block E)	60	REI 60
Service Risers (Blocks A and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Blocks C and F) (fire stopped at floor level)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and D)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	30	EI 30
Plant Rooms	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block E)	60	REI 60
Fourth Floor Landscape	60	REI 60

*Classification to be confirmed by manufacturer following CPD provision

Table 10 Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Apartment Doors	FD 30S	E 30 Sa	Self-closing
Townhouse Doors (Stairwell & Self-close)	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Firefighting Lobby Doors	FD 60S	E 60 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Self-closing
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B and C)	FD30S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

FIRE RESISTANCE

Fire Rating (Minutes)	Fire Stops & Cavity Barriers
30	
60	
90	
120	

Cavity barriers not required in masonry cavity walls where cavity is fully filled with Class A1 insulation

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - 2nd to 4th floor plan E**
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Ref:	E21062-RGP-E-SL-DR-A-5202-C02

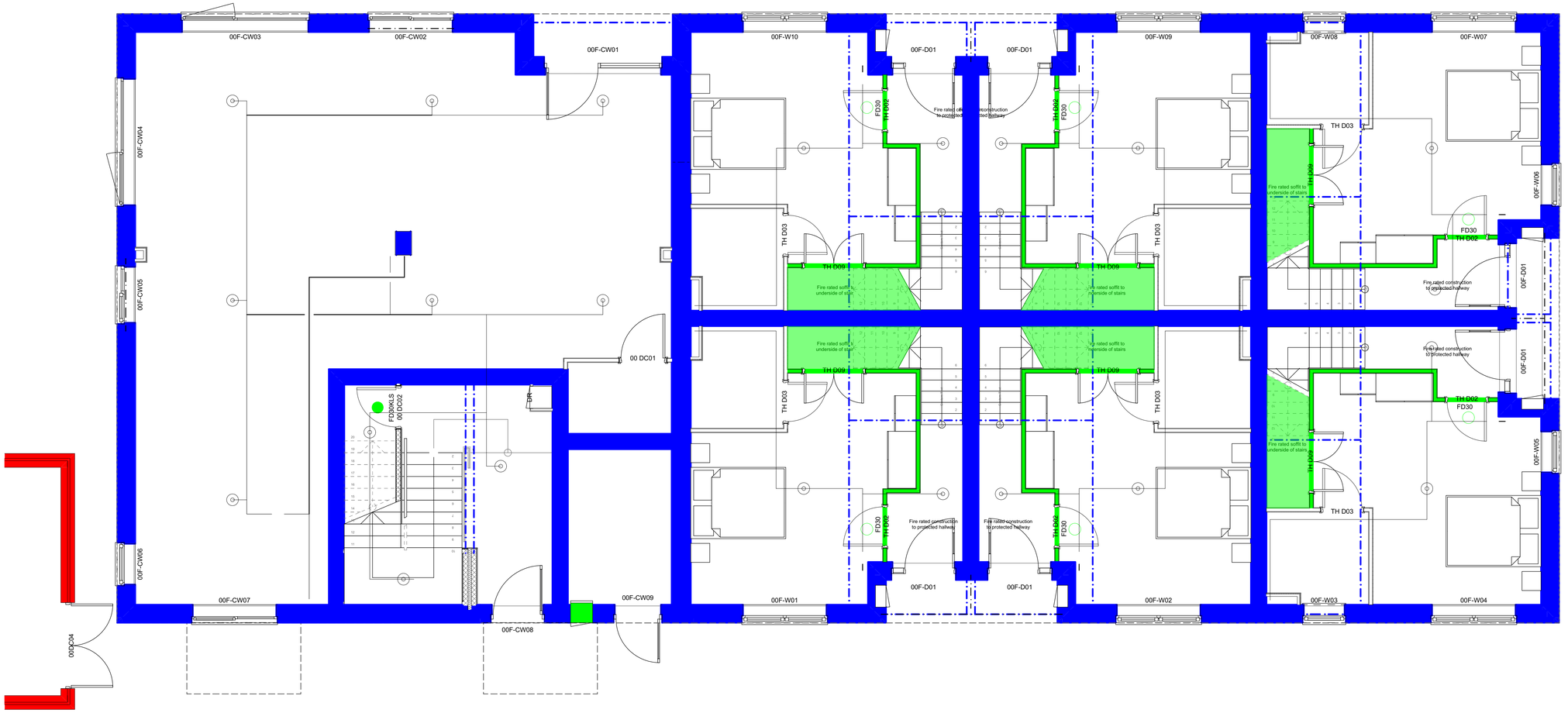
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors	
		With Smoke Seals	Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Suberation	240[1]	REI 240[1]
Lifts (where Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobby	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Plant Rooms (Blocks A, B and D) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60	REI 60
Protected areas of internal walls / 1m from relevant boundary	60 (Loadbearing and Integrity, 15 min)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Doors into undercroft from internal accommodation (Blocks A, B, and C)	120	REI 120
Doors into undercroft from internal accommodation (Blocks D and E)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Fire Fighting Shaft	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[1] Loadbearing capacity and integrity only required for a fire attack from above ground level

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 60S	E 30 Sa	Self-closing
Electrical Riser Doors	FD 30S	E 30 Sa	Self-closing
Communal Doors Stairwell & Lobby	FD 30S	E 30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E 60 Sa	
Doors into Lobby (Corridor)	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks A, B, and C)	FD120S	E120Sa	
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	
Basement Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class B-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

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Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Ground floor plan F**
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Notes
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In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30		●	○
60		●	○
90		●	○
120		●	○

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Function	National Classification	European Classification
Substation	240/*	REI 240*
Lifts Safety Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lobby	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Inter-Protected Party (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Communal Rooms (Blocks A and D) / Community Use Room (Block C)	60	REI 60
Commercial Units (Blocks A and B) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected area of external walls within 1m of relevant boundary	60 (Loadbearing and Integrity, 15 minutes other)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (Blocks A, B and D)	60	REI 60
Ancillary Stores	60	REI 60
Stores below undercroft and internal accommodation (Blocks A, B and D)	120	REI 120
Stores between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60
Caravans / Lodges	60	REI 60

* Fire resistance period may be reduced subject to BRE guidance

Table 10: Fire Door Requirements

Function	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Townhouse Doors Stairwell & Corridor	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby (Corridor)	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and Locked shut and Sealed shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A, B and D)	FD120S	EI120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks C and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Function	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class 0-s3, d2
Class exits	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

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Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - First floor plan F**
Scale:	**1:50@A1**
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-F-01-DR-A-6201-C03

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	External walls and beams shown as 60 min rated as elements of structure	21/12/23	LD	TH
C03	Final construction issue	21/3/24	LJD	RTM

FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Element	National Classification	European Classification
Substation	240[1]	REI 240[1]
Lifts (where Rooms (e.g. generator room)	120	REI 120
Fire Fighting Lifts	120	REI 120
Fire Fighting Lifts	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments from common corridors	60	REI 60
Townhouse Internal Protected Stairs (Blocks C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Plant Rooms (not lift safety plant rooms)	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected areas of external walls within 1m of relevant boundary	60 (loadbearing and integrity, 15 min insulation)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between ground floor cloak from external accommodation (Blocks A, B and C)	120	REI 120
Walls between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Doors into undercroft from internal accommodation (Blocks D and E)	60	REI 60
Townhouse Party Walls	60	REI 60
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Refuse Store	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[1] Fire resistance period may be reduced subject to a risk assessment

Table 10: Fire Door Requirements

Element	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Stair	FD 30S	E 30 Sa	Self-closing
Undercroft Doors Stairwell & Lobby	FD 30S	E30 Sa	
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	
Protected Lobby Entrance	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block E)	FD 60S	E 60 Sa	Tested smoke control damper/door to EN 12101-8 Locked shut and not easily accessible
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily accessible
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily accessible
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and door to be kept locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from external accommodation (Blocks A, B and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks D and E)	FD 90S	E 90Sa	-
Owners / Caretaker	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (30m² for non-residential)	Class D-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	D2
Other circulation spaces (including the common corridors to the apartments)	Class B-s3, d2

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

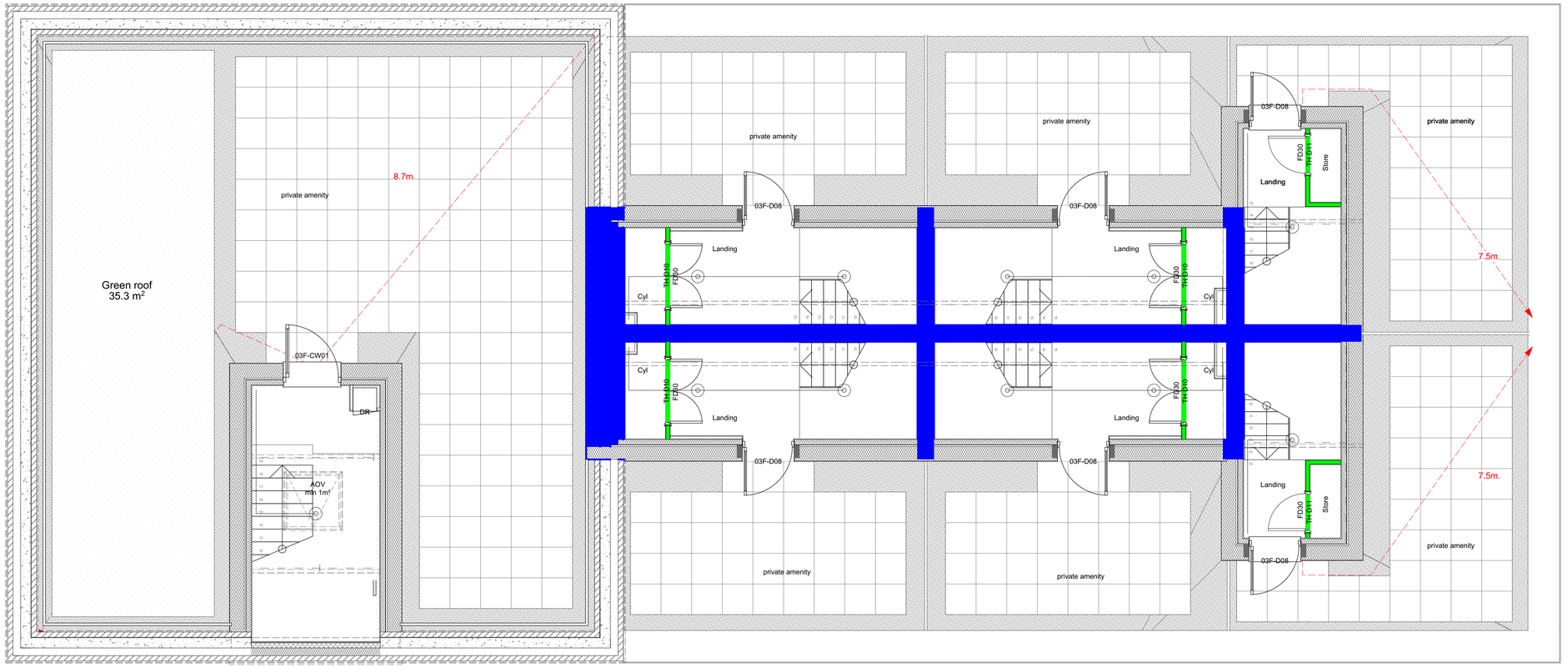
Project:	Bletchley View South 100-331
Status:	FINAL ISSUE
Client:	Winvic Construction Ltd
Sheet title:	Fire strategy - Second floor plan F
Scale:	1:50@A1
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-F-02-DR-A-6203-C03

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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Revision:		Date:	Drawn:	Check:
P02	Layout updated for stage 3	24/01/22	SD	LD
P03	Dry riser added, general plan updates	09/09/22	LD	TH
C01	Comments from fire report incorporated, plans updated, status amended to construction	17/05/23	LD	TH
C02	Final construction issue	21/3/24	LJD	RTM



FIRE RESISTANCE

Fire Rating (Minutes)	Walls	Doors: With Smoke Seals	Doors: Without Smoke Seals
30			
60			
90			
120			

MEANS OF ESCAPE

Single Direction Travel Distance

Multi Direction Travel Distance

NOTES

1. Fire fighting lobbies to be ventilated via natural smoke vent shafts of 1.5m².

   Only services associated with fire fighting should be within a fire-fighting shaft. Electrical risers should not be accessed from the fire fighting lobby.

2. A 1m² vent is required at the head of each stair.

HOD Hold Open Device to Communal Door

Where hold open devices are installed these should automatically release on activation of the fire alarm system to BS 5839 part 3.

Smoke Shaft

Vented Corridor

Sprinkler head

Floor identification / wayfinding signage for fire service

Drawings to be read in conjunction with the latest revision of Orion Fire Strategy Report OF-000572-DFS

Table 9: Compartment Wall and Floor Requirements

Location	National Classification	European Classification
Substation	240[a][b]	REI 240[a][b]
Lifts (where lift machinery is not housed in the lift shaft)	120	REI 120
Fire Fighting Lift	120	REI 120
Compartment Walls & Floors (Blocks A, B and D)	60	REI 60
Compartment Walls & Floors (Blocks C, and E)	60	REI 60
Walls between apartments	60	REI 60
Walls between apartments and corridors/circulation spaces	60	REI 60
Overhead Fire Rated Protected Slabs (Block C and E)	30	REI 30
Smoke Shaft (Blocks A, B and D)	60	REI 60
Smoke Shaft (Block C)	60	REI 60
Commercial Units (Blocks A and B) / Community Use Room (Block C)	60	REI 60
Commercial Units (Blocks A and B) / apartments	60	REI 60
Protected Lobby (Corridor)	60	REI 60
Protected area of external walls within 1m of relevant boundary	60 (loadbearing and integrity, 15 minutes other)	REI 60, REI 15
Service Risers (Blocks A, B and D) (not fire stopped at floor level)	60	REI 60
Service Risers (Block C)	60	REI 60
Service Risers (Blocks A, B and E) (not fire stopped at floor level)	60	REI 60
Plant Rooms (non-life safety plant)	60	REI 60
Ancillary Stores	60	REI 60
Walls between undercroft and internal accommodation (Blocks A, B and C)	120	REI 120
Floors between undercroft and internal accommodation (Blocks A, B and C)	90	REI 90
Party Walls between townhouses	60	REI 60
External protection to escape route within 1.8m	60	REI 60
Basement Lifts	60	REI 60
Passenger Lifts	60	REI 60
Separation of uses (residential and non-residential) (Blocks A and D)	60	REI 60
Separation of uses (residential and non-residential) (Block C)	60	REI 60

[a] Load bearing capacity should be maintained for the period of fire resistance specified.
[b] Applies to substations housing transformers containing more than 1000 gallons

Table 10: Fire Door Requirements

Location	National Classification	European Classification	Additional Notes
Apartment Entrance Doors	FD 30S	E 30 Sa	Self-closing
Protected Spur	FD 30S	E 30 Sa	Self-closing
Communal Doors (Kennard & Gilmore)	FD 30S	E 30 Sa	-
Lift Doors	FD 60	E 60 Sa	Self-closing
Firefighting Shaft Doors	FD 60S	E60 Sa	-
Protected Lobby/Corridor	FD 30S	E 30 Sa	Self-closing
Smoke Shaft Doors (Blocks A, B and D)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Smoke Shaft Doors (Block C)	FD 60S	E 60 Sa	Self-closing Tested smoke control damper/door to EN 12101-8
Service Risers (Blocks A, B, D, and F)	FD 60S	E 60 Sa	Locked shut and not easily openable
Service Risers (Block C)	FD 30S	E 30 Sa	Locked shut and not easily openable
Plant Rooms (non-life safety plant)	FD 30S	E 30 Sa	Self-closing
Life Safety Plant Rooms	FD 60S	E 60 Sa	Self-closing and locked shut and locked shut
Ancillary Stores	FD30S	E 30Sa	-
Doors into undercroft from internal accommodation (Blocks A and C)	FD120S	E120Sa	Self-closing
Doors into undercroft from internal accommodation (Blocks C and E)	FD 90S	E 90Sa	-
Cleaners Cupboard	FD30S	E 30Sa	Door to be kept locked shut

Table 8: Classifications of Lining Materials

Location	Classification
Small rooms with a maximum internal floor area of 4m² (40m² for non-residential)	Class 0-s3, d2
Other rooms	Class C-s3, d2
Circulation spaces within a dwelling	Class C-s3, d2
Other circulation spaces, (including the common corridors to the apartments)	Class B-s3, d2

To be read in conjunction with; Engineer, Winvic, M&E, Highways, Local Authority, Building Control and Fire Engineer information.

Project:	Bletchley View South 100-331
Status:	**FINAL ISSUE**
Client:	Winvic Construction Ltd
Sheet title:	**Fire strategy - Third floor plan F**
Scale:	**1:50@A1**
Date:	Nov 2021
Drawn:	SD
Checked:	LD
Ref:	E21062-RGP-F-03-DR-A-6204-C02

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Notes
All designs should be constructed in strict accordance with building regulations.
In addition any materials, components and fixings in/or connected to a façade should be non-combustible if the top storey of the building is above 11m.

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2.7 FIRE INFORMATION

2.7.1.5 Fire Door Schedule

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Hardware Schedule

	Date:	12 March 2024
Aspex UK Limited	Quote No:	DS4122
The Whittle Estate	Quote Ref:	Bletchley View, Milton Keynes
Cambridge Road		
Whetstone	Your Ref:	
Leicester LE8 6LH		
	Estimator:	David Smart Dip G.A.I.
Re: Bletchley View - REV I	Rep:	David Smart Dip G.A.I.

Original schedule prepared on the 13th February 2020

Please note the following:

These prices are nett and subject to VAT and will be held firm for 90 days
All items are supplied complete with fixings suitable for timber
Kicking plate sizes are nominal and confirmation will be required from the contractor prior to manufacture
Details of the any master keying will be required. If the cylinders are to be suited to an existing master system additional costs may be incurred
We will supply the ironmongery bagged in door or apartment sets at no extra charge for orders over £2,000, for orders below this there will be a 5% charge and this must be shown on the purchase order, otherwise we will bulk pack
For consignments below £300 we will make a carriage charge unless otherwise agreed
Products pre-fixed ZZ will be special to this project and once ordered can only be cancelled with prior agreement and are non-returnable

This schedule is subject to our Standard Terms and Conditions

1st October 2021 - Revision A

Prices updated

6th October 2021 - Revision B

Updated in line with latest door schedules received on the 5th October

21st September 2022 - Revision C

Price Update

20th January 2023 - Revision D

Updated in line with latest information received

27th January 2023 - Revision E

Pull handles and push plates amended

9th March 2023 - Revision F

Production description of coat hook to toilet roll holder corrected

27th April 2023 - Revision G

Set I amended to 2no robe hooks with toilet roll holder omitted

11th May 2023 - Revision H

Door 01EDC05 Cleaners store added to Set G
Door THD10 on Block F x 4no amended to double doors and moved to Block D
Door THD11 on Block F x 2no added to set B
Door 00DC02 on Block F changed to Store and moved to Set H from Set B

12th June 2023 - Revision I

Door 01D6D03 Utility added to match with door schedule.

Door numbers and descriptions added in line with door shedule

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: A **Flat Entrance Door Single - 30 Minute Fire Rated - PAS24 Doorsets - Multi point lock included in doorset quote**

Product	Description	Quantity	Unit
ASP49002ASNP	SNP adj pwr 2-4 b/check door closer	1	Each
ASP37701HSSNP	SNP 70mm 3 star approved euro cyl and turn	1	Each
ASPCP001SCP	SCP Lever handle on rose	1	Each
ASPCP003SCP	SCP Europrofile cylinder escutcheon	2	Each
ASP60031SNP	SNP floor mounted door stop	1	Each
ASP60968FSCP	SCP 200 degree door viewer with cover FD60	1	Each
JWNUM100	SSS 100mm numeral	3	Each

172 Doors

Hardware Schedule

Re: Bletchley View - REV I

Door References

01A1D01	01A2D01	01A3D01	01A4D01
01A5D01	01A6D01	01A7D01	01A8D01
01B1D01	01B2D01	01B3B01	01B4D01
01B5D01	01B6D01	01D1D01	01D2D01
01D3D01	01D4D01	01D5D01	01D6D01
01E1D01	01E2D01	01E3D01	01E4D01
02A1D01	02A2D01	02A3D01	02A4D01
02A5D01	02A6D01	02A7D01	02A8D01
02B1D01	02B2D01	02B3D01	02B4D01
02B5D01	02B6D01	02D1D01	02D2D01
02D3D01	02D4D01	02D5D01	02D6D01
02E1D01	02E2D01	02E3D01	02E4D01
03A1D01	03A2D01	03A3D01	03A4D01
03A5D01	03A6D01	03A7D01	03A8D01
03B1D01	03B2D01	03B3D01	03B4D01
03B5D01	03B6D01	03D1D01	03D2D01
03D3D01	03D4D01	03D5D01	03D6D01
03E1D01	03E2D01	03E3D01	03E4D01
04A1D01	04A2D01	04A3D01	04A4D01
04A5D01	04A6D01	04A7D01	04A8D01
04B1D01	04B2D01	04B3D01	04B4D01
04B5D01	04B6D01	04D1D01	04D2D01
04D3D01	04D4D01	04D5D01	04D6D01
04E1D01	04E2D01	04E3D01	04E4D01
05A1D01	05A2D01	05A3D01	05A4D01
05A5D01	05A6D01	05A7D01	05A8D01
05B1D01	05B2D01	05B3D01	05B4D01
05B5D01	05B6D01	05D1D01	05D2D01
05D3D01	05D4D01	05D5D01	05D6D01
06A1D01	06A2D01	06A3D01	06A4D01
06A5D01	06A6D01	06A7D01	06A8D01
06B1D01	06B2D01	06B3D01	06B4D01
06B5D01	06B6D01	06D1D01	06D2D01
06D3D01	06D4D01	06D5D01	06D6D01

Hardware Schedule

Re: Bletchley View - REV I

07A1D01	07A2D01	07A3D01	07A4D01
07A5D01	07A6D01	07A7D01	07A8D01
07B1D01	07B2D01	07D1D01	07D2D01
07D3D01	07D4D01	07D5D01	07D6D01
08A1D01	08A2D01	08A3D01	08A4D01
08A5D01	08A6D01	08A7D01	08A8D01
09A1D01	09A2D01	09A3D01	09A4D01
09A5D01	09A6D01	09A7D01	09A8D01
F01F1D01	F01F2D01	F02F1D01	F02F2D01

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: B Bedroom/Living Room/Store Door

Product	Description	Quantity	Unit
ASP31008RSSS	SSS 76mm radius heavy duty tubular latch	1	Each
ASPCP001SCP	SCP Lever handle on rose	1	Each
ASP60031SNP	SNP floor mounted door stop	1	Each

358 Doors

Hardware Schedule

Re: Bletchley View - REV I

Door References

01A1D04	01A1D05	01A2D04	01A2D05
01A3D04	01A3D05	01A4D04	01A4D05
01A5D04	01A5D05	01A6D04	01A6D05
01A7D04	01A7D05	01A8D04	01A8D05
01B1D04	01B1D05	01B2D04	01B2D05
01B3D04	01B4D04	01B5D04	01B6D04
01B6D05	01D1D04	01D1D05	01D2D04
01D2D05	01D3D04	01D4D04	01D5D04
01D5D05	01D6D04	01D6D05	01E1D04
01E2D04	01E2D05	01E3D04	01E3D05
01E4D04	02A1D04	02A1D05	02A2D04
02A2D05	02A3D04	02A3D05	02A4D04
02A4D05	02A5D04	02A5D05	02A6D04
02A6D05	02A7D04	02A7D05	02A8D04
02A8D05	02B1D04	02B1D05	02B2D04
02B2D05	02B3D04	02B4D04	02B5D04
02B5D05	02B6D04	02B6D05	02D1D04
02D1D05	02D2D04	02D2D05	02D3D04
02D4D04	02D5D04	02D5D05	02D6D04
02D6D05	02E1D04	02E2D04	02E2D05
02E3D04	02E3D05	02E4D04	03A1D04
03A1D05	03A2D04	03A2D05	03A3D04
03A3D05	03A4D04	03A4D05	03A5D04
03A5D05	03A6D04	03A6D05	03A7D04
03A7D05	03A8D04	03A8D05	03B1D04
03B1D05	03B2D04	03B2D05	03B3D04
03B4D04	03B5D04	03B5D05	03B6D04
03B6D05	03D1D04	03D1D05	03D2D04
03D2D05	03D3D04	03D4D04	03D5D04
03D5D05	03D6D04	03D6D05	03E1D04
03E2D04	03E2D05	03E3D04	03E3D05
03E4D04	04A1D04	04A1D05	04A2D04
04A2D05	04A3D04	04A3D05	04A4D04
04A4D05	04A5D04	04A5D05	04A6D04

04A6D05	04A7D04	04A7D05	04A8D04
04A8D05	04B1D04	04B1D05	04B2D04
04B2D05	04B3D04	04B4D04	04B5D04
04B5D05	04B6D04	04B6D05	04D1D04
04D1D05	04D2D04	04D2D05	04D3D04
04D4D04	04D5D04	04D5D05	04D6D04
04D6D05	04E1D04	04E2D04	04E2D05
04E3D04	04E3D05	04E4D04	05A1D04
05A1D05	05A2D04	05A2D05	05A3D04
05A3D05	05A4D04	05A4D05	05A5D04
05A5D05	05A6D04	05A6D05	05A7D04
05A7D05	05A8D04	05A8D05	05B1D04
05B1D05	05B2D04	05B2D05	05B3D04
05B4D04	05B5D04	05B5D05	05B6D04
05B6D05	05D1D04	05D1D05	05D2D04
05D2D05	05D3D04	05D4D04	05D5D04
05D5D05	05D6D04	05D6D05	06A1D04
06A1D05	06A2D04	06A2D05	06A3D04
06A3D05	06A4D04	06A4D05	06A5D04
06A5D05	06A6D04	06A6D05	06A7D04
06A7D05	06A8D04	06A8D05	06B1D04
06B1D05	06B2D04	06B2D05	06B3D04
06B4D04	06B5D04	06B5D05	06B6D04
06B6D05	06D1D04	06D1D05	06D2D04
06D2D05	06D3D04	06D4D04	06D5D04
06D5D05	06D6D04	06D6D05	07A1D04
07A1D05	07A2D04	07A2D05	07A3D04
07A3D05	07A4D04	07A4D05	07A5D04
07A5D05	07A6D04	07A6D05	07A7D04
07A7D05	07A8D04	07A8D05	07B1D04
07B1D05	07B2D04	07B2D05	07D1D04
07D1D05	07D2D04	07D2D05	07D3D04
07D4D04	07D5D04	07D5D05	07D6D04
07D6D05	08A1D04	08A1D05	08A2D04
08A2D05	08A3D04	08A3D05	08A4D04
08A4D05	08A5D04	08A5D05	08A6D04
08A6D05	08A7D04	08A7D05	08A8D04

Hardware Schedule

Re: Bletchley View - REV I

08A8D05	09A1D04	09A1D05	09A2D04
09A2D05	09A3D04	09A4D04	09A4D05
09A5D04	09A5D05	09A6D04	09A7D04
09A8D04	09A8D05	CH1D03	CH1D05
CH1D07	CH1D09	CH1D10	CH2D03
CH2D05	CH2D07	CH2D09	CH2D10
CH3D03	CH3D05	CH3D07	CH3D09
CH3D10	CH4D03	CH4D05	CH4D07
CH4D09	CH4D10	CH5D03	CH5D05
CH5D07	CH5D09	CH5D10	CH6D03
CH6D05	CH6D07	CH6D09	CH6D10
F01F1D04	F01F2D04	F02F1D04	F02F2D04
FTH1D02	FTH1D04	FTH1D07	FTH1D08
FTH2D02	FTH2D04	FTH2D07	FTH2D08
FTH3D02	FTH3D04	FTH3D07	FTH3D08
FTH3D11	FTH4 D02	FTH4D04	FTH4D07
FTH4D08	FTH4D11	FTH5 D02	FTH5D04
FTH5D07	FTH5D08	FTH6 D02	FTH6D04
FTH6D07	FTH6D08		

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: C Bathroom/Ensuite Door

Product	Description	Quantity	Unit
ASP38605R	SSS 60mm radius bath lock with spindle grip	1	Each
ZZ19275DS	SSS mitred robe hook	1	Each
ZZ19276DS	SSS mitred toilet roll holder	1	Each
ASPCP001SCP	SCP Lever handle on rose	1	Each
ASPCP002SCP	SCP Bathroom turn & release	1	Each
ASP60031SNP	SNP floor mounted door stop	1	Each

196 Doors

Hardware Schedule

Re: Bletchley View - REV I

Door References

01A1D02	01A2D02	01A3D02	01A4D02
01A5D02	01A6D02	01A7D02	01A8D02
01B1D02	01B2D02	01B3D02	01B4D02
01B5D02	01B6D02	01D1D02	01D2D02
01D3D02	01D4D02	01D5D02	01D6D02
01E1D02	01E2D02	01E3D02	01E4D02
02A1D02	02A2D02	02A3D02	02A4D02
02A5D02	02A6D02	02A7D02	02A8D02
02B1D02	02B2D02	02B3D02	02B4D02
02B5D02	02B6D02	02D1D02	02D2D02
02D3D02	02D4D02	02D5D02	02D6D02
02E1D02	02E2D02	02E3D02	02E4D02
03A1D02	03A2D02	03A3D02	03A4D02
03A5D02	03A6D02	03A7D02	03A8D02
03B1D02	03B2D02	03B3D02	03B4D02
03B5D02	03B6D02	03D1D02	03D2D02
03D3D02	03D4D02	03D5D02	03D6D02
03E1D02	03E2D02	03E3D02	03E4D02
04A1D02	04A2D02	04A3D02	04A4D02
04A5D02	04A6D02	04A7D02	04A8D02
04B1D02	04B2D02	04B3D02	04B4D02
04B5D02	04B6D02	04D1D02	04D2D02
04D3D02	04D4D02	04D5D02	04D6D02
04E1D02	04E2D02	04E3D02	04E4D02
05A1D02	05A2D02	05A3D02	05A4D02
05A5D02	05A6D02	05A7D02	05A8D02
05B1D02	05B2D02	05B3D02	05B4D02
05B5D02	05B6D02	05D1D02	05D2D02
05D3D02	05D4D02	05D5D02	05D6D02
06A1D02	06A2D02	06A3D02	06A4D02
06A5D02	06A6D02	06A7D02	06A8D02
06B1D02	06B2D02	06B3D02	06B4D02
06B5D02	06B6D02	06D1D02	06D2D02
06D3D02	06D4D02	06D5D02	06D6D02

Hardware Schedule

Re: Bletchley View - REV I

07A1D02	07A2D02	07A3D02	07A4D02
07A5D02	07A6D02	07A7D02	07A8D02
07B1D02	07B2D02	07D1D02	07D2D02
07D3D02	07D4D02	07D5D02	07D6D02
08A1D02	08A2D02	08A3D02	08A4D02
08A5D02	08A6D02	08A7D02	08A8D02
09A1D02	09A2D02	09A3D02	09A4D02
09A5D02	09A6D02	09A7D02	09A8D02
CH1D04	CH1D08	CH2D04	CH2D08
CH3D04	CH3D08	CH4D04	CH4D08
CH5D04	CH5D08	CH6D04	CH6D08
F01F1D02	F01F2D02	F02F1D02	F02F2D02
FTH1D03	FTH1D06	FTH2D03	FTH2D06
FTH3D03	FTH3D06	FTH4D03	FTH4D06
FTH5D03	FTH5D06	FTH6D03	FTH6D06

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: D Utility Cupboard Door Double

Product	Description	Quantity	Unit
ASP31008RSSS	SSS 76mm radius heavy duty tubular latch	1	Each
ASPCP001SCP	SCP Lever handle on rose	1	Each
ASP60514HDSCP	SCP 202mm surface slidebolt	1	Each

200 Doors

Hardware Schedule

Re: Bletchley View - REV I

Door References

01A1D03	01A2D03	01A3D03	01A4D03
01A5D03	01A6D03	01A7D03	01A8D03
01B1D03	01B2D03	01B3D03	01B4D03
01B5D03	01B6D03	01D1D03	01D2D03
01D3D03	01D4D03	01D5D03	01D6D03
01E1D03	01E2D03	01E3D03	01E4D03
02A1D03	02A2D03	02A3D03	02A4D03
02A5D03	02A6D03	02A7D03	02A8D03
02B1D03	02B2D03	02B3D03	02B4D03
02B5D03	02B6D03	02D1D03	02D2D03
02D3D03	02D4D03	02D5D03	02D6D03
02E1D03	02E2D03	02E3D03	02E4D03
03A1D03	03A2D03	03A3D03	03A4D03
03A5D03	03A6D03	03A7D03	03A8D03
03B1D03	03B2D03	03B3D03	03B4D03
03B5D03	03B6D03	03D1D03	03D2D03
03D3D03	03D4D03	03D5D03	03D6D03
03E1D03	03E2D03	03E3D03	03E4D03
04A1D03	04A2D03	04A3D03	04A4D03
04A5D03	04A6D03	04A7D03	04A8D03
04B1D03	04B2D03	04B3D03	04B4D03
04B5D03	04B6D03	04D1D03	04D2D03
04D3D03	04D4D03	04D5D03	04D6D03
04E1D03	04E2D03	04E3D03	04E4D03
05A1D03	05A2D03	05A3D03	05A4D03
05A5D03	05A6D03	05A7D03	05A8D03
05B1D03	05B2D03	05B3D03	05B4D03
05B5D03	05B6D03	05D1D03	05D2D03
05D3D03	05D4D03	05D5D03	05D6D03
06A1D03	06A2D03	06A3D03	06A4D03
06A5D03	06A6D03	06A7D03	06A8D03
06B1D03	06B2D03	06B3D03	06B4D03
06B5D03	06B6D03	06D1D03	06D2D03
06D3D03	06D4D03	06D5D03	06D6D03

Hardware Schedule

Re: Bletchley View - REV I

07A1D03	07A2D03	07A3D03	07A4D03
07A5D03	07A6D03	07A7D03	07A8D03
07B1D03	07B2D03	07D1D03	07D2D03
07D3D03	07D4D03	07D5D03	07D6D03
08A1D03	08A2D03	08A3D03	08A4D03
08A5D03	08A6D03	08A7D03	08A8D03
09A1D03	09A2D03	09A3D03	09A4D03
09A5D03	09A6D03	09A7D03	09A8D03
CH1D06	CH1D11	CH2D06	CH2D11
CH3D06	CH3D11	CH4D06	CH4D11
CH5D06	CH5D11	CH6D06	CH6D11
F01F1D03	F01F2D03	F02F1D03	F02F2D03
FTH1D05	FTH1D09	FTH1D10	FTH2D05
FTH2D09	FTH2D10	FTH3D05	FTH3D09
FTH4D05	FTH4D09	FTH5D05	FTH5D09
FTH5D10	FTH6D05	FTH6D09	FTH6D10

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: E **Communal/Roof Pavillion/Entrance Lobby/Stair Door Single - Fire Rated - Any hold open devices or access control by others**

Product	Description	Quantity	Unit
ASP49002ASNP	SNP adj pwr 2-4 b/check door closer	1	Each
ASP18196SSS	SSS 600x19mm pull handle with b/t fixing	1	Each
ASP66581SSS	SSS 650x80x1.5mm push plate radius corners	1	Each
ASP60031SNP	SNP floor mounted door stop	1	Each
ASP60406SSS	SSS 75mm dia Fire Door Keep Shut sign	2	Each
ASP69001BSSS	430SSS 900x150x1.2mm kick plate (nom size)	2	Each

36 Doors

Door References

00ADC01	00BDC01	00DDC02	00DDC04
00EDC01	01 DC01	01ADC01	01BDC01
01DDC01	01EDC01	02ADC01	02BDC01
02DDC01	02EDC01	03ADC01	03BDC01
03DDC01	03EDC01	04ADC01	04BDC01
04DDC01	04EDC01	05ADC01	05BDC01
05DDC01	05ED01	05EDC01	06ADC01
06BDC01	06DDC01	07ADC01	07BDC01
07DDC01	08ADC01	09ADC01	F02 DC01

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: F **Riser Door Single - Fire Rated**

Product	Description	Quantity	Unit
ASP38602R	SSS 60mm radius euro mortice deadlock	1	Each
ASP35453KASCP	SCP 45mm 5 pin euro single cylinder to pass	1	Each
ASP60014SSS	SSS euro cylinder pull	1	Each
ASP60405SSS	SSS 75mm dia Fire Door Keep Locked sign	1	Each

27 Doors

Door References

01ADC03	01BDC03	01DDC03	01EDC03
02ADC03	02BDC03	02DDC03	02EDC03
03ADC03	03BDC03	03DDC03	03EDC03
04ADC03	04BDC03	04DDC03	04EDC03
05ADC03	05BDC03	05DDC03	06ADC03
06BDC03	06DDC03	07ADC03	07BDC03
07DDC03	08ADC03	09ADC03	

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: G **Riser/Cleaners Store Door Leaf and a Half/Double - Fire Rated**

Product	Description	Quantity	Unit
ASP38602R	SSS 60mm radius euro mortice deadlock	1	Each
ASP35453KASCP	SCP 45mm 5 pin euro single cylinder to pass	1	Each
ASP60014SSS	SSS euro cylinder pull	1	Each
ASP60405SSS	SSS 75mm dia Fire Door Keep Locked sign	2	Each
ASP60514HDSCP	SCP 202mm surface slidebolt	2	Each

31 Doors

Door References

01 DC02	01ADC02	01BDC02	01DDC02
01EDC02	01EDC05	02ADC02	02ADC04
02BDC02	02DDC02	02EDC02	03ADC02
03BDC02	03DDC02	03EDC02	04ADC02
04BDC02	04DDC02	04EDC02	05ADC02
05BDC02	05DDC02	06ADC02	06BDC02
06DDC02	07ADC02	07BDC02	07DDC02
08ADC02	09ADC02	F02 DC02	

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: H **Maintenance Door Single - Fire Rated**

Product	Description	Quantity	Unit
ASP38601R	SS 60mm radius euro sashlock c/w spindle grip	1	Each
ASP35701KASCP	SCP 70mm 5 pin euro cylinder & turn to pass	1	Each
ASP12193SSS	SSS 19mm safety lever on slim sprung rose	1	Set
ASP19014SSS	SSS 50x6mm europrofile cylinder escutcheon	2	Each
ASP60405SSS	SSS 75mm dia Fire Door Keep Locked sign	1	Each
ASP69001BSSS	430SSS 900x150x1.2mm kick plate (nom size)	1	Each

8 Doors

Door References

00 DC02	00BDC03	00BDC04	00DDC05
00EDC03	00EDC04	01BDC04	01DDC04

Hardware Schedule

Re: Bletchley View - REV I

Hardware Set Ref: I **Community WC Door Single - Non Fire Rated**

Product	Description	Quantity	Unit
ASP38605R	SSS 60mm radius bath lock with spindle grip	1	Each
ASP12193SSS	SSS 19mm safety lever on slim sprung rose	1	Set
ZZ19275DS	SSS mitred robe hook	2	Each
ASP19017SSS	SSS 50x6mm disabled thumbturn and release	1	Set
ASP60031SNP	SNP floor mounted door stop	1	Each
ASP69001BSSS	430SSS 900x150x1.2mm kick plate (nom size)	2	Each

1 Doors

Door References

00 DC01

Hardware Schedule

Re: Bletchley View - REV I

Door Summary

Door Ref.	Set Ref.						
00 DC01	I	00 DC02	H	00ADC01	E	00BDC01	E
00BDC03	H	00BDC04	H	00DDC02	E	00DDC04	E
00DDC05	H	00EDC01	E	00EDC03	H	00EDC04	H
01 DC01	E	01 DC02	G	01A1D01	A	01A1D02	C
01A1D03	D	01A1D04	B	01A1D05	B	01A2D01	A
01A2D02	C	01A2D03	D	01A2D04	B	01A2D05	B
01A3D01	A	01A3D02	C	01A3D03	D	01A3D04	B
01A3D05	B	01A4D01	A	01A4D02	C	01A4D03	D
01A4D04	B	01A4D05	B	01A5D01	A	01A5D02	C
01A5D03	D	01A5D04	B	01A5D05	B	01A6D01	A
01A6D02	C	01A6D03	D	01A6D04	B	01A6D05	B
01A7D01	A	01A7D02	C	01A7D03	D	01A7D04	B
01A7D05	B	01A8D01	A	01A8D02	C	01A8D03	D
01A8D04	B	01A8D05	B	01ADC01	E	01ADC02	G
01ADC03	F	01B1D01	A	01B1D02	C	01B1D03	D
01B1D04	B	01B1D05	B	01B2D01	A	01B2D02	C
01B2D03	D	01B2D04	B	01B2D05	B	01B3B01	A
01B3D02	C	01B3D03	D	01B3D04	B	01B4D01	A
01B4D02	C	01B4D03	D	01B4D04	B	01B5D01	A
01B5D02	C	01B5D03	D	01B5D04	B	01B6D01	A
01B6D02	C	01B6D03	D	01B6D04	B	01B6D05	B
01BDC01	E	01BDC02	G	01BDC03	F	01BDC04	H
01D1D01	A	01D1D02	C	01D1D03	D	01D1D04	B
01D1D05	B	01D2D01	A	01D2D02	C	01D2D03	D
01D2D04	B	01D2D05	B	01D3D01	A	01D3D02	C
01D3D03	D	01D3D04	B	01D4D01	A	01D4D02	C
01D4D03	D	01D4D04	B	01D5D01	A	01D5D02	C
01D5D03	D	01D5D04	B	01D5D05	B	01D6D01	A
01D6D02	C	01D6D03	D	01D6D04	B	01D6D05	B
01DDC01	E	01DDC02	G	01DDC03	F	01DDC04	H
01E1D01	A	01E1D02	C	01E1D03	D	01E1D04	B
01E2D01	A	01E2D02	C	01E2D03	D	01E2D04	B
01E2D05	B	01E3D01	A	01E3D02	C	01E3D03	D
01E3D04	B	01E3D05	B	01E4D01	A	01E4D02	C
01E4D03	D	01E4D04	B	01EDC01	E	01EDC02	G
01EDC03	F	01EDC05	G	02A1D01	A	02A1D02	C
02A1D03	D	02A1D04	B	02A1D05	B	02A2D01	A
02A2D02	C	02A2D03	D	02A2D04	B	02A2D05	B
02A3D01	A	02A3D02	C	02A3D03	D	02A3D04	B
02A3D05	B	02A4D01	A	02A4D02	C	02A4D03	D
02A4D04	B	02A4D05	B	02A5D01	A	02A5D02	C
02A5D03	D	02A5D04	B	02A5D05	B	02A6D01	A
02A6D02	C	02A6D03	D	02A6D04	B	02A6D05	B
02A7D01	A	02A7D02	C	02A7D03	D	02A7D04	B

02A7D05	B	**02A8D01**	A	**02A8D02**	C	**02A8D03**	D
02A8D04	B	**02A8D05**	B	**02ADC01**	E	**02ADC02**	G
02ADC03	F	**02ADC04**	G	**02B1D01**	A	**02B1D02**	C
02B1D03	D	**02B1D04**	B	**02B1D05**	B	**02B2D01**	A
02B2D02	C	**02B2D03**	D	**02B2D04**	B	**02B2D05**	B
02B3D01	A	**02B3D02**	C	**02B3D03**	D	**02B3D04**	B
02B4D01	A	**02B4D02**	C	**02B4D03**	D	**02B4D04**	B
02B5D01	A	**02B5D02**	C	**02B5D03**	D	**02B5D04**	B
02B5D05	B	**02B6D01**	A	**02B6D02**	C	**02B6D03**	D
02B6D04	B	**02B6D05**	B	**02BDC01**	E	**02BDC02**	G
02BDC03	F	**02D1D01**	A	**02D1D02**	C	**02D1D03**	D
02D1D04	B	**02D1D05**	B	**02D2D01**	A	**02D2D02**	C
02D2D03	D	**02D2D04**	B	**02D2D05**	B	**02D3D01**	A
02D3D02	C	**02D3D03**	D	**02D3D04**	B	**02D4D01**	A
02D4D02	C	**02D4D03**	D	**02D4D04**	B	**02D5D01**	A
02D5D02	C	**02D5D03**	D	**02D5D04**	B	**02D5D05**	B
02D6D01	A	**02D6D02**	C	**02D6D03**	D	**02D6D04**	B
02D6D05	B	**02DDC01**	E	**02DDC02**	G	**02DDC03**	F
02E1D01	A	**02E1D02**	C	**02E1D03**	D	**02E1D04**	B
02E2D01	A	**02E2D02**	C	**02E2D03**	D	**02E2D04**	B
02E2D05	B	**02E3D01**	A	**02E3D02**	C	**02E3D03**	D
02E3D04	B	**02E3D05**	B	**02E4D01**	A	**02E4D02**	C
02E4D03	D	**02E4D04**	B	**02EDC01**	E	**02EDC02**	G
02EDC03	F	**03A1D01**	A	**03A1D02**	C	**03A1D03**	D
03A1D04	B	**03A1D05**	B	**03A2D01**	A	**03A2D02**	C
03A2D03	D	**03A2D04**	B	**03A2D05**	B	**03A3D01**	A
03A3D02	C	**03A3D03**	D	**03A3D04**	B	**03A3D05**	B
03A4D01	A	**03A4D02**	C	**03A4D03**	D	**03A4D04**	B
03A4D05	B	**03A5D01**	A	**03A5D02**	C	**03A5D03**	D
03A5D04	B	**03A5D05**	B	**03A6D01**	A	**03A6D02**	C
03A6D03	D	**03A6D04**	B	**03A6D05**	B	**03A7D01**	A
03A7D02	C	**03A7D03**	D	**03A7D04**	B	**03A7D05**	B
03A8D01	A	**03A8D02**	C	**03A8D03**	D	**03A8D04**	B
03A8D05	B	**03ADC01**	E	**03ADC02**	G	**03ADC03**	F
03B1D01	A	**03B1D02**	C	**03B1D03**	D	**03B1D04**	B
03B1D05	B	**03B2D01**	A	**03B2D02**	C	**03B2D03**	D
03B2D04	B	**03B2D05**	B	**03B3D01**	A	**03B3D02**	C
03B3D03	D	**03B3D04**	B	**03B4D01**	A	**03B4D02**	C
03B4D03	D	**03B4D04**	B	**03B5D01**	A	**03B5D02**	C
03B5D03	D	**03B5D04**	B	**03B5D05**	B	**03B6D01**	A
03B6D02	C	**03B6D03**	D	**03B6D04**	B	**03B6D05**	B
03BDC01	E	**03BDC02**	G	**03BDC03**	F	**03D1D01**	A
03D1D02	C	**03D1D03**	D	**03D1D04**	B	**03D1D05**	B
03D2D01	A	**03D2D02**	C	**03D2D03**	D	**03D2D04**	B
03D2D05	B	**03D3D01**	A	**03D3D02**	C	**03D3D03**	D
03D3D04	B	**03D4D01**	A	**03D4D02**	C	**03D4D03**	D

03D4D04	B	**03D5D01**	A	**03D5D02**	C	**03D5D03**	D
03D5D04	B	**03D5D05**	B	**03D6D01**	A	**03D6D02**	C
03D6D03	D	**03D6D04**	B	**03D6D05**	B	**03DDC01**	E
03DDC02	G	**03DDC03**	F	**03E1D01**	A	**03E1D02**	C
03E1D03	D	**03E1D04**	B	**03E2D01**	A	**03E2D02**	C
03E2D03	D	**03E2D04**	B	**03E2D05**	B	**03E3D01**	A
03E3D02	C	**03E3D03**	D	**03E3D04**	B	**03E3D05**	B
03E4D01	A	**03E4D02**	C	**03E4D03**	D	**03E4D04**	B
03EDC01	E	**03EDC02**	G	**03EDC03**	F	**04A1D01**	A
04A1D02	C	**04A1D03**	D	**04A1D04**	B	**04A1D05**	B
04A2D01	A	**04A2D02**	C	**04A2D03**	D	**04A2D04**	B
04A2D05	B	**04A3D01**	A	**04A3D02**	C	**04A3D03**	D
04A3D04	B	**04A3D05**	B	**04A4D01**	A	**04A4D02**	C
04A4D03	D	**04A4D04**	B	**04A4D05**	B	**04A5D01**	A
04A5D02	C	**04A5D03**	D	**04A5D04**	B	**04A5D05**	B
04A6D01	A	**04A6D02**	C	**04A6D03**	D	**04A6D04**	B
04A6D05	B	**04A7D01**	A	**04A7D02**	C	**04A7D03**	D
04A7D04	B	**04A7D05**	B	**04A8D01**	A	**04A8D02**	C
04A8D03	D	**04A8D04**	B	**04A8D05**	B	**04ADC01**	E
04ADC02	G	**04ADC03**	F	**04B1D01**	A	**04B1D02**	C
04B1D03	D	**04B1D04**	B	**04B1D05**	B	**04B2D01**	A
04B2D02	C	**04B2D03**	D	**04B2D04**	B	**04B2D05**	B
04B3D01	A	**04B3D02**	C	**04B3D03**	D	**04B3D04**	B
04B4D01	A	**04B4D02**	C	**04B4D03**	D	**04B4D04**	B
04B5D01	A	**04B5D02**	C	**04B5D03**	D	**04B5D04**	B
04B5D05	B	**04B6D01**	A	**04B6D02**	C	**04B6D03**	D
04B6D04	B	**04B6D05**	B	**04BDC01**	E	**04BDC02**	G
04BDC03	F	**04D1D01**	A	**04D1D02**	C	**04D1D03**	D
04D1D04	B	**04D1D05**	B	**04D2D01**	A	**04D2D02**	C
04D2D03	D	**04D2D04**	B	**04D2D05**	B	**04D3D01**	A
04D3D02	C	**04D3D03**	D	**04D3D04**	B	**04D4D01**	A
04D4D02	C	**04D4D03**	D	**04D4D04**	B	**04D5D01**	A
04D5D02	C	**04D5D03**	D	**04D5D04**	B	**04D5D05**	B
04D6D01	A	**04D6D02**	C	**04D6D03**	D	**04D6D04**	B
04D6D05	B	**04DDC01**	E	**04DDC02**	G	**04DDC03**	F
04E1D01	A	**04E1D02**	C	**04E1D03**	D	**04E1D04**	B
04E2D01	A	**04E2D02**	C	**04E2D03**	D	**04E2D04**	B
04E2D05	B	**04E3D01**	A	**04E3D02**	C	**04E3D03**	D
04E3D04	B	**04E3D05**	B	**04E4D01**	A	**04E4D02**	C
04E4D03	D	**04E4D04**	B	**04EDC01**	E	**04EDC02**	G
04EDC03	F	**05A1D01**	A	**05A1D02**	C	**05A1D03**	D
05A1D04	B	**05A1D05**	B	**05A2D01**	A	**05A2D02**	C
05A2D03	D	**05A2D04**	B	**05A2D05**	B	**05A3D01**	A
05A3D02	C	**05A3D03**	D	**05A3D04**	B	**05A3D05**	B
05A4D01	A	**05A4D02**	C	**05A4D03**	D	**05A4D04**	B
05A4D05	B	**05A5D01**	A	**05A5D02**	C	**05A5D03**	D

05A5D04	B	**05A5D05**	B	**05A6D01**	A	**05A6D02**	C
05A6D03	D	**05A6D04**	B	**05A6D05**	B	**05A7D01**	A
05A7D02	C	**05A7D03**	D	**05A7D04**	B	**05A7D05**	B
05A8D01	A	**05A8D02**	C	**05A8D03**	D	**05A8D04**	B
05A8D05	B	**05ADC01**	E	**05ADC02**	G	**05ADC03**	F
05B1D01	A	**05B1D02**	C	**05B1D03**	D	**05B1D04**	B
05B1D05	B	**05B2D01**	A	**05B2D02**	C	**05B2D03**	D
05B2D04	B	**05B2D05**	B	**05B3D01**	A	**05B3D02**	C
05B3D03	D	**05B3D04**	B	**05B4D01**	A	**05B4D02**	C
05B4D03	D	**05B4D04**	B	**05B5D01**	A	**05B5D02**	C
05B5D03	D	**05B5D04**	B	**05B5D05**	B	**05B6D01**	A
05B6D02	C	**05B6D03**	D	**05B6D04**	B	**05B6D05**	B
05BDC01	E	**05BDC02**	G	**05BDC03**	F	**05D1D01**	A
05D1D02	C	**05D1D03**	D	**05D1D04**	B	**05D1D05**	B
05D2D01	A	**05D2D02**	C	**05D2D03**	D	**05D2D04**	B
05D2D05	B	**05D3D01**	A	**05D3D02**	C	**05D3D03**	D
05D3D04	B	**05D4D01**	A	**05D4D02**	C	**05D4D03**	D
05D4D04	B	**05D5D01**	A	**05D5D02**	C	**05D5D03**	D
05D5D04	B	**05D5D05**	B	**05D6D01**	A	**05D6D02**	C
05D6D03	D	**05D6D04**	B	**05D6D05**	B	**05DDC01**	E
05DDC02	G	**05DDC03**	F	**05ED01**	E	**05EDC01**	E
06A1D01	A	**06A1D02**	C	**06A1D03**	D	**06A1D04**	B
06A1D05	B	**06A2D01**	A	**06A2D02**	C	**06A2D03**	D
06A2D04	B	**06A2D05**	B	**06A3D01**	A	**06A3D02**	C
06A3D03	D	**06A3D04**	B	**06A3D05**	B	**06A4D01**	A
06A4D02	C	**06A4D03**	D	**06A4D04**	B	**06A4D05**	B
06A5D01	A	**06A5D02**	C	**06A5D03**	D	**06A5D04**	B
06A5D05	B	**06A6D01**	A	**06A6D02**	C	**06A6D03**	D
06A6D04	B	**06A6D05**	B	**06A7D01**	A	**06A7D02**	C
06A7D03	D	**06A7D04**	B	**06A7D05**	B	**06A8D01**	A
06A8D02	C	**06A8D03**	D	**06A8D04**	B	**06A8D05**	B
06ADC01	E	**06ADC02**	G	**06ADC03**	F	**06B1D01**	A
06B1D02	C	**06B1D03**	D	**06B1D04**	B	**06B1D05**	B
06B2D01	A	**06B2D02**	C	**06B2D03**	D	**06B2D04**	B
06B2D05	B	**06B3D01**	A	**06B3D02**	C	**06B3D03**	D
06B3D04	B	**06B4D01**	A	**06B4D02**	C	**06B4D03**	D
06B4D04	B	**06B5D01**	A	**06B5D02**	C	**06B5D03**	D
06B5D04	B	**06B5D05**	B	**06B6D01**	A	**06B6D02**	C
06B6D03	D	**06B6D04**	B	**06B6D05**	B	**06BDC01**	E
06BDC02	G	**06BDC03**	F	**06D1D01**	A	**06D1D02**	C
06D1D03	D	**06D1D04**	B	**06D1D05**	B	**06D2D01**	A
06D2D02	C	**06D2D03**	D	**06D2D04**	B	**06D2D05**	B
06D3D01	A	**06D3D02**	C	**06D3D03**	D	**06D3D04**	B
06D4D01	A	**06D4D02**	C	**06D4D03**	D	**06D4D04**	B
06D5D01	A	**06D5D02**	C	**06D5D03**	D	**06D5D04**	B
06D5D05	B	**06D6D01**	A	**06D6D02**	C	**06D6D03**	D

06D6D04	B	**06D6D05**	B	**06DDC01**	E	**06DDC02**	G
06DDC03	F	**07A1D01**	A	**07A1D02**	C	**07A1D03**	D
07A1D04	B	**07A1D05**	B	**07A2D01**	A	**07A2D02**	C
07A2D03	D	**07A2D04**	B	**07A2D05**	B	**07A3D01**	A
07A3D02	C	**07A3D03**	D	**07A3D04**	B	**07A3D05**	B
07A4D01	A	**07A4D02**	C	**07A4D03**	D	**07A4D04**	B
07A4D05	B	**07A5D01**	A	**07A5D02**	C	**07A5D03**	D
07A5D04	B	**07A5D05**	B	**07A6D01**	A	**07A6D02**	C
07A6D03	D	**07A6D04**	B	**07A6D05**	B	**07A7D01**	A
07A7D02	C	**07A7D03**	D	**07A7D04**	B	**07A7D05**	B
07A8D01	A	**07A8D02**	C	**07A8D03**	D	**07A8D04**	B
07A8D05	B	**07ADC01**	E	**07ADC02**	G	**07ADC03**	F
07B1D01	A	**07B1D02**	C	**07B1D03**	D	**07B1D04**	B
07B1D05	B	**07B2D01**	A	**07B2D02**	C	**07B2D03**	D
07B2D04	B	**07B2D05**	B	**07BDC01**	E	**07BDC02**	G
07BDC03	F	**07D1D01**	A	**07D1D02**	C	**07D1D03**	D
07D1D04	B	**07D1D05**	B	**07D2D01**	A	**07D2D02**	C
07D2D03	D	**07D2D04**	B	**07D2D05**	B	**07D3D01**	A
07D3D02	C	**07D3D03**	D	**07D3D04**	B	**07D4D01**	A
07D4D02	C	**07D4D03**	D	**07D4D04**	B	**07D5D01**	A
07D5D02	C	**07D5D03**	D	**07D5D04**	B	**07D5D05**	B
07D6D01	A	**07D6D02**	C	**07D6D03**	D	**07D6D04**	B
07D6D05	B	**07DDC01**	E	**07DDC02**	G	**07DDC03**	F
08A1D01	A	**08A1D02**	C	**08A1D03**	D	**08A1D04**	B
08A1D05	B	**08A2D01**	A	**08A2D02**	C	**08A2D03**	D
08A2D04	B	**08A2D05**	B	**08A3D01**	A	**08A3D02**	C
08A3D03	D	**08A3D04**	B	**08A3D05**	B	**08A4D01**	A
08A4D02	C	**08A4D03**	D	**08A4D04**	B	**08A4D05**	B
08A5D01	A	**08A5D02**	C	**08A5D03**	D	**08A5D04**	B
08A5D05	B	**08A6D01**	A	**08A6D02**	C	**08A6D03**	D
08A6D04	B	**08A6D05**	B	**08A7D01**	A	**08A7D02**	C
08A7D03	D	**08A7D04**	B	**08A7D05**	B	**08A8D01**	A
08A8D02	C	**08A8D03**	D	**08A8D04**	B	**08A8D05**	B
08ADC01	E	**08ADC02**	G	**08ADC03**	F	**09A1D01**	A
09A1D02	C	**09A1D03**	D	**09A1D04**	B	**09A1D05**	B
09A2D01	A	**09A2D02**	C	**09A2D03**	D	**09A2D04**	B
09A2D05	B	**09A3D01**	A	**09A3D02**	C	**09A3D03**	D
09A3D04	B	**09A4D01**	A	**09A4D02**	C	**09A4D03**	D
09A4D04	B	**09A4D05**	B	**09A5D01**	A	**09A5D02**	C
09A5D03	D	**09A5D04**	B	**09A5D05**	B	**09A6D01**	A
09A6D02	C	**09A6D03**	D	**09A6D04**	B	**09A7D01**	A
09A7D02	C	**09A7D03**	D	**09A7D04**	B	**09A8D01**	A
09A8D02	C	**09A8D03**	D	**09A8D04**	B	**09A8D05**	B
09ADC01	E	**09ADC02**	G	**09ADC03**	F	**CH1D03**	B
CH1D04	C	**CH1D05**	B	**CH1D06**	D	**CH1D07**	B
CH1D08	C	**CH1D09**	B	**CH1D10**	B	**CH1D11**	D

Hardware Schedule

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CH2D03	B	**CH2D04**	C	**CH2D05**	B	**CH2D06**	D
CH2D07	B	**CH2D08**	C	**CH2D09**	B	**CH2D10**	B
CH2D11	D	**CH3D03**	B	**CH3D04**	C	**CH3D05**	B
CH3D06	D	**CH3D07**	B	**CH3D08**	C	**CH3D09**	B
CH3D10	B	**CH3D11**	D	**CH4D03**	B	**CH4D04**	C
CH4D05	B	**CH4D06**	D	**CH4D07**	B	**CH4D08**	C
CH4D09	B	**CH4D10**	B	**CH4D11**	D	**CH5D03**	B
CH5D04	C	**CH5D05**	B	**CH5D06**	D	**CH5D07**	B
CH5D08	C	**CH5D09**	B	**CH5D10**	B	**CH5D11**	D
CH6D03	B	**CH6D04**	C	**CH6D05**	B	**CH6D06**	D
CH6D07	B	**CH6D08**	C	**CH6D09**	B	**CH6D10**	B
CH6D11	D	**F01F1D01**	A	**F01F1D02**	C	**F01F1D03**	D
F01F1D04	B	**F01F2D01**	A	**F01F2D02**	C	**F01F2D03**	D
F01F2D04	B	**F02 DC01**	E	**F02 DC02**	G	**F02F1D01**	A
F02F1D02	C	**F02F1D03**	D	**F02F1D04**	B	**F02F2D01**	A
F02F2D02	C	**F02F2D03**	D	**F02F2D04**	B	**FTH1D02**	B
FTH1D03	C	**FTH1D04**	B	**FTH1D05**	D	**FTH1D06**	C
FTH1D07	B	**FTH1D08**	B	**FTH1D09**	D	**FTH1D10**	D
FTH2D02	B	**FTH2D03**	C	**FTH2D04**	B	**FTH2D05**	D
FTH2D06	C	**FTH2D07**	B	**FTH2D08**	B	**FTH2D09**	D
FTH2D10	D	**FTH3D02**	B	**FTH3D03**	C	**FTH3D04**	B
FTH3D05	D	**FTH3D06**	C	**FTH3D07**	B	**FTH3D08**	B
FTH3D09	D	**FTH3D11**	B	**FTH4 D02**	B	**FTH4D03**	C
FTH4D04	B	**FTH4D05**	D	**FTH4D06**	C	**FTH4D07**	B
FTH4D08	B	**FTH4D09**	D	**FTH4D11**	B	**FTH5 D02**	B
FTH5D03	C	**FTH5D04**	B	**FTH5D05**	D	**FTH5D06**	C
FTH5D07	B	**FTH5D08**	B	**FTH5D09**	D	**FTH5D10**	D
FTH6 D02	B	**FTH6D03**	C	**FTH6D04**	B	**FTH6D05**	D
FTH6D06	C	**FTH6D07**	B	**FTH6D08**	B	**FTH6D09**	D
FTH6D10	D						

Hardware Schedule

Re: Bletchley View - REV I

Set Summary

Set Ref.		Door Qty
A	Flat Entrance Door Single - 30 Minute Fire Rated - PAS24 Doorsets - Multi point lock included in doorset quote	172
B	Bedroom/Living Room/Store Door	358
C	Bathroom/Ensuite Door	196
D	Utility Cupboard Door Double	200
E	Communal/Roof Pavillion/Entrance Lobby/Stair Door Single - Fire Rated - Any hold open devices or access control by others	36
F	Riser Door Single - Fire Rated	27
G	Riser/Cleaners Store Door Leaf and a Half/Double - Fire Rated	31
H	Maintenance Door Single - Fire Rated	8
I	Community WC Door Single - Non Fire Rated	1
	Total Doors:	**1029**

Hardware Schedule

Re: Bletchley View - REV I

Product Summary

Product Code	Description	Qty	Unit
ASP31008RSSS	SSS 76mm radius heavy duty tubular latch	558	Each
ASP38601R	SS 60mm radius euro sashlock c/w spindle grip	8	Each
ASP38602R	SSS 60mm radius euro mortice deadlock	58	Each
ASP38605R	SSS 60mm radius bath lock with spindle grip	197	Each
ASP49002ASNP	SNP adj pwr 2-4 b/check door closer	208	Each
ASP37701HSSNP	SNP 70mm 3 star approved euro cyl and turn	172	Each
ASP35453KASCP	SCP 45mm 5 pin euro single cylinder to pass	58	Each
ASP35701KASCP	SCP 70mm 5 pin euro cylinder & turn to pass	8	Each
ASP12193SSS	SSS 19mm safety lever on slim sprung rose	9	Set
ASP18196SSS	SSS 600x19mm pull handle with b/t fixing	36	Each
ASP66581SSS	SSS 650x80x1.5mm push plate radius corners	36	Each
ASPCP001SCP	SCP Lever handle on rose	926	Each
ZZ19275DS	SSS mitred robe hook	198	Each
ZZ19276DS	SSS mitred toilet roll holder	196	Each
ASP19014SSS	SSS 50x6mm europrofile cylinder escutcheon	16	Each
ASP19017SSS	SSS 50x6mm disabled thumbturn and release	1	Set
ASPCP002SCP	SCP Bathroom turn & release	196	Each
ASPCP003SCP	SCP Europrofile cylinder escutcheon	344	Each
ASP60014SSS	SSS euro cylinder pull	58	Each
ASP60031SNP	SNP floor mounted door stop	763	Each
ASP60405SSS	SSS 75mm dia Fire Door Keep Locked sign	97	Each
ASP60406SSS	SSS 75mm dia Fire Door Keep Shut sign	72	Each
ASP60514HDSCP	SCP 202mm surface slidebolt	262	Each
ASP60968FSCP	SCP 200 degree door viewer with cover FD60	172	Each
ASP69001BSSS	430SSS 900x150x1.2mm kick plate (nom size)	82	Each
JWNUM100	SSS 100mm numeral	516	Each
	Total Items:	**5247**	

Hardware Schedule

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Notes: